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Length. Normally, chance of publication is in inverse proportion to length. More than 4500 words (5 pages of text) tends to lose most of our readers. Blockbusters can sometimes be serialised.

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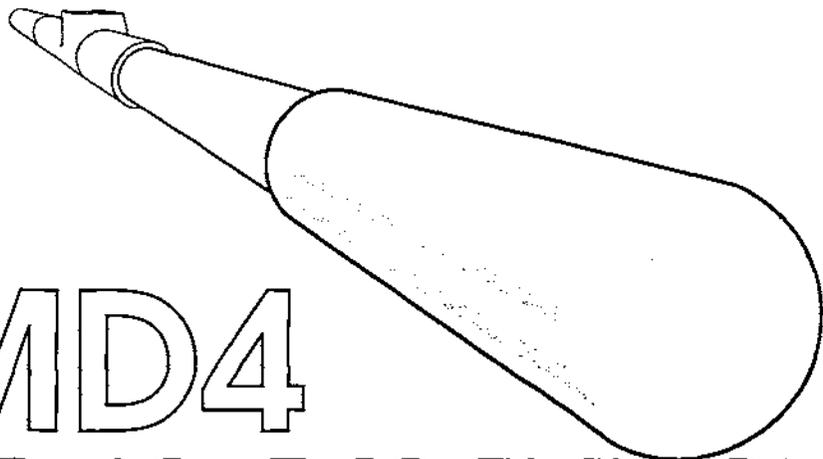
Contributions should reach the Editor by:

8 February for the April 1992 issue

Early June for the August 1992 issue

Early October for the December 1992 issue

Submissions before the deadline will be particularly welcome.



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THE ROYAL ENGINEERS JOURNAL

Published in April, August and December by the Institution of Royal Engineers, Chatham, Kent ME4 4UG
Telephone Medway (0634) 842669 or Chatham Military Ext 2299.

Printed by Staples Printers Rochester Limited, Love Lane, Rochester, Kent

Volume 105

DECEMBER 1991

No 3

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Editorial

THE broad outlines of *Options for Change* were not known in time for the August *Journal*. It has now been announced that the following regiments and squadrons will disband:

23 Engineer Regiment
26 Engineer Regiment
40 Army Engineer Support Group
The Queen's Gurkha Engineers will reduce
to one squadron after 1997
10 Field Squadron
38 (Berlin) Field Squadron
52 Field Squadron (Construction)
Junior Leaders Regiment RE

This is a cut of some 34 per cent in the strength of the regular element of the Corps. We should know the effects on the TA by Christmas. Before leaving *Options for Change* I would commend to members the article by General Sir Hugh Beach — *Defence in a Security Vacuum*, written in his usual lucid and persuasive style.

As I read the promised articles on the Gulf War and its aftermath from regiments and squadrons, I was forcibly reminded of the adaptability of our officers and soldiers and the versatility of our squadrons. The myriad of tasks undertaken has been truly breath taking — from adapting outdated equipment for the war, through helping refugees in Northern Iraq, from water supply in Cyprus to bomb disposal in Kuwait. What good

value the Defence Services get from the Corps! One other thing stands out in these articles — the resourcefulness and independence of our junior NCOs and sappers. How often I read that the work of LCpl X or Spr Y saved the day and without him the project would not have been completed. I trust that the new look Corps will attract the same calibre of young men and women that it has in the past.

As to the rest of the *Journal* I was struck by the contrast between Brig Constant's Desert War of 1941 and the Gulf War of 1991 and of Brigadier Moore's war torn Yugoslavia of 1943 and today's war torn Yugoslavia of 1991.

Finally I read with great interest the article by the Reverend Pat Haldane-Stevenson, one of our very welcome group of Associate Members, on *Was Venus the Star of Bethlehem*. I suspect that a number of you will disagree with some of his assertions, and no doubt you will write to let me know about it. As I finished the article I was reminded of some lines from John Betjeman's poem "Christmas":

And is it true? and is it true,
This most tremendous tale of all,
Seen in a stained-glass window's hue,
A Baby in an ox's stall?
The Maker of the stars and sea
Become a Child on earth for me?

Of course it's true! A Happy Christmas to you all.

Defence in a Security Vacuum

SIR HUGH BEACH GBE KCB MC DL DCL MA(H) MSc HonFCIBSE



Sir Hugh Beach was born in London on 20 May 1923. He was educated at Stone House, Broadstairs, and Winchester College. He joined the Royal Engineers in 1941, was commissioned in 1942, went to France in June 1944 and was wounded at the La Bassée Canal in August. In 1945 he served in India, Ceylon, Singapore and Java. In 1946 he returned to Cambridge to read Mechanical Sciences (First Class in Parts I and 2 of the Tripos). After a spell on the staff of the School of Military Engineering, Chatham, teaching mathematics, he attended the Staff College Camberley. Between 1954 and 1967 he held a variety of staff and regimental appointments in London, Germany, Kenya, Cambridge and Camberley. In 1968 he was appointed to command 12 Infantry Brigade in Osnabrück. In 1970 he took up a one year Defence Fellowship at Edinburgh University Department of Politics. In 1971 he became Director of Staff Duties at the Ministry of Defence. In 1974 he took command of the Staff College, Camberley. In January 1976 he was appointed Deputy Commander-in-Chief United Kingdom Land Forces. In

1977 he became Master General of the Ordnance. He was Chief Royal Engineer 1983-87. After retirement from the Army Sir Hugh acted as Chairman of two MOD working parties... one on Censorship in War, the other in Education in the Army. From 1981 to 1986 he was Warden of St. George's House, Windsor Castle a Conference Centre owned by the Dean and Canons, much concerned with clergy training). From 1986 to 1989 he was Director, the Council for Arms Control in London. He was also a member of the Security Commission.

Sir Hugh is an Honorary Fellow of Peterhouse, Cambridge and of the Chartered Institute of Building Services Engineers. He received a honorary doctorate of Civil Laws from the University of Kent in July 1990. He spends much time writing, lecturing, and travelling. His recreation is sailing.

ON THE EDGE OF CURBS

DESIGNERS of defence programmes in the countries of the West are confronting a strange and quite unaccustomed conceptual vacuum. In the first place there is a growing perception, at least within the first and second worlds, that war itself is simply obsolete. One of the most lucid expressions of this view came from the pen of Mikhail Gorbachev:

"The fundamental principle of the new political outlook is very simple: nuclear war cannot be a means of achieving political, economic, ideological or any other goals. And military technology has developed to such an extent that even a non-nuclear war would now be comparable to a nuclear war in its destructive effect. This conclusion is truly revolutionary. It means discarding a way of thinking and acting that has formed over centuries, even millennia. It is the political function of war that has always been the justification for war, a 'rational'

explanation. But now Clausewitz's dictum that war is the continuation of policy only by different means has grown hopelessly out of date. It belongs to the libraries. In today's world such war is senseless; it is irrational. There would be neither winners nor losers. World civilization would inevitably perish. It would be suicide rather than war in any conventional sense of the word." [1]

The final sentences suggest that Gorbachev had in mind a major conflagration between West and East, but the Gulf War proved his point at a much more local level. The annexation of Kuwait was not a rational act on Saddam's part and the nemesis it brought upon his country — "bombed back to the stone age" in the jargon — is not far different from that predicted by Gorbachev. Obviously nations have to absorb this lesson for themselves. For their part the leaders of the then Warsaw Pact were quick to sign up on the declaration:

"Never and under no circumstances shall we begin hostilities against any state or any alliance of states." [2]

thus mirroring the long-standing position of National Atlantic Treaty Organisation that it would on no account use any weapon first. If both were to be believed then logically no war could ever have started between them, although force planners on both sides always stopped short of drawing that conclusion.

Nevertheless it was acceptance on the part of the Soviet Union that the West indeed posed no military threat to them which paved the way for reversion of the Brezhnev doctrine, thus setting free the countries of Central and Eastern Europe, which in turn led to the ending of the cold war and the demise of the Warsaw Pact. In the words of Eduard Shevardnadze:

"The Soviet Union would prefer to be ringed by free, prosperous, democratic states open to East and West rather than by an artificial *cordon sanitaire* of unstable regimes kept in power by foreign bayonets." [3]

And this in turn has led to the quite novel situation in Europe where countries not only reject the use of armed force to settle disputes between states but can search their hearts and declare, as a recent authoritative statement on the defence posture of Czechoslovakia stated bluntly:

"In the present situation the Czech and Slovak Federal Republic (CSFR) has no enemy." [4] [my underlining]

This meant, the author said, that his country had been plunged into a "security vacuum", and he made that sound a perilous condition. But it need not be. The newly democratising nations of Europe now simply find themselves in much the same position as the previous "neutral and non-aligned". However to say that one has no enemy is not to say that one recognizes no threat; still less is it a guarantee of low defence spending as the examples of Sweden and Switzerland have always shown.

But the new situation goes far beyond a general outbreak of neutrality. Much the most significant feature of the 1990s is the increasing spread of 'Helsinki' principles — not only in the sense of structures and mechanisms for conflict avoidance and resolution (though these will become important enough) but crucially in the growth of those

features which inherently make for greater predictability and stability between nation states; democracy, regard for human rights, and prosperity shared and spread through the development of market economies. Given these features nationalism no longer defines itself in terms of rule over other nations.

The crucial missing link, at present causing great perplexity, lies in the definition of the nation state itself. Under the Helsinki agreement national frontiers are 'inviolable'; which is not to say that they cannot be changed, but that they must not be changed by force. The formulation, essential as far as it goes, says nothing about the internal borders between republics of a federal state, nor about the protection of ethnic minorities within republics. These questions are now most pressing. It is at this level that bloodletting is in progress or prospect; most conspicuously in Yugoslavia and the ex-Soviet Union. And it is at this level that the principles involved are least clear. On the one hand there is everything to be gained by not polarising a domestic conflict (as Vietnam and the Lebanon became polarized to their immense cost) through the involvement of outsiders pursuing their own ideologically motivated power struggles. 'Non-intervention' in this sense is vital. And there are other good reasons for non-involvement: the fear of making matters worse and of getting sucked into an indefinite and unforeseeable commitment. On the other hand outside powers are likely to be implicated, often inadvertently, through such linkages as the trade in weapons, and the need to cope with floods of refugees. The instance of Iraq, exceptional though it was, showed that the international community may feel impelled to intervene purely for pity's sake to stop the killing. The involvement of the European Economic Community (EEC) and other Conference on Security and Co-operation in Europe (CSCE) nations in peace-making in Yugoslavia is a crucial experiment in the application of Helsinki principles at the inter-republican level. But work of this kind does not call for large numbers of troops from the peace-making nations: training, restraint and political skills are at a premium rather than high force levels.

Thus the defence policies and armament programmes of nations are becoming increasingly interdependent whether they like it or not. One symptom of this is the increasing spread and complexity of supranational organizations: witness long-running discussions over the respective roles of older organizations (the United Nations, Western

European Union, NATO, European Commission, Independent European Programme Group, Economic Commission for Europe, European Free Trade Association and the Council of Europe); compared with others in a more vigorous period of growth (EPC, CSCE, Pentagone, Visegrad), and yet others still emerging (the new Russian-led confederation). Other overt linkages are found in proliferation of arms control negotiations, the trade in weaponry and efforts to control it, and more nebulous indications such as the judgement that intervention operations will be attempted only with the assistance of allies. But underneath all this lies something more systemic and a scientific analogy may help.

A Boolean network is one in which each element is regulated by others which serve as inputs. Biology is replete with such systems: the thousands of genes regulating each other within a cell being a typical example. Depending on the degree of interconnectivity and the rules of interaction (switching rules) such networks can exhibit a variety of typical behaviour ranging from highly chaotic to comparatively stable. Stable networks tend to be those in which interconnectivity is limited or the switching rules are such that a bias exists towards one particular outcome. Under certain circumstances such networks can be driven to the borderline of chaos, at which point they develop a strange resilience: damage caused by individual malfunctions is confined to small cascading avalanches, and mutation causes only modest alterations in dynamics. Such systems accordingly seem to have the optimal capacity for evolution. The relevance of these (purely mathematical) concepts to biology is an obvious and apparently fruitful field of research.^[5] They may also have relevance to the seeming free-for-all of international relations. If so, what is to be sought is a condition in which major frozen elements of the network (eg the alliance systems of the 'cold war') begin to melt. Intercommunication becomes possible according to an inverse law of distance. Such networks have the flexibility to adapt rapidly and successfully through the accumulation of useful variations or, to change the metaphor, can coordinate the maximum of complexity. This is perhaps a long-winded way of saying that in the new conditions of fluidity, coupled with a high degree of interdependence in international relations, stability may be found on the brink of chaos and may indeed provide a more resilient ambience within which structures can readily adapt

and evolve. If so the secret is not to cast too wide a net and to make one's own responses as uniform as possible across a wide range of provocations.

CLASSICAL FORCE PLANNING

The classical sequence of force planning is to begin by identifying the "threat", then to devise concepts of operations to defeat that threat; thirdly to work out what forces and what weapons systems are needed to implement those concepts and finally to go ahead and provide them. It is rare in the history of any nation that all four elements in this process are fully congruent one with another. Enlightenment comes from examining the discrepancies — as those familiar with parliamentary investigations of these matters can testify to their cost.

The recent evolution of British defence policy provides an interesting example. Not for the past 40 years has there been a British policy for the defence of Great Britain; rather the British have deliberately subordinated their forces and (to a lesser degree), their defence programmes to the authorities of NATO. Thus NATO has been predominant in delineating the threat, devising the strategic policy (forward defence, flexible response), setting up the command structure and writing the detailed plans for battle. All this has influenced, in turn, the forces to be provided (in part controlled by treaty, in part modified by the Annual Review process), and has affected the amount of cash to be provided. Thus, for example, the British government acceded to the NATO resolution in 1977 to increase national defence budgets by three per cent (in real terms) annually, and until 1985 more or less stuck to this undertaking. After that date, however, allocations to defence were allowed to decline at around two per cent a year (in real terms). As a result during the ensuing five years, although there had been no substantial reassessment of the threat and certainly no reduction in the order of battle, a yawning gap opened up between what was ostensibly planned and what could be paid for. It was widely remarked that in terms of manning, training and logistic support the British forces in Germany had been "hollowed out" to the point where they could no longer meet their commitment efficiently in the short period of warning assumed to be available. This shortcoming was driven home embarrassingly by the extraordinary degree of reinforcement and cross-posting needed for the Gulf campaign: to put one division into the field at full strength led to the grounding of all the remainder of the British Army of the Rhine.

By this time, however, the "threat" against which NATO strategy had been devised and for which the size and shape of the British contribution was calibrated, had magically disappeared. The far-sighted aims set out for NATO in the Harmel Report of 1967: "effective *détente* with the East", "an end to the division of Germany", "balanced force reductions" and "a just and stable order in Europe" were already by the late autumn of 1990 *faits accomplis* at least in the sense that treaties had been signed which, once they had been ratified and implemented, would surely bring them to pass. By that time also a new British defence programme had been announced involving a sharp reduction (20 per cent) in the overall strength of the armed forces and a halving of those stationed on the mainland of Europe. Defence budgetary provision was planned to decline no more rapidly than the two per cent yearly (in real terms) of the previous five years. This decision gave the lie both to expectations of a "defence dividend" (which became effectively invisible) and to the allegation that reductions were in some improper sense "treasury driven", since the rate of decline was exactly what had been imposed at the height of Mrs Thatcher's post Falkland predominance and the Lawson boom.

The point of these reforms was to make it possible at last to close the gap between force levels and the resources needed to implement them. In particular it was intended to ensure, for the first time in decades, that units would be fully manned, have the opportunity to train properly and to be equipped with suitable material in appropriate quantity. As the House of Commons Defence Committee (HCDC) has recently commented "a fully Challenger-equipped Royal Armoured Corps, mechanized and armoured infantry battalions equipped with most modern Armoured Personnel Carriers and artillery regiments equipped with AS 90 howitzers and Multiple Launch Rocket System would constitute a strikingly well-equipped army". But the Committee went on to argue that this was being achieved at the cost of "a yawning gap between shared perceptions of what has changed, and the role of British armed forces in the new order".[6] In other words a discontinuity had supposedly emerged in the area of threat analysis and the resulting concept of operations. These are matters which in the past have been determined at alliance rather than national level.

There has been much discussion of the need to develop a more coherent European identity in security and defence matters; of the respective

roles of the Inter-Governmental Conference of the EC, the WEU and the CSCE in the area of security policy. But true to the scientific principles discussed above, the British Government has maintained close transatlantic links and a strong line of continuity: "NATO" it says "will remain the essential forum for agreeing policies on the security and defence commitments of its members".[7] Consequently discussion of threat and concepts still lies primarily within the NATO arena.

Such explanation of NATO policy as has been offered is both clear and plausible.

"The Soviet Union remains an unstable military superpower, whose capabilities need to be counter balanced if stability is to be preserved in Europe. These capabilities still represent the most serious, if not the most immediate, threat to Western security. Instability in Eastern Europe or elsewhere could give rise to crisis which could spill over into NATO countries and jeopardise European peace. Events outside Europe, including the proliferation of sophisticated and destructive weaponry, could threaten Alliance territory and security."[8]

In a month (August 1991) which has seen the Moscow *putsch*, the war in Croatia, and the final unmasking of Saddam's supergun it is hard to quarrel with this analysis, nor with the deduction that NATO needs to adopt a broad and flexible strategy; with forces designed to deter, to respond in timely fashion and to mount an effective defence if any attack should happen.

All this is predicated on the ex-Soviet Union honouring its Treaty commitments — albeit not yet ratified — to withdraw and to reduce its forces. Few now doubt that this will happen, regardless of the outcome of the epic struggles still in progress. There have been suggestions from the new leadership that withdrawals might be speeded up and reductions become even more far-reaching; but one cannot be sure. So it is fair to ask what exactly is meant by "counterbalancing" Soviet capabilities. The figures provided show that under the CFE treaty Soviet residual strengths of Treaty-limited equipments in Europe would amount to about one third of all such equipment in the hands of signatories. By contrast German and American holdings would each amount to ten per cent or less. The countries of Eastern Europe cannot feel wholly comfortable with this imbalance. They recognize that at this stage NATO can offer neither membership nor a security guarantee. It was some consolation that NATO foreign ministers affirmed in Copenhagen in June 1991 that the consolidation

and preservation of the new democracies of Eastern Europe was nevertheless of "direct and material concern" to the alliance. But it is far from clear what force levels (if any) might be appropriate to give substance and backing to this concern.

Against this broadly sketched assessment of threat the new NATO force structure is more logical than the HCDC critique allows. Forces are to be re-organised into three echelons: reaction forces, main defence and augmentation. Reaction forces are themselves sub-divided. The immediate reaction force (IRF) is nothing new, being the existing Allied Command Europe (ACE) mobile force brigade-size multinational formation able to deploy anywhere within the NATO area in 72 hours to show the flag. The rapid reaction force (RRF) is completely novel. In addition to air and sea components it will consist of a rapid reaction corps (RRC) about 100,000 strong under a Corps Headquarters commanded by the British. It will include a strong British armoured division stationed in Germany; an air-mobile division composed of German, Dutch, Belgian and British air-mobile brigades stationed in their own countries; a further more lightly armoured and mobile British division in England, including a parachute brigade and with a commando brigade on call; and a fourth division based in the Southern Region, probably led by Italy with contributions from Greece and Turkey. The Americans have offered the equivalent of a US Army heavy division based in the USA. The main defensive forces will consist of what is left in Germany; six corps in all. Two will be under German command, one with a US division; one under Belgian command with a pending offer of a US brigade; one under US command with a German division; one under Dutch command and one joint German-Danish corps. There will be a seventh German national corps in Eastern Germany not part of NATO. In Germany the NATO-assigned field army and the national territorial commands are to be merged into a unitary structure. The French have given notice of withdrawing their forces stationed in Germany completely, saving only their contribution to the existing non-NATO Franco-German brigade, which is of little consequence. Augmentation forces (the third principal category) will be largely drawn from the United States.[9]

The HCDC have asked for clarification of the principal role and function of the RRC, and it is true that official explanations tell little more than is implicit in that force's name and make-up. It is to

provide an early military response to a crisis and contribute to defence where necessary. It will afford a range of capabilities, elements or all of which could be deployed as appropriate in the Allied Command Europe area. And it could be separately tasked, in part or in whole, under the aegis of WEU. In this case it could form part of a European Reaction Force (ERF), directed towards roles complementary to those of NATO, not least in the defence of international security outside the NATO area building on the Gulf experience.[10] Even by official standards this is not particularly informative.

The Reaction Force clearly owes more to opportunism than to the processes of classical force planning. Its building bricks are pre-existent. There is a British Corps Headquarters in Germany, which will have only one British division to command, looking for a role. The strong armoured division had been chosen by the British as early as July 1990 as their future contribution to stationed forces. Until the Gulf no-one had remotely imagined that this could play an important part outside the Central front; now we know better. There has for 20 years been a British strategic reserve division in the South of England. There have been trials in NATO for some years of an experimental multinational airmobile division. The MEU is longing to plan something. Only the composite division from the Southern Region appears in any way novel — and its conception remains tentative. Nevertheless these pieces fit together well. Even if given no clearer steer it would not be difficult for the staffs to devise suitable contingency plans: for the flanks of NATO, North and South; for Eastern Europe, which is not in itself a NATO commitment (save in the unlikely event that Poland or Hungary were to attack Germany, or Yugoslavia Italy); and the Middle East, where lightning invariably strikes twice. In fact it is possible to stand the HCDC argument on its head and say that the Reaction Force concept earns high marks for doing what it is always wise to do but treasuries abominate and seldom countenance: that is deliberately planning for the unforeseen.

Much more problematical is the future of the main defensive forces. These are clearly designed to give substance to well-tried principles: the continuing validity of collective defence, the crucial role of the North American presence, the value of an integrated command structure. All this is sensible enough, but leaves many unanswered questions. A *quels azimuts?* In which direction should these forces face now that the ability to defend against a massive

Russian offensive is "no longer the main focus of our concern?"[11] The answer is far from obvious. Much emphasis is placed upon the principle of multi-nationality; that is to say deliberately mixing formations at a level lower than is dictated by availability. (If a country contributes only one division then that must form part of a multinational corps or be left swinging). An example is the proposed switch whereby one German corps contains an American division and *vice versa*. This is held to be militarily useful in promoting greater interoperability, and politically valuable because it may make a continued foreign presence more acceptable to the public in the host country. But it is improbable that this reorganization will persuade, for example, the British to adopt a NATO standard tank gun when they have just decided to do exactly the opposite. And why should an American unit become any less objectionable to locals (presumably on grounds of noise and damage and competition for young females) by being subordinated to a German rather than a US Corps headquarters? The arguments for multinational corps are absurd. But a much more important question mark hangs over the issue of cross-stationing. It has been suggested that objections to stationed forces could be mitigated by basing, for example, German aircraft and ships in the UK, thus sharing the burden of action as host nation. Again the reasoning is far fetched and not

much more has been heard. But a more important question still is the most fundamental. Given that Germany, once it has shaken down in its new form, will be one of the wealthiest, most populous, stable and least territorially threatened countries on earth, why should any foreign troops be stationed there at all? Is there no more durable way of preserving collective defence, an integrated structure and the guarantee of American commitment? It would make sense for countries to build some provision into their forward planning for the repatriation of all stationed forces.

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- 1 Perestroika, Collins, 1987, pp 140-1 [Edited].
- 2 On the military doctrine of the Warsaw Pact Countries Berlin, 29 May 1987.
- 3 The Times 9 March 1990.
- 4 Prospects for the defence posture of the CSFR, Stanislav Chromec, MILTECH Issue 7, 1991, p 97.
- 5 Antichaos and adaptation, Stuart A Kauffman, Scientific American, August 1991, pp 64 et seq.
- 6 Jane's Defence Weekly 24 August 1991, p 300.
- 7 Statement on the Defence Estimates Cmnd 1559-1 1991, p 29.
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1941 Draft RGGXZ-K

LIEUT COLONEL D ST J EDWARDS

"FROM Hell, Hull and Halifax Good Lord deliver us!"

Nevertheless to RE Depot, Halifax I went in late November 1941, awaiting posting. Almost at once tropical kit was issued and Draft RGGXZ-K of some forty jacks of all trades including three officers was born. 39 were of no distinction at all but in command was Captain Brett Cloutman VC MC KC who inspected us benignly over half-moon gold spectacles and told us in a very quiet voice that when we got wherever, whenever, we would be the most efficient draft ever to grace that destination. We believed him.

Before he could start work on us we entrained in ancient non-corridor rolling stock and set off in a Southerly direction. After some nine hours of supreme discomfort, broken by several stops for food and relief, we pulled into the outskirts of what I recognized as Southampton. The place smelt of smoke. The train stopped for about half an hour and then reversed. Ten hours later we ejected on to a quay in Liverpool beside the *SS Laconia*.

As we staggered out of the train, more dead than alive, a very loud rude voice got to work on us. Our commander silenced that with a few choice words and we embarked.

The *Laconia* was a small and rather old Cunarder designed for the North Atlantic trade. Capacity some 280 passengers and considerable cargo. Into her were stuffed some 250 officers and 1800 other ranks of all services. Before sailing we did our first boat drill discovering that this was best done in two details. It really was not safe to muster everyone on deck at the same time. We then sailed for an unknown destination.

This turned out to be the Clyde where we stayed for a couple of days finally sailing into the unknown on 3 December 1941.

It was a huge convoy and slow. Early days were very rough and it was impossible to train or even to do boat drill. We still did not know our final destination but, once cured of seasickness, we got down to training with a will.

Time passed and one night we saw a glow on the horizon which we identified as Miami. We then turned East and the *Laconia* broke down with some vital gearing stripped.

The convoy sailed on and we were alone on a calm ocean. All suitable tradesmen were mustered and offered to the ship's engine room. We did boat drill with serious enthusiasm. Some showed reluctance

to venture to the lower decks. After two days of apprehension we got moving again reaching Freetown, still unescorted, on Christmas Eve where we found the convoy waiting for us.

We were instantly surrounded by canoes whose occupants offered improbable and improper wares. The most common cry was "Jig-a-jig my sister five bob!" Our crew, shocked, drove them off with fire hoses.

The ship, grossly overcrowded and not designed for the tropics, was like a furnace. To make matters worse we were not allowed on deck after dusk because of the risk of mosquito borne diseases.

Once saving grace was that the ship was not dry; that horror came as an American blight after Pearl Harbour. It was Christmas Eve and did we celebrate! Disaster struck. At midnight ship time exactly an officer collapsed with a cry of extreme pain. A perforated gastric ulcer requiring immediate surgical treatment was diagnosed. All surgeons on board had been celebrating and none felt immediately equal to the emergency.

A get-sober contest then started amongst the doctors. I don't know what was finally done to the sufferer but he was ultimately put ashore and left there.

We then progressed round the Cape and then the troops suddenly began to buy up every packet of biscuits they could.

Investigation revealed that the biscuits on sale had been packed in Durban and that some of the packets had inviting notes in them. A typical specimen being something like: "My name is Suzy. I live at ... Oh Boy am I a wow!"

A day later we docked in Durban and disembarked. The rest of our great convoy refuelled and sadly sailed on to Singapore. We were in Durban for two days and nobly looked after by the local people. We then boarded the *Ile de France* for Suez.

In contrast to the *Laconia* the ship was almost empty. I had a great first class cabin to myself together with a most attentive Goanese steward. I was wakened with chilled watermelon and tea and waited on hand and foot. We also had an ENSA party on board. Durban to Suez was a riot.

We got to the RE Depot in the Canal Zone without incident where Brett Cloutman tried unsuccessfully to get the draft held as the nucleus of a new unit.

Three days later I joined 3 (Cheshire) Field Squadron, 15 miles South of Tobruk.

British Forces Kuwait in the Aftermath of the Gulf War

COLONEL I D T MCGILL BSc(ENG) CEng FBIM MICE



Colonel McGill (right) briefing
Lieut General Sir Peter de la Billiere

Colonel Ian McGill was commissioned into the Royal Engineers from Sandhurst in 1967 and has been fortunate to serve in 54 (FARELF) Support Squadron, 12 Field Squadron, 59 Independent Commando Squadron, 28 Amphibious Engineer Regiment, 9 Parachute Squadron and 36 Engineer Regiment during his regimental service; he commanded the last two units.

During the Gulf War he was a student on the Higher Command and Staff course at Camberley. He moved to Riyadh two weeks after the land war finished and subsequently commanded the residual British Force left in Kuwait for four months until the end of July.

His current appointment is Colonel Tactical Doctrine in Headquarters Doctrine and Training.

INTRODUCTION

In the aftermath of the Gulf War an *ad hoc* organisation was set up in Kuwait on 1 April 1991 (an auspicious date!) to provide a focus for all British military activity in the country once the last remaining formation, 4 Armoured Brigade, had withdrawn. I had the privilege of commanding this gallant force, which comprised soldiers from a wide variety of units and locations, and feel that its story should be told to provide a perspective of the final phase of Op Granby.

I am acutely conscious that a wealth of reports, articles and books have and will be written about the war and there may be a sense of *déjà vu* amongst some readers. Therefore, rather than just writing a descriptive account of our four months in Kuwait I will attempt also to provide a brief overview of the factors which influenced our deployment, mention the other forces in the country and touch on some of the unique problems we encountered in Kuwait before finally drawing out some lessons.

OUTLINE ORBAT AND SEQUENCE OF EVENTS

VERY SOON after the war ended British troops on the ground were promised by the Prime Minister that they would all return home within six weeks. The withdrawal was proceeding fast with most of 1 (British) Armoured Division (1 (BR) Armd Div) already home when a decision was taken at the last minute to retain a small force in order to demonstrate a military presence in Kuwait, which would act in concert with our Allies and provide tangible evidence of the UK's resolve in continuing to support the Coalition. Towards the end of March 3rd Battalion The Royal Regiment of Fusiliers (3 RRF) Battlegroup were ordered to delay their withdrawal until they could be relieved by 2nd Battalion The Royal Anglian Regiment (2 R ANGLIAN), fresh from Germany and England. I arrived in Riyadh on 13 March 1991 to take over as Commander Engineers British Forces Middle East (BFME) only to find that the very rapid run down of troops had resulted in my appointment

and many other posts in HQ BFME becoming redundant. I found myself driving to Kuwait on 1 April to take command of British Forces Middle East Forward (BFME Fwd) in a deserted factory complex at Doha, on a small peninsula some 25km northwest of Kuwait City centre. 3 RRF, assisted by a sapper troop from 36 Engineer Regiment, were working hard to clean up the site and establish a military base (called St George's Lines); the battle-group were also busy sorting out all their vehicles and equipment for handover. Living conditions were pretty spartan with no mains water or electricity, primitive toilets and very little privacy with everyone living close together. The site had many advantages over the desert; the buildings provided shelter and shade and were wired for light, there were huge areas to park vehicles and the soldiers could escape from the sand. It was nevertheless a desolate spot with no colour and no trees; just acres of concrete, asphalt, warehouses, fences, the odd building and a perimeter wall right around the base.

Figure 1, below, outlines the BFME Fwd ORBAT. 2 R ANGLIAN commanded by Lieutenant Colonel Alan Deed, had taken over from 3 RRF by 11 April and I was extremely fortunate that the staff from Headquarters 4 Armoured Brigade (HQ 4 Arm

Bde) had offered to remain behind during the handover between the battle-groups; they and their affiliated 204 Signal Squadron (Sig Sqn) provided first class support until they returned home for their well earned leave. The new battlegroups consisted of two armoured infantry companies, a fire support company, D Squadron 5th Royal Inniskilling Dragoon Guards (5 INNISDG) and 31 Field Battery Royal Artillery (31 Fd Bty RA). The battalion, from Celle, had not had the opportunity to complete its Warrior conversion training in Germany, the squadron had to convert to Challenger (being equipped with Chieftain in Sennelager) while the battery had to convert to M109 (having FH70 on Thorney Island). For a month we had our own support helicopter detachment of three Sea Kings, crewed by men from 845 and 846 Naval Air Squadrons (NAS), until the helicopters were suddenly despatched to assist in the cyclone relief operation in Bangladesh in early May; thereafter we were reliant on the goodwill of the Americans for helicopters for standby casualty evacuation and range clearance. There was no integral close sapper support but we did have a small composite troop to maintain and improve our living accommodation. Our thin second line logistic slice was provided by

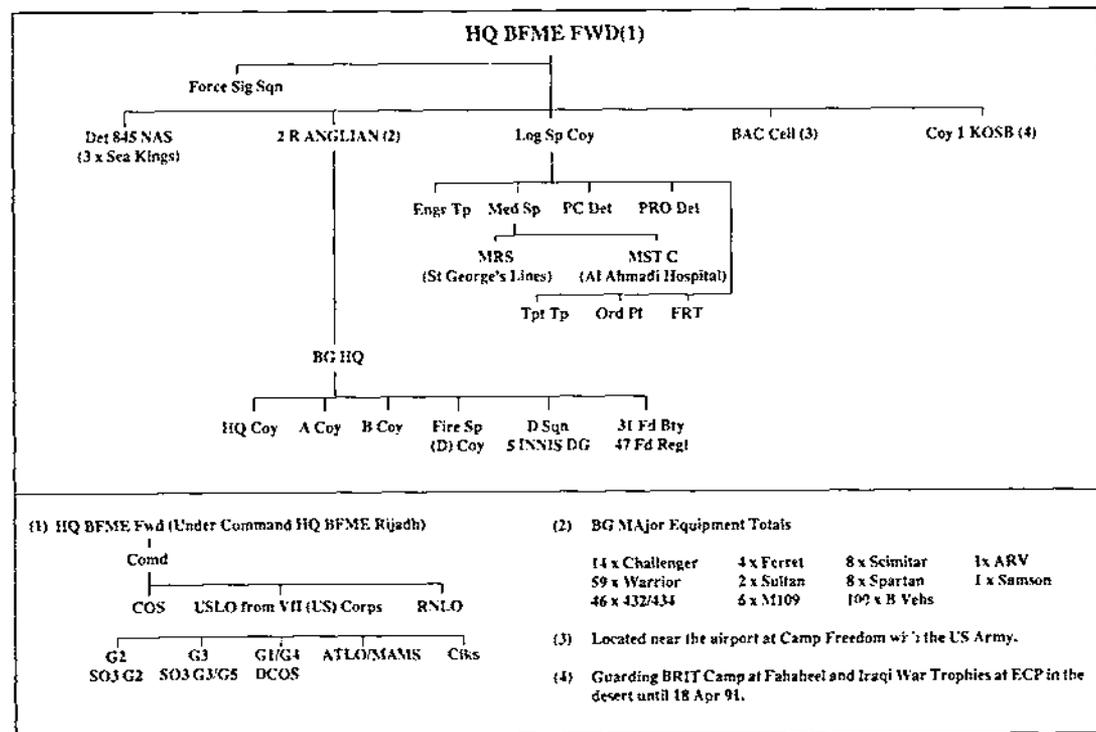


Figure 1 — BFME Fwd ORBAT (Average strength 1200)



Wrecked Iraqi personnel carrier on road to Bahban Island across the bay from Kuwait City

no less than 44 different units comprising the logistic support company, drawn mainly from the Logistic Support Group (LSG) in Al Jubayl thanks to very positive support from its commander, Brigadier Noel Muddiman, and thrown together at the last minute. Due to the very limited existing infrastructure and hospital back-up in Kuwait immediately after the war we had our own medical support team (MST) which we split to provide a surgical and intensive care capability at a local hospital and a medical reception station (MRS) in St George's Lines. A small multidiscipline battle area clearance (BAC) cell of RE and RAF explosive ordnance disposal (EOD) specialists and an RAOC Ammunition Technical Officer (ATO) had already been coordinating the overall EOD clearance in Kuwait for a month from a joint EOD operations room in Camp Freedom near the airport, which was a temporary American base containing the forward headquarters of Army Central Command (ARCENT Fwd) and a number of logistic units. A company from 1 The King's Own Scottish Borderers (KOSB) guarded an Iraqi equipment collection point (a concentration of war trophies) in the desert in 1 (BR) Arm'd Div's previous location and a British Reconstruction Implementation Team (BRIT) base

in Fahaheel for British businessmen in Kuwait trying to win contracts, until we had finished moving the required Iraqi equipment to Al Jubayl and until BRIT had organised its own guards. My headquarters, after the departure of 4 Arm'd Bde Staff and 204 Sig Sqn, was *ad hoc* as the rest of the force. Replacement staff were posted in very much on an 'as available' basis but they, as with everyone else, soon knitted together into a team very ably served by the new HQ and Signals Squadron with men from 19 different units but built around 211 Sig Sqn from Minden and a detachment from 30 Sig Regt from Blandford, who provided the expertise for the strategic communications. HQ BFME Fwd acted simply as a garrison headquarters with only minimal tactical communications to the battle group when it was training in the desert. In summary we were not properly structured to fight a war; we were a representational force.

We immediately established a close rapport with the Royal Navy which was engaged on mine-sweeping operations in the Gulf and on limited EOD port clearance tasks. For much of our tour they based a support ship at Shuaibah Port and very kindly hosted a large number of soldiers, in exchange for us laying on visits for sailors in Kuwait. We also dealt

Col I D T McGill
British Forces Kuwait (p214)

frequently with the British Embassy and assisted BRIT when we could. We established a regular liaison with the Kuwaiti Army and saw quite a bit of the French. We reaped the benefit of the very close relationship built up between the Americans and British before and during the war by being warmly welcomed by all the American formations, units and individuals we dealt with during our time in Kuwait. The battlegroup forged a close bond with 3 (US) Armoured Division (3 AD) in the desert, exchanged liaison officers and fitted in some limited joint training around its own schedule.

Our role in Kuwait was never clearly defined. Not stated, but a major limiting factor, was the requirement to prepare for our eventual withdrawal on order and this had a major impact on the battlegroup's training. The desert offered excellent facilities for manoeuvre and live firing, far away from all the restrictions in Germany and the UK and 2 R ANGLIAN were keen to take full advantage of their opportunity. There was a generous allocation of ammunition and the battlegroup achieved very worthwhile training up to squadron, battery and company level, converting to all its weapon systems. The men were happier in the desert than they were back in St George's Lines; the training was challenging and exciting, the desert air 40kni northwest of Doha was much cleaner and they all relished the challenge of the environment. The uncertain tour length forced the commanding officer to plan his training in two specific branches, interrupted by a return to St George's Lines to prepare for a withdrawal in early May which was



Collection of mines by an old Iraqi mine dump close to the southwest border which includes two VS 1.6 mines, four PMN anti-personnel mines and ten V69 Valmetra jumping anti-personnel mines



French airborne engineer examining VS 1.6 anti-tank mines by a minefield near Mina Saud

subsequently postponed. The constant speculation over the withdrawal in May finally resulted in the cancellation of the final phase of training; the battlegroup dry exercise.

The other Coalition Forces were also experiencing uncertainty and a lack of firm direction while their own governments were trying to link their policies to the wishes of the Kuwaitis, still confused and bewildered and very slow in identifying priorities and planning for the future. One clear message was the Kuwaitis' wish for the Coalition Forces to remain, particularly the Americans and the British, in order to guarantee their security. The British government were keen to withdraw us but not at the risk of damaging Her Majesty's Government's relationship with Kuwait. British Forces Kuwait, as part of "UK plc", might help to consolidate Britain's position in the Gulf and perhaps help influence decisions regarding future contracts for British business in the area. It is not possible to gauge whether our presence had any significant impact but I do know that some businessmen I spoke to were finding it extremely difficult to negotiate new business in Kuwait; by the end of July the total value of all contracts awarded to British firms totalled only £190 million.

Early on I visited Lieutenant General Franks, Commander VII (US) Corps, in Iraq who was very keen to get all his soldiers home as soon as possible but was concerned that some of his Corps would have to secure the Iraq/Kuwait border until a United Nations force was established. XVIII (US) Corps, including 6 (French) Division (6 (FR) Div), had



Gun runners in the DMZ.

already withdrawn from Iraq and Lieutenant General Franks was hopeful that all his men might be out of theatre by late May. As ARCENT Fwd and VII Corps withdrew, handing over to 3 AD, the United Nations Iraq Kuwait Observation Mission (UNIKOM) was slowly assembling. 3 AD did a great deal of preparatory work in the demilitarised zone (DMZ) between Iraq and Kuwait and also moved a large number of refugees from Safwan, in Iraq, to Saudi Arabia in order to ease the transition from US to UN control. At the last minute 3 AD had to leave a one star headquarters behind (3 AD Fwd) and one brigade (1st Armoured Brigade (1st Arm Bde)) as it finally withdrew, even removing some soldiers on advance parties from their return flights home! 1st Arm Bde moved in with us in St George's Lines and in the neighbouring warehouse complex from mid May and were relieved in mid June by 11 Armoured Cavalry Regiment (11 ACR) from Fulda, Germany; 3 AD Fwd were relieved by 3 Infantry Division Forward (3 ID Fwd). The Americans also established a Defence Reconstruction Assistance Office (DRAO), commanded by a major general, to help the Kuwait Emergency Reconstruction office set up and run key contracts for the rebuilding of Kuwait; DRAO was expected to remain in Kuwait for a year, until March 1992.

Meanwhile UNIKOM had set up its headquarters and logistic base in Doha, next to 11 ACR, and split the 25km wide DMZ into three sectors: North, centre and South. Each sector had its own headquarters and manned up to ten observation posts, each with five observers all from different countries, and a mobile patrol. The observers were all unarmed and the DMZ was generally quiet; the biggest problem seemed to be the illegal smuggling

of arms and whisky in the southern sector, often by Iraqi Army deserters who had a penchant for shooting the Iraqi policemen trying to stop them. The British contingent to UNIKOM numbered 20 officers and was led by Colonel Peter Grant-Peterkin during our tour.

As the French were withdrawing 6 (FR) Div, they sent an 800 man taskforce from their Force Action Rapide, mostly engineers from the Foreign Legion and their parachute force, to take on some high profile beach minefield clearance in Kuwait City. This force left in mid May and

was replaced by 42 EOD specialists working directly to the French Defence Attaché and tasked to clear mines and munitions from buildings and land belonging to important Kuwaitis, presumably to win influence! They left in mid July.

Most of the Arab forces in Kuwait withdrew while we were there. The Egyptians have stated that they will redeploy a brigade-sized force of approximately 3000 men; those that were still left in the country in July remained in the area of the Ali Al Salem airbase. The Syrians have also stated that they will retain 3000 men in Kuwait. The Saudis still have a brigade in the country and the Omanis had a small battalion. The Arabs, like the Western Armies, were finding it difficult to make plans while the Kuwaitis remained undecided about their revised force structure and defences.

We had a flurry of visitors over a two week period in May culminating in Tom King's visit on 20 May (accompanied by General Sir Peter de la Billière) which eventually resulted in a decision to thin down our presence in Kuwait but to retain an armoured infantry company, together with support elements. HQBFME in Riyadh went home, as did the Tornado Squadron at RAF Muharraq in Bahrain; my headquarters reduced in size, became Headquarters British Forces Kuwait (BFK) and answered direct to Joint Headquarters (JHQ) High Wycombe. On a separate agenda and after a long period of protracted negotiations 21 EOD Squadron Group (21 EOD Sqn Gp) started work in support of Royal Ordnance and were eventually accommodated on a new site (Beta Camp) on the East coast. BAC Cell personnel either returned home or were subsumed into the new EOD organisation, headed by British Forces Liaison Kuwait (BFLK). Our new ORBAT is illustrated in Figure 2 opposite.

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(p216)

Our continued deployment in Kuwait was now firmly tied to the eventual withdrawal of the LSG from Al Jubayl; we were to remain until the end of July but not to delay LSG's loading schedule and would leave 21 EOD Sqn Gp behind when we left to continue supporting Royal Ordnance until the end of September. 2 R ANGLIAN reorganised into its normal configuration of three rifle companies leaving one company behind in Kuwait in the armoured infantry role and moved to Al Jubayl in early June to relieve 1 KOSB as the guard force for the LSG; D Sqn 5 INNIS DG and 31 Fd Bty RA returned home. The infantry company in Kuwait was rotated every ten days to two weeks to give each company the chance to carry out low level infantry training in the desert and to vary the routine for the soldiers. With the reduced numbers in St George's Lines and also knowing that we were definitely there for a further two months, 60 portacabins and an extra large generator were sent up from Al Jubayl to provide air conditioned accommodation for everyone. Mains power and water had been restored by early May and the Sapper troop quickly improved the camp's facilities by plumbing in better ablutions, wiring up the portacabins and even erecting two small portable swimming pools sent out from the UK! Daytime temperatures by now were regularly nudging 50 degrees centigrade in the shade and the accommodation enhancements were a most welcome relief. The hottest temperature recorded in St George's Lines by the MRS was 55 degrees centigrade; it was even slightly hotter in those areas of the desert unaffected by the oil smoke plumes.

On 11 July, a week after participating in 11 ACR's American Independence Day celebrations, which began with a battery firing a 50 gun salute at 0500 hours, we had a series of more serious

explosions to contend with when over 50 American vehicles, fully loaded with war stocks of combat supplies and parked close to my headquarters, were all destroyed in a chain reaction of massive blasts initiated by a fire starting in a field artillery support vehicle (FASV) which was loaded with 90 rounds of 155mm ammunition. We had left Kuwait before the American inquiry into the accident was completed and the exact numbers of vehicles involved were not confirmed; we estimated that the losses included eight x M109, eight x FASV, five or six M1 ABRAHMS, one or two M2 BRADLEYS, up to three bridge layers and a large number of B vehicles which included fuel bowzers. In the confusion of the explosions and while evacuating the base, casualties were miraculously light with only two British soldiers taken to hospital with minor injuries; 13 American soldiers ended up in hospital, one with a very serious head injuries. Damage was extensive with shrapnel, pieces of vehicles, unexploded shells, mines and bomblets spread over a one kilometre radius (not surprising with over 1000 rounds of 155mm having exploded!) and it soon became apparent that we would have to move from the camp permanently, due to the devastation and the threat from unexploded munitions, especially M42 bomblets. The Regimental Sergeant Major (RSM) of 2 R ANGLIAN had a lucky escape while moving an eight tonne lorry down to Doha Port, where we had concentrated after evacuating the camp, when he drove over a bomblet 100 metres from the main gate by the side of the road and outside the camp. The bomblet destroyed the diesel fuel tank and two tyres but nothing else fortunately.

While arranging alternative accommodation with the RFA Sir Galahad and the BRIT camp, who both made us feel very welcome, we went ahead with a Combined Services Entertainment show which

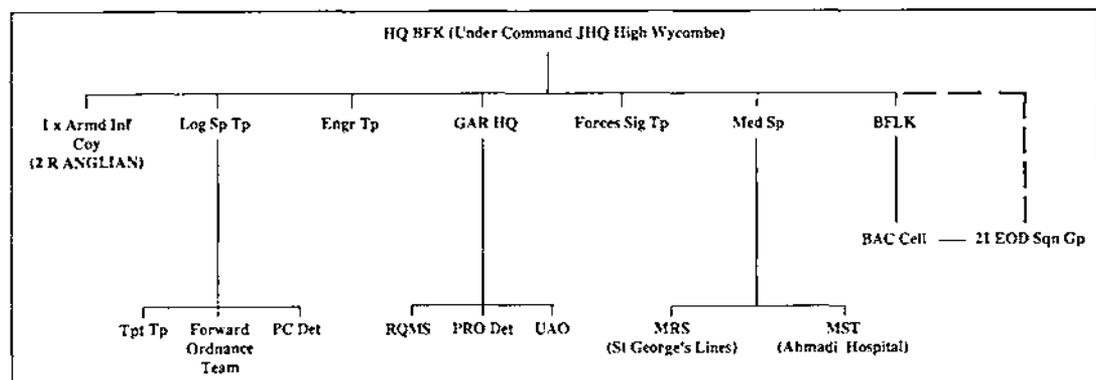


Figure 2 — BFK ORBAT (Average Strength 400)



Aftermath of ammunition accident involving US Army vehicles in St George's Lines on 11 July 1991

had been previously arranged; the performance on an improvised stage in the Doha Port on a very warm evening was a memorable event, thoroughly enjoyed by all! During the clearance operations to recover all our equipment 21 EOD Sp Gp, assisted by our own ATO, found well over 100 bomblets within our lines which were destroyed but, sadly, a sergeant from the Squadron was injured by one of the M42s. Once we had recovered all our vehicles and equipment and tidied up our portion of the camp we handed over the whole of St George's Lines to 11 ACR so that they could finish their clear up. 12 days after the original accident three American soldiers were tragically killed by an explosion, near the seat of the original explosions, while moving munitions to be destroyed outside the base.

Sir Galahad had to move South on 23 July which brought forward our final withdrawal by a few days. We completed our withdrawal through Al Jubayl two days later, leaving a small rear party under my Chief of Staff in Kuwait right up until 31 July in order to satisfy the Foreign and Commonwealth Office who were insistent that some presence should remain until the end of the month! *Figure 3* opposite, outlines our overall deployment throughout our four months.

THE KUWAIT FACTOR

IMMEDIATELY after the war Kuwait faced enormous problems; I will highlight only some of them.

The burning oil wells have generated pollution on a massive scale. The prevailing winds blow from northwest to southeast and we escaped the worst effects most days. However, when the wind changed, it was very eerie living in a dark shadow with the sun and most of the light obliterated, existing in permanent "night" and with visibility down to 100 metres. Soot and fine droplets of oil accumulated everywhere, one could taste the oil at the back of one's mouth and one's nose and lungs would feel dirty. The "black gloom" would gradually begin to depress everyone if it lasted more than a few days and there was an immediate lift in morale when the wind shifted and the sun reappeared. MSTC, living in the Al Ahmadi hospital very close to a number of burning and gushing oil wells suffered most, amongst BFK personnel. Large areas of the desert towards the Saudi Arabian border were permanently covered in a black smoke plume. The Kuwaitis took a long time to recognise how urgent it was to extinguish the fires and cap the wells; at the war's end and with nearly 600 wells on fire they were losing \$120 million a day (\$5 million an hour!) in oil losses alone, yet they wasted valuable

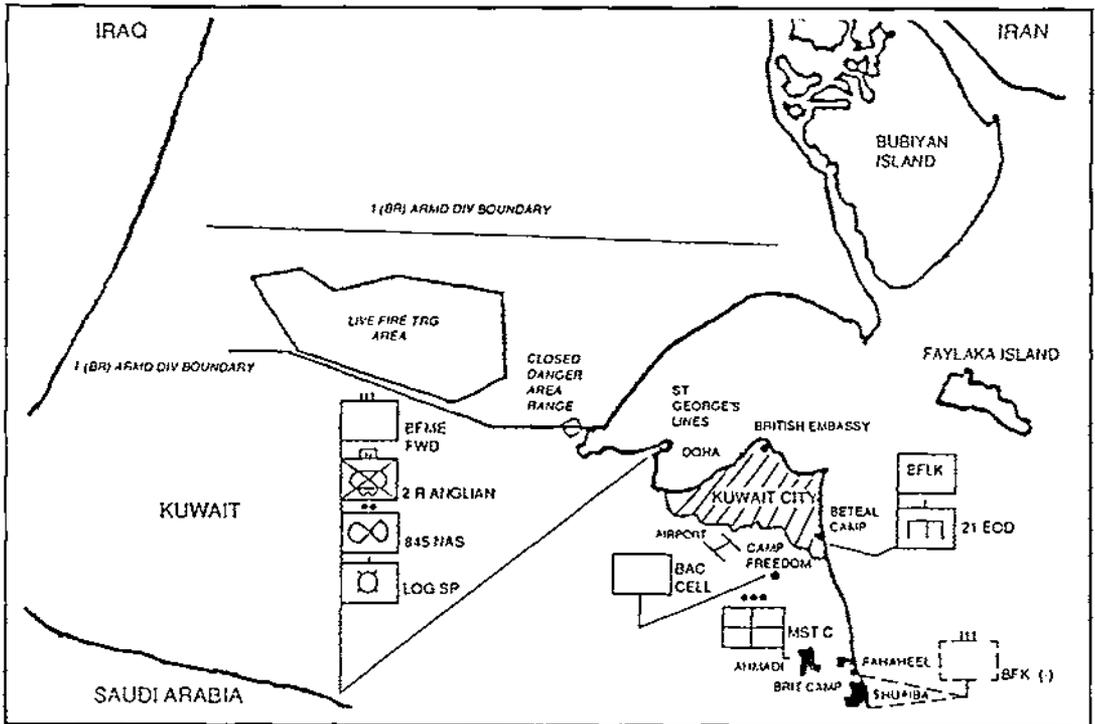


Figure 3 — British Land Forces Deployments in Kuwait — Op Granby 2 (Not to Scale)

time in negotiating the clear-up contracts and often appeared more concerned to save the odd few thousand pounds or dollars rather than throwing all available resources towards solving the problem. After two months there was a noticeable increase in well capping and when we left 245 had been capped.

There is a huge arsenal of mines, munitions, unexploded ordnance and abandoned Iraqi vehicles littering Kuwait. Many of the civilian population have their own weapons which are easy to pick up or buy. Casualties from all these munitions occurred all too frequently. Accurate figures for the total casualties are not available but it was estimated that, between the war ending and the end of May, over 40 soldiers from the Coalition Forces had been killed and over 200 wounded by mines, bomblets, grenades and ammunition. As the troop concentrations dropped the casualty toll also reduced but there was a steady stream of deaths and maiming, which included civilians and many children, throughout our four months and few weeks passed without some incident. We were extremely fortunate to suffer only three casualties but no deaths from munitions during our tour. The first was a freak accident involving a Warrior driver who lost the sight of one eye when a surface to air missile was

ignited in an old Iraqi bunker on the range area by GPMG tracer fire, flew an erratic 500 metres and struck the side of his vehicle. The second was a JNCO who was slightly injured by metal fragments from a grenade detonating fuse (not the grenade) again in the desert. The third, already mentioned, was a sergeant who was injured by an M42 bomblet during the clearance of St George's Lines after the 11 ACR ammunition explosions.

We had our own WO1 ATO permanently attached to the battlegroup and, later, to the remaining company throughout the tour. He was essential for the live firing and for immediate advice regarding ammunition and unexploded munitions. The BAC Cell also played a vital role in coordinating the overall EOD clearance in Kuwait through a weekly coordinating meeting. Later they handed over this responsibility to the Kuwaiti Army but continued to provide expertise and advice. They also ran induction briefings for the battlegroup, US Forces, UNIKOM and the Kuwaiti Army.

It will take many months and years to solve Kuwait's EOD problem. The framework for the long-term clearance has been initiated by the BAC Cell and a great deal of work was done by the Coalition Armies after the war, especially the

Americans, French, Egyptians and Saudis. The British Government and the MOD were reluctant to involve British soldiers in EOD clearance once the war was over but eventually negotiated an agreement with Royal Ordnance to provide 21 EOD Sqn Gp for four months, from 1 June 1991, to support Royal Ordnance on battle area clearance tasks (not mine lifting). Royal Ordnance meanwhile have been recruiting a civilian workforce (nearly all ex-soldiers) and started work on a contract negotiated with the Kuwaiti Army in May. Other civilian companies from Britain, America and elsewhere have also been negotiating with the Kuwaitis to take on EOD clearance contracts. Although an interesting tale I will not describe the activities of the BAC Cell and 21 EOD Sqn Gp nor become involved with the philosophy or ethos of having regular soldiers working directly for a commercial company. I will leave Lieutenant Colonel Mike Brooke, who set up the BAC Cell in early March and subsequently acted as the interface between Royal Ordnance, 21 EOD Sqn Gp and the Kuwaiti Army, to tell his own story in due course. (See article in this *Journal*, *Mercenaries or Political Pawns, An Encounter With Commerce* by Major J P Watkinson.)

There was a general lawlessness in Kuwait in the first months after the war with minimal infrastructure and little evidence of government. The random and often chaotic road blocks mounted by the Kuwaiti Army and militias were a depressing illustration of endemic inefficiency. Ill disciplined firing of weapons and frequent negligent discharges at these road blocks did not inspire confidence! The absence of any authority was reflected in the driving attitudes of the local population who seldom stopped at any junctions until the traffic lights were working two months later, once mains power was restored to the city. Driving was always a risky business and we had some very lucky escapes. The Kuwaiti police were more efficient than the army and had imposed order by the time we left.

I have already alluded to the general bureaucracy and lack of urgency soon after the war. It is perhaps difficult to appreciate just how shocked, even paralysed, Kuwaitis were by the invasion. Many of them had lost children, parents and close relatives and friends. It was not easy for them to know where to start in the rebuild. Nevertheless, I was surprised by the lethargy and lack of interest shown by so many locals; in every other country I know the people themselves would have soon sorted out much of the rubbish left by the Iraqis and taken more pride in their immediate surroundings. Few

really seemed to care and were happy to wait until someone else came along to sort matters out.

It was sad to see the grouping split between Kuwaitis and non-Kuwaitis and the mistrust between the Kuwaitis and the Palestinians. Additionally there was a lack of respect for those in prominent positions of authority who had fled the Iraqi invasion and lived relatively comfortably elsewhere while those who remained behind had suffered. Many Kuwaitis have yet to return home while Palestinians are being forced to leave and many workers who escaped to the Philippines, the Indian sub-continent or elsewhere, are not allowed back. The total population has almost halved from 2.3 million to 1.2 million. It was difficult to get a feel for the overall stability of the country but I believe that it will remain stable while the opposition to the Al Sabah regime remains disorganised. There are few poor Kuwaitis and, while they may not all have the right to vote, they have a comfortable life style and do not appear hungry for a change. The Third World nationals who perform most of the more menial tasks might have cause for complaint but they all earn a better wage in Kuwait than they can in their own countries and none have to stay if they want to go home. There will always be the danger of a backlash from the Palestinians who increasingly feel victimised, but the potential for chaos was always much higher than its probability during our tour.

KEY LESSONS

WITHOUT a clear, unambiguous mission our rationale was open to question on pure military lines, although this was less obvious while the battlegroup was training in the desert. However, once we had thinned down, the combat power and sustainability of the last remaining company in Kuwait was marginal and our deployment options extremely limited. At this stage the lack of clear mission for the force was only too apparent. Although our presence may have provided reassurance to the Kuwait government we lacked the means to provide effective military assistance in a crisis. The concept of a "representational force" might be attractive in Whitehall but it is not a sound basis for planning on the ground! I will not discuss the battlegroup's training as any training lessons have already been graphically illustrated by existing accounts of the Gulf War. It is, however, worth mentioning:

- The political/military interface.
- Post conflict planning.
- Force balance.
- Command and control.

Political military interface. The key impact of political factors on the overall withdrawal from Kuwait was continuously underestimated. There was a tendency for military headquarters at all levels to plan the withdrawal as they wanted rather than as eventually ordered. The reasons for the late decision on the final withdrawal of 3 RRF and the sudden deployment of what became BFK are understandable but the lack of coordinated planning at the political, strategic and operational levels after the war is a stark contrast to the excellent co-ordination achieved during the war. Later, once the Americans had pulled out of Southern Iraq and UNIKOM had assumed responsibility for the DMZ, the earlier uncertainty was compounded by a further delay in deciding how much longer a residual British Force would remain in Kuwait and how large it would be.

Post conflict planning. Post conflict planning was seriously impeded by the lack of any cohesive direction from the Kuwait government. Additionally the political direction from Whitehall was seldom explicit and never timely from my perspective. The uncertainty and indecisiveness which we experienced during our four months in Kuwait are unlikely to be unique and may well be repeated in any future operation involving allies or a host country. The best military solution may count for little when set against political and economic factors. BFK's position as a bargaining counter to increase the UK's stake in the Middle East would ensure that the final decision on our withdrawal was always going to be protracted. The ground war was over very quickly and well before the post war phase had been thought through by our political masters. My point is that the post conflict phase is part of the overall campaign and needs to be tied into the campaign aim right from the start. Last minute decisions and *ad hoc* orbats do not inspire confidence on the ground.

Force balance. Clearly it was necessary to achieve a balance between the ideal force level with the effort which could reasonably be spared. It was assumed by most that we would be in Kuwait for much less time than we actually spent there. I stand by my earlier comments about "representational force" and believe that any military force should be properly structured to fight and it is dangerous to cut corners. I was worried about our viability especially when we had reduced to only one company plus supporting elements. One age old lesson which was reinforced was the need to retain our own package of support elements right up until

the end. We needed our own small ordnance detachment, transport troop, pay office, post office, etc, even though we were only a small force. The LSG in Al Jubayl was an excellent lifeline throughout our tour but was too far away to provide our immediate needs and we could not purchase items locally in Kuwait until some months after the war ended.

Command and control. The command and control arrangements worked well except once, when 3 AD thought it had TACON of 2 R ANGLIAN and tasked the battlegroup to secure a section of the Iraq/Kuwait border just prior to the DMZ being established. This misunderstanding arose because it was not made absolutely clear to VII (US) Corps through the chain of command that its previous command relationships with 1 (BR) Armd Div, agreed during the war, no longer applied and that all British Forces had reverted to national command. There was an agreement between HQBFME and CENTCOM in Riyadh that 2 R ANGLIAN would not be tasked for routine operations and would be left alone to train; somehow this was not passed down through AFCENT to VII Corps and 3 AD. The matter was soon resolved but the lesson here is that the command status of any force must always be formally laid down in writing to save any possible confusion, particularly when on joint or combined operations.

CONCLUSION

OUR time in Kuwait provided a fascinating period for everyone in BFK and none of us would have missed the experience, despite many frustrations. I certainly found it to be a refreshing break from the routine of a peacetime staff appointment! To witness at first hand the after effects resulting from the mindless devastation wreaked on Kuwait by Iraq was very sobering. We were fortunate to have an opportunity to contribute something to the country, to experience a new, challenging environment, to become familiar with some of the new equipment sent to the Gulf and to learn more about some of our allies. The battlegroup enjoyed excellent training; the sappers, signallers, medics and logisticians had the satisfaction of doing a real job. For me it was a real privilege to command such professional officers and soldiers who proved capable of tackling anything which was thrown at them with great humour and tolerance. Perhaps the most important lesson we all learnt is that uncertainty abounds in any operation, even after the fighting is over.

Mercenaries or Political Pawns An Encounter With Commerce

MAJOR J P WATKINSON



Commissioned from Royal Military Academy Sandhurst in 1981, Major Jon Watkinson commanded troops in 35 Engineer Regiment in Germany and the Junior Leaders Regiment RE. Seeking an opportunity for operational soldiering he joined 33 Engineer Regiment (EOD) (Explosive Ordnance Disposal) as Intelligence Officer, but was soon earning his spurs as a Bomb Disposal Officer commanding the Falkland Islands EOD Detachment. Having found EOD an interesting niche of the Corps and with some insider dealing and good luck, appointments as 2IC 49 EOD Squadron and Operations Major followed. In the latter appointment he helped to staff the case for establishment of an additional EOD Squadron. When the case came to fruition on the back of Operation Granby he was delighted to be appointed as the first Officer Commanding. As an acting Major the author now commands 21 EOD Squadron.

As the Army's manpower cuts start to take effect, EOD is an area of the Corps which is expanding. The formation of 21 EOD Squadron under the nose of Options for Change is the third such addition to 33 Engineer Regiment (EOD) in eight years following the formation of 58 EOD Squadron in 1984 and 22 EOD Support Squadron in 1988. However, this article is not intended to exalt the merits of EOD within the Corps, although a subject which I could gladly pursue, but to report on an unusual and controversial tour where a Sapper Squadron was put to commercial use. Perhaps under New Management Strategy (NMS) this is a sign of things to come, or indeed the way forward. I will leave the reader to judge as the story unfolds. In a nutshell, 21 EOD Squadron was contracted to work for Royal Ordnance plc (RO), a recently privatised subsidiary of British Aerospace, to assist them in their multi-million pound contract in Kuwait to clear parts of the country of Explosive Ordnance (EO). At a cursory glance all parties stood to gain. The Kuwaiti government were keen on the idea of British military EOD involvement; it has been suggested that this was one of the main reasons they awarded the contract to RO rather than one of their several competitors. From RO they would get a fully trained and equipped EOD workforce with its integral management at short notice. The Ministry

of Defence (MOD) would receive a significant sum of money in capitation charges for the Squadron, an extra income which had not been expected. As for 21 EOD Squadron, they would get good training value and the opportunity to visit an interesting EOD environment. RO as a munition manufacturer had identified EOD as an area for expansion well before the conflict. In winning their contract RO have enjoyed a monopoly on British Government support in this field. The overriding philosophy for the deployment of 21 EOD Squadron was to benefit 'UK Limited', and so the EOD tour took place between May and October 1991. This is the story of Operation Pinseeker.

THE FORMATION

In October 1990, 49 EOD Squadron deployed on Operation Granby in support of 7 Armoured Brigade. As soon as they had gone the focus of attention turned to their replacement in theatre, which was assumed to be required at sometime in the future. The only realistic option for replacing 49 EOD Squadron in the Gulf was to accelerate an existing establishment case to create a new squadron. Plans to form XX EOD Squadron on 1 December 1990 were set in motion. On Sunday 2 December the Squadron, still lacking a number and known as 'Kiss-Kiss Squadron', arrived *en masse*. Of the 90

all ranks 70 per cent had no EOD background and the remaining 30 per cent, mainly the NCOs, had previously served in the Regiment. Training this influx was more than the Defence EOD School (DEODS) could cater for on its own, so a squadron training programme followed, with assistance from DEODS, and by Christmas Eve 85 per cent of the new arrivals were trained to Bomb Disposal Engineer (BD Engr) Class 3 level. This statistic was the only comforting factor when contemplating the option of the now christened 21 EOD Squadron, to support the additional deployment of 4 Armoured Brigade on Operation Granby in the early New Year. In the event it was decided that 49 EOD Squadron would provide EOD support for the whole of 1 Armoured Division. Although spreading the 49 EOD Squadron assets thinly, the plan ensured the availability of an EOD squadron to replace them and also avoided the problem of equipping 21 EOD Squadron, which at that time had no vehicles or stores. Training continued to get the entire Squadron qualified to the appropriate level. As luck would have it the Squadron 21C (Captain David Faulkner) was duty BDO when tasked to a suspect German World War Two bomb buried at a depth of several metres immediately outside the intensive care ward of Guy's Hospital in London. Subsequently the Squadron spent a week working 24 hours a day to dig a shaft through gravel and a high water table to the suspect bomb, only to find a reinforced concrete pillar. It was a slight anti-climax but excellent training in difficult testing conditions.

The EinC was the inspecting officer for the official formation parade on 1 March 1991 when the Squadron flag was blessed by the Reverend Tom Hiney MC RChD and raised for the first time.

Throughout this period the assumption was that 21 EOD Squadron would replace 49 EOD Squadron after the war was over. This plan was sufficiently firm to warrant Major Jim Castle RE (OC 22 EOD Support Squadron) being sent to the Gulf in February 1991 during the last phases of the conflict to plan and coordinate the postwar EOD clearance. Following the cease-fire on the 28 February 1991 the EOD problem quickly became subject to an international EOD effort. A team led by Lieutenant Colonel Mike Brooke was dispatched at short notice requiring him to hand over his appointment as CO 33 Engineer Regiment (EOD) slightly earlier than was planned. The team also included Major Nick Moody RE, a Taciprint team and a signals detachment, and took the title of the UK Battle Area Clearance (BAC) Cell. Their task was to identify and record the extent of

the EOD problem, provide the British contribution to international EOD coordination, gather technical intelligence and pave the way for the departure of 21 EOD Squadron. Additionally the slightly hidden agenda was to represent British interests in EOD defence sales that were destined to follow. 49 EOD Squadron, commanded by Major Nick Larkin, returned on 28 March 1991 having had a relatively uneventful war, but an interesting and demanding task to begin the initial EOD clearance of key areas of Kuwait City.

Once the war was over, the political stance changed. The Government were prepared to help but at a price. RO were quick to pursue EOD contracts with the backing of the British Embassy in Kuwait. The Arabs, renowned for their haggling, and the Kuwaitis priding themselves in their clever contract negotiation all combined with the inertia of *Ramadan* to extend the contract negotiation period. Concurrently the MOD was thrown into the unprecedented situation of negotiating the contractorization of 21 EOD Squadron to RO. In general the MOD were not keen on the concept; morality, conservatism and "all too difficult" were amongst the reasons. On the other hand 21 EOD Squadron which had been created, trained and wound up for the deployment were enthusiastically poised ready to go. Furthermore, the return of 49 EOD Squadron meant we had nowhere to live and although a tour of Kuwait did not solve the problem, it certainly would provide a breathing space. Amid a shower of controversy in the press and questions in the House, I was summoned for a personal brief by Deputy Chief of the Defence Staff (Commitments) (DCDS(C)) (Air Marshal Sir Kenneth Hayr), a slight short circuit of the chain of command, and given my terms of reference. Despite not having conducted any reconnaissance, I was delighted when the advance party took off from Brize Norton on 13 May having very nearly departed on three previous occasions. We had been subject to some changes, commonly called 'on the bus off the bus'. The Squadron main party was not convinced that we were actually going until I telephoned the Squadron Sergeant Major (WO2 P Long) on our safe arrival in Al Jubayl.

THE TOUR

The advance party split into a recce party which moved to Kuwait and a Quartermaster party which remained in Al Jubayl to take over vehicles and equipment. The recce of Kuwait was hasty but sufficient to make an outline plan. Although RO

had the authority to task the Squadron, the MOD/RO contract gave me the right to decline any task which in my professional judgement was unsuitable for the Squadron. One such task was EOD clearance of routes to the burning well heads in the oilfields. The task would have involved working in half sections under the control of an RO civilian operations centre in an unhealthy and unpleasant environment. I was not prepared to allow my soldiers effectively to work under command of a civilian directly alongside RO EOD teams, so this task was a nonstarter. Despite the Squadron representing the majority of the workforce (at that stage RO had approximately 30 personnel in theatre compared to our 140) they regarded us as a sub-contractor. Initially my management recce team was accommodated in one of Kuwait's cheapest hotels whilst the RO management resided in the rather luxurious four star Holiday Inn. This was not a problem but more of an indication of attitude, which would require a positive stance to avoid the Squadron being treated like second class citizens.

Meanwhile, back in Al Jubayl, the Squadron main party arrived on 19 May to begin ten days preparation of vehicles and equipment under the QM's watchful eye. The Squadron had increased in size to include medics, REME, Taciprint and signallers and was now called 21 EOD Squadron Group. The attitude towards the Squadron by our military colleagues was akin to a welcome with crucifix in outstretched hand — the mercenaries! Despite my assurance that we were being paid at normal army rates, for sappers £26 per day before tax, and merely doing our job in compliance with orders, the overall attitude was at best ambivalent if not distinctly negative. I can only assume that the misgivings in the MOD about the concept of our deployment had filtered down to the Logistic Support Group, on whom we were dependant for assistance. The situation was certainly exacerbated by swimming against the current, trying to mount an operation while all about us efforts were directed towards going home. Our vehicles were those belonging to, and left in theatre by, 49 EOD Squadron. They had been subjected to the wear and tear of hard usage throughout the war. With immense effort, ingenuity and much persuasion we were sufficiently road-worthy to move in entirety to Kuwait City by 29 May for two days training and orientation prior to starting work as planned on 1 June 1991.

Two relatively easy EOD tasks were selected to start with, which allowed for a period of acclimatization. We were expecting high temperatures

and in practice they rose to 55 degrees Centigrade in mid-summer. 1 Troop and 3 Troop started clearance in a semi built-up area of 21 square kilometres called Mishref, which had been occupied by Iraqi defensive forces. The area included the Emir of Kuwait's palace which was the first area to be cleared in keeping with the strict social pecking order of Kuwaiti society. Most of the houses were initially unoccupied but this soon changed as the civil population began their return to Kuwait. The task enabled familiarisation with the EO common to Kuwait and also presented a good opportunity for the soldiers to absorb some Kuwaiti culture in the form of Arabic tea or coffee, and on occasions a meal. The civil attitude at that stage was most welcoming and grateful for the British participation in the campaign. It was a novel experience for young soldiers to wear uniform in public and be greeted as honoured guests. Sadly, as inevitably is the case, by the end of our tour the gratitude of the Kuwaiti people had diminished beyond recognition. A second task conducted by 2 Troop was to clear large quantities of Land Service Ammunition (LSA) in various states of stability from 35km of Iraqi defensive trenches and defensive positions which ran the entire length of the Kuwait Eastern coastline. It was interesting to note the rather archaic military thinking which resulted in a thin red line defensive position. The task also made apparent to us the wanton and deliberate vandalism of all the luxurious coastal properties by the Iraqis as their departing gesture, prior to their retreat. In general Kuwait City had suffered almost entirely from acts of Iraqi vandalism and looting, rather than any acts of war. They seem to have had an obsession for vehicle wheels, tyres being an expensive commodity in the Gulf, and virtually all the vehicles remaining from the conflict were without wheels!

Our accommodation at this time was temporary as the portakabin camp which had been promised by RO was still unbuilt, but the proposed site was an open area next to a pleasant stretch of Kuwait beach. We squeezed the Squadron into a long hut which slept four soldiers in small 10ft x 10ft rooms. It was a little cramped, but tolerable. Prior to a bout of food poisoning which affected 30 per cent of the Squadron, RO tried to feed the Squadron and some of their own workforce in a derelict, small and grossly inadequate dining room, with food being transported from an equally poor kitchen 15 miles away. Fortunately the weather was hot but pleasant so we ate outside. At meal times it was sometimes a novel experience mixing with

some familiar faces amongst the RO employees whose basic daily rate of pay was around £200.

Our next major task was the EOD clearance of Failaka Island, an area of 50 square kilometres, situated 20km off the East coast of Kuwait. The Iraqis had been convinced that there would be an Allied amphibious attack from the East, so they defended this strategic island heavily with approximately divisional strength. In the process they evicted the civilian population living in the only small town of As Zor on the West end of the island. This was perhaps a tactical blunder giving the Allied aircraft and naval gunfire a free reign to attack anywhere. As part of General Schwartzkopf's deception plan the Allies obliterated the Iraqi force and took Failaka without any significant land battle as the first significant part of Kuwaiti territory to be liberated. For us, the net result of this intensive bombardment was a massive EOD problem compounded by the logistic difficulties of working on an island. Although helicopters had been in abundance immediately after the war, they were rapidly becoming a rare and valuable asset. The only other transport to the island was a small roll on roll off (RORO) ferry run by the Kuwaiti Navy which was notoriously unreliable and prone to cancellations in anything more than a mild breeze. Nearing the end of our first tasks, the ferry consistently failed to sail and we were rapidly running out of work for the Squadron. RO were keen for the Squadron to assist their efforts in the oilfields; however I was equally resolute (and had the contract on my side) that the Squadron should not integrate in a task with RO personnel which would effectively put soldiers under a woolly civilian command and control organisation. As an alternative task we explosively demolished 56 reinforced concrete bunkers along the length of the coast and started area clearance in a low priority area of desert in the southern part of Kuwait. Although the former task was not of an EOD nature, it was good experience for the sections, needed to be done and proved to be



Failaka Island

a popular good fun task. Concurrently we borrowed a 70 foot Coast Guard Cutter and six Iraqi fast patrol boats which were made seaworthy with much ingenuity and some technical assistance from the Royal Navy. The cutter which had a number but no name was christened *TGS Lollipop*. The Squadron was renamed 21 (Maritime) EOD Squadron Group and we set sail for Failaka to begin the EOD task. (For any reader not familiar with Kuwait Navy abbreviations, *TGS* is short for *The Good Ship*.)

At this stage the RORO ferry was still failing us so we resorted to repairing an abandoned yellow school bus on the deserted island which provided a temporary solution to our transport problem, until we finally sailed vehicles across on the RORO ferry. *TGS Lollipop* sailed daily from a small private harbour which we borrowed (with the owner's



TGS Lollipop



VS 1.6 AT mine, Valmsara V09 AP mine, VS 50 AP mine



Blowing Rocket bomblets

permission) commuting elements of the Squadron to Failaka whilst a Kindergarten School was renovated by an American Civil Contractor to provide accommodation on the island. It may seem strange why we should have needed to go to such lengths to get the task underway whilst working on a commercial contract. Why not charter a commercial vessel? The answer of course was money! Chartered vessels are expensive and military initiative and good favour is not. This highlights one of the key problems we encountered in working in a commercial environment. My aim was to conduct EOD in the safest possible manner thus gaining good training value. Fundamentally, the purpose of a commercial company is to make money, an aim often diametrically opposed to our own. The RO application of the commercial aim was a strict spending control on the basis of spending only when there was no other option. It soon became apparent that the most successful line of argument in matters of disagreement, was to consider the financial implications. As soon as one accepted money as the major factor in any decision making, we found we could more than hold our own ground. The tour acted as a crash course in commercial management and I took it as a compliment when a senior RO manager commented that our military officers were more commercially aware than anyone in the RO management team. Another surprising area of RO's commercial

management was the lack of planning and costing prior to submitting their tender. There were clearly several aspects to the Failaka Island task which had not been anticipated and one might conclude that the fixed tender for the task was too low. This gives strength to the old military adage, time spent in recce is seldom wasted.

Once we succeeded in getting the Squadron working on Failaka Island staying there most nights but commuting at least once a week, the task transpired to be of extremely good value. Large air dropped bombs, countless bomblets and mountains of USA all in various states of arming, many having been subject to degradation or exudation due to the high temperatures, all presented challenging and interesting EOD tasks. It is fair to say that all soldiers, NCOs and officers gained more practical experience during the two months on the island than would normally occur during a complete three year appointment in the Regiment. To my knowledge we were the first British soldiers to deal with mass bomblet strikes in built-up areas since World War Two. In total 1000 tonnes of munitions were prepared for removal and 100,000 items were destroyed *in situ*. Although other tasks were also of good training value, the clearance of Failaka Island made the tour worthwhile. The EOD work itself was primarily search, identification and assessment. The quantities of items we were dealing with precluded complicated Render Safe Procedures

(RSP). The four main courses of possible action were; move for demolition or recovery elsewhere; blow *in situ*; (these two were the most commonly applied) pull on a long cord prior to demolition; or deflagrate using special EOD explosive techniques, (these were used to minimise damage to property). The last of these methods involved use of 'Baldrick', which is a copper Misney Shardin disc in the end of an aluminium tube partly filled with plastic explosive. The method, recently developed by Royal Armament Research and Development Establishment (RARDE) has not been formally accepted, but in certain situations Baldrick proved very successful. Many items of LSA had deteriorated due to the heat, in particular Soviet and Chinese munitions which are manufactured to a lower set of specifications. There was a number of suspected spontaneous detonations and in many cases explosive exudation or deteriorated propellants provided a significant hazard to movement.

Meanwhile back at the camp the purpose-built portakabin city finally reached completion halfway through the tour, only a touch late, but once completed was very comfortable. Many of the soldiers observed that it was much better than the accommodation at Chattenden, even if we had any. The beach at the camp, which was our first priority for EOD clearance provided excellent recreation particularly once supplemented with wind surfers, boats and dinghies. RO were obliged in their contract with MOD to provide a monthly Rest and Recuperation package and we elected for three nights in a Bahrain hotel for the Squadron. Bahrain is one of the few Gulf states which sells alcohol. This monthly interlude in the Holiday Inn, not surprisingly, proved very popular. It also represented a novel experience for many young soldiers who were unaccustomed to such four star luxury and in general they rose to the environment and conducted themselves appropriately, albeit with a slight stagger at times.

Lieutenant Colonel Mike Brooke and his UK BAC Cell changed to British Forces Liaison Kuwait (BFLK) and then on departure of the British Battle Group and its controlling headquarters at the end of July he inherited the title Commander British Forces Kuwait (CBFK). Unfortunately his manning was also pruned to the bare minimum of two officers (including himself) and two JNCOs as RO had declined to fund any more.

Despite the changing name the function remained largely unaffected; first, to provide a senior headquarters for the Squadron Group giving an essential interface with MOD UK Army (MO1),

who were the controlling staff branch; second, to continue the international EOD coordination on behalf of the Kuwait MOD. Whilst the UK had established primacy in this function the coordination gradually reverted to the Kuwait Engineers with advice from CBFK. This vital function has established British EOD as being the leading agency in the eyes of the Kuwaitis and will no doubt pay dividends in future contracts, in particular the projected EOD management contract.

As the tour approached the end the vagaries of the RO/MOD contract came under close scrutiny and, in particular and not surprisingly, all the aspects where money was involved. The initial intention was that RO would effectively purchase all vehicles and equipment by replacing everything in theatre with new equipment in the UK. This was perhaps a slightly ambitious plan by MOD and the compromise was that RO would hire the vehicles and equipment and pay for their return passage to UK; however RO felt that they should pay for nothing. The costs involved were in the order of millions and using our new found commercial acumen, we managed to achieve a mutual compromise in theatre. However, at the time of writing the issue is unresolved between MOD and RO Chorley in the UK.

We completed our planned tasks on Failaka Island by the 30 September leaving just stockpiled munitions awaiting removal and some small minefields for RO personnel to lift. We had to contain the desire to tackle the minefield clearance as the task had been deemed outside our remit for emotive political reasons. In practice, clearance of certain minefields would have been less hazardous than some of the bomblet clearance tasks that we had conducted. In general my remit was to tackle only the EOD tasks that I considered to be a similar risk to UK peacetime EOD operations (less Northern Ireland). Of course it is difficult to quantify any risk but post war Kuwait was certainly a dangerous place. As at the end of September, 70 allied servicemen, mainly American, had been killed post hostilities by EO and another 360 injured, most of them seriously. Hospital admission statistics for the period April to June showed an average of six civilian admissions per week from EO accidents, the majority being children. EOD personnel were arguably at less risk due to their respect of EO, but were obviously subjected to the risks to a much greater extent. During our tour RO suffered two serious and one minor EOD accidents. An American military EOD team of six experienced operators suffered two fatalities clearing up after an

ammunition fire at Doha, one fatality in a road traffic accident and one NCO who accidentally shot himself through the hand. It was whilst clearing up after the same ammunition fire at Doha that we incurred our only serious casualty. The American forces based at Doha camp, a facility shared by the British Battle Group, had a fire in their vehicle park full of 'bombed up' armoured vehicles. The park was 100 metres away from Headquarters British Forces Kuwait (HQ BFK), at the time commanded by Colonel Ian McGill (late RE). (See Colonel McGill's article in this issue of the *Journal*.) The resultant explosions devastated the surrounding area and scattered artillery delivered submunitions for a radius of 500 metres. HQ BFK and the resident infantry company of the Royal Anglians were extremely lucky to escape with only minor injuries. 2 Troop was tasked at short notice to conduct with some urgency an EOD clearance to regain access to the British sector of the camp. The chain of command for the task was unnecessarily complicated by placing a Lieutenant Colonel RAOC (CATO) in command of an otherwise RE EOD task and superimposing two Warrant Officer Ammunition Technical Officers (ATOs) into the ORBAT. At 1620 hours after a long day in high temperatures Sgt Wright was injured by an American M42 submunition which he had not seen. The M42 is small (about the size of a 35mm film container) but a particularly sensitive shaped charge and fragmentation grenade. It detonated under his feet causing compound fractures to the tibia of his right leg and ulna just below his right elbow. The Battle Group doctor was on site and administered first aid and stabilised him prior to his evacuation by helicopter. Fortunately Sgt Wright is now making a good recovery at QEMH Woolwich and hopefully his only long term disability will be the loss of both his big toes. His stalwart bravery throughout the incident was a fine example to us all.

This very unfortunate injury is an apt lead in to a subject which I consider to be the most controversial aspect of our deployment. Our civilian counterparts in RO were beneficiaries of a £500,000 accident insurance policy, I believe at the insistence of the British Government as a prerequisite for their backing. However my soldiers were to receive no compensation beyond a normal Army pension in the event of death or disability. After a little research it came as no surprise to learn that the majority of the Squadron or their families would be relatively on the financial poverty line if dependant on normal Service

benefits in the event of death or disability. Indeed the very existence of Service benevolent funds is testament to this. By profession we must accept the potential for loss of life or limb in the service of Queen and Country in the event of war, but to work in a hazardous EOD environment during peacetime for commercial gain by others without proper insurance, is not acceptable. In actual fact we were insured by RO to the same extent as their other employees, but it was the Treasury who were beneficiaries to the policy. The Treasury would claim that the once only insurance payment of £500,000 is required to cover a long term pension. As a typical example the widow of a LCpl with six years service with one child would receive a pension of £5576 per annum, with which to house herself and raise the child. In contrast a long term investment of half a million pounds would be expected to earn annual profits of £20-£30,000 at a conservative estimate. The nub of the argument was that the Treasury were not prepared to concede that the widow's or disability pension for servicemen is grossly inadequate and they did not want to set a precedent by making an exception in our case. The result was that my soldiers were not only risking their own lives for commercial gain but also the future livelihood and welfare of their families. Of course we had sought private insurance, but at the height of tension in the Gulf prior to war, insurance for EOD servicemen was not cheap. Most of the Squadron purchased £10,000 worth of cover at a personal cost of £100 after reclaiming a portion of the EOD loading. In most cases this was as much as they could afford. The anomaly of this situation was supported strongly as it rose up the chain of command. Regrettably although insurance could have been provided at no cost to MOD, merely by accepting a policy change for our unusual circumstances, it was not. Without doubt the most worrisome burden throughout the tour was the knowledge that we were without proper insurance and the result was I became almost obsessive about safety. Perhaps retrospectively this was no bad thing. It was heartening to read in the small print of *Options for Change*, that the Government intends to introduce special insurance arrangements for servicemen.

We finished working on 30 September and a well prepared recovery plan enabled the Squadron to fly home two days later on the 2 October. The rush was necessary to ensure three weeks leave prior to the Regimental exercise starting on 28 October. By good fortune General Sir Peter de la Billière had

planned a visit to Kuwait starting on our day of departure. His address to the Squadron was an appropriate conclusion to the tour, departing as the last British Troop to leave Kuwait.

THE CONCEPT

Clearly there is a moral issue surrounding the use of military servicemen for commercial gain, a subject which has received much discussion. However our deployment also earned several millions of pounds for the MOD, although they would claim to be merely recovering their costs. RO would argue that the cost of contracting the Squadron, combined with the low teeth to tail ratio and the limitations of our employment,

have resulted in minimal profit or possibly a net loss from the arrangement. However at daily capitation rate of £64.04 + VAT for a Sapper, we were certainly cheaper than their civilian workers. It would be easy to get absorbed into the minute details of finance and profit involved in Operation Pinseeker, but it is perhaps more important to consider the issue in principle.

As a personal view I would argue that in these changing times when governments can not justify extravagant defence spending, it is a new and worthwhile avenue to explore options for similar deployments in the future where good training is achieved at minimal expense or as in this case, at significant financial gain to MOD and the taxpayer. This philosophy could be applied by a number of specialist tradesmen, for example BD Engineers, construction engineers, artisan tradesmen, or Royal Signals satellite detachments to support civilian exploration. It could provide training and travel which otherwise would be prohibitively expensive and to utilize the skills which the Army can offer. To the traditionalist this might seem to rock the very foundation of military service, but with ever decreasing training budgets perhaps we need to accept this.

Of course we would need well considered ground rules to avoid many of the difficulties encountered on our tour. The constraints of Military Aid to Civil Community employment, in particular that we do not compete and take business from the commercial sector, are perhaps in need of review. It is a self imposed constraint which other Armies throughout the world do not observe. The natural aptitude of



Sapper Nixon placing a charge to blow a Rockete bomber

the British Army, particularly our Corps, to tackle relatively simple tasks in harsh and difficult environments, suggests that we should tender for small obscure projects overseas. With NMS upon us the concept of venture into a commercial environment is certainly worthy of consideration and probably an exciting proposition for Commanding Officers to consider. The post operation report for Operation Pinseeker recommended careful consideration and staffing of the parameters for Military Assistance to Commercial Enterprise.

CONCLUSION

The contractorization of 21 EOD Squadron and various supporting elements to assist in a RO EOD contract in Kuwait, certainly provided excellent training value and a challenge, albeit amid controversy and with significant difficulties. From a managerial perspective it was a nightmare, but one which was intellectually stimulating and demanded a different approach in overcoming the problems. From a conceptual point of view it broke barriers never before encountered and has set a precedent which, subject to careful consideration, could be continued to good avail in the future. Whilst there are many lessons to be learned and mistakes not to be repeated, there is possible gain in training value, managerial experience, financial gain and diplomatic influence, by allowing a well considered sequel in the future.

In general the tour was a success, which was reflected by its continuance for the full planned duration, and I for one would not have missed it for the world.

A Very Different Sort of Operation

Operation Haven

Background to the Kurdish Problem

MAJOR R C HENDICOTT MA



Major Bob Hendicott joined the Corps from Sandhurst in 1976. After YO training followed by a troops commander tour in BAOR he enjoyed three very happy years reading engineering at Cambridge, interspersed with various sailing, rowing and mountaineering. More troop commanding with 59 Independent Commando Squadron saw him in Norway, the Falklands during Operation Corporate and then Norway again. Since then he has been Adjutant 22 Engineer Regiment, Platoon Commander at Sandhurst, attended Division 1 of the Staff Course at Shrivenham and Camberley and is now coming to the end of two magnificent years in command of 59 Independent Commando Squadron.

"I was sitting at home in Dohuk with my family listening to the radio: my young children were playing outside. Suddenly the thunder of artillery fire and crash of bombs exploding signalled the start of something we had all feared for several days. Knowing that the Iraqi Army commander in the region was the same man who had ordered the chemical attacks on Al Halabjah and many other Kurdish villages four years before, we expected the worst. Piling as much as we could grab quickly into the car we drove into the mountains to the North to escape the wrath of Saddam Hussein."

This was the gist of the story related to me in the shade of a fruit tree over lunch some nine weeks later by a Kurdish civil engineer who I came to know well and respect greatly. After this man had driven as far as his vehicle would take him he walked for four days with his children and possessions to Yekmal, a Kurdish camp high up on the Turkish-Iraqi border. Four days later, he told me, US Special Forces teams arrived and began to administer health care, distribute food and organise the camp. So began the latest chapter in the story of a people who have been systematically victimised for hundreds of years in the mountainous region which is now Northern Iraq, Southern Turkey and Western Iran.

British military involvement in Operation Haven began on 17 April 1991 with the Prime Minister's

announcement that a British force would be dispatched to help create the safe havens for the Kurds which he had proposed a fortnight before. 24 hours and two extensive briefings later the Joint Headquarters Reconnaissance Party, which included the Commander, staff and arms advisers of Headquarters 3 Commando Brigade Royal Marines, was at Incirlik Air Base in Southern Turkey discussing the scope of British involvement in the operation with Lieutenant General John Shalikashvili, the US Combined Task Force Commander. At this time it was by no means clear what the British involvement would eventually be or how it would be configured. However it did seem probable that the force would be centred on our Brigade, augmented as necessary, and with a manpower ceiling of 5000 men. The Corps' own assessment at this time was that the Sapper involvement might be an engineer regimental group comprising 59 Independent Commando Squadron; a field squadron and a field support squadron plus specialist elements as required. Over the next two days things happened fast: likely engineer tasks were identified; liaison with US engineers was begun; routes into the mountains to see the current problem were carried out and routes into the valleys and plains of the border region took place. Critically it was decided that the Brigade element of the Recce Party would become an

Advance Party and stay in theatre to receive the rest of the force. By the evening of 20 April our plan was beginning to take shape and those who needed to return to UK departed.

BEGINNINGS

EARLY ON 21 April two RAF Chinooks flew from Diyarbakir to discharge the Advance Party into a wheat field at Silopi some 15km North of the Iraqi border and 20km East of the River Tigris. Diyarbakir was to become the British airhead and Silopi our Brigade Administrative Area (BAA). Our first elements were on the ground, albeit with a tenuous hold and totally reliant at this stage on US logistic support. Gratefully we accepted vehicles, tentage, fuel and rations from the large and ever expanding US tented camp and set to work to receive the rest of our Brigade. At this point it looked as if possible Sapper tasks would include water supply, sanitation, camp structures, route maintenance and construction, clearance of minor demolitions on the border and support to the helicopter landing sites to be expanded at Silopi.

Our first priority was to enable the Brigade to live in the BAA. The water point, latrines and ablutions were all set out and areas marked for units to occupy as they arrived. Corporal Hines of Plant Section rapidly developed a sound working relationship with the US Air Force Plant Team already working at Silopi and within hours had been entrusted with their wheeled excavator and begun digging the necessary pits. Deep Trench Latrines (DTLs) and aggregate-filled soak pits with French drains on which to place shower units and ablutions were considered the best option, particularly as digging was easy in the fertile soil of the Silopi-Zakhu plain which straddled the border. As the first field troop arrived they were tasked with the construction work throughout the BAA. What our first DTLs lacked in finesse they certainly made up for in sturdiness and as time passed we gained in expertise (both of building them and using them) and modified our initial very "off the cuff" design. Our meagre vehicle fleet was soon enhanced by the addition of locally hired Turkish plant and tippers manned by local men. The native wit of our soldiers soon came to terms with the somewhat unpredictable nature of these locals

and the poor serviceability of their vehicles. It was with some dismay that we watched the sixth wheel of one tipper detach itself from the vehicle as it delivered its first load of aggregate. However we found it worked moderately well for the next five days on only five wheels. Slowly the BAA began to take shape, with progress hampered considerably by our shortage of vehicles, lack of equipment and the difficulties of procuring materials from the local economy. It had been intended to supply our water point from the Turkish main some 1200 metres away from our BAA and the detailed design for a storage and distribution network was drawn up with the assistance of Majors Richard Bend and Ivor Marrant of 524 Specialist Team, who by now had joined us. Sadly this was never to materialise and the BAA remained reliant on water delivered by US tankers until a borehole was drilled by civilian contractors four weeks later.

Meanwhile the second field troop had arrived in theatre. Lack of vehicles, equipment, resources and tentage meant that they could not be usefully employed in the BAA. A moment's inspiration and a few hours negotiation saw them installed in the beginnings of Refugee Camp 1 at Zaku, across the border in Iraq. There they lived in six berth holiday tents provided for the refugees by US citizens, and they soon had the construction of camp facilities well under their control. They lived and worked there for six days, by the end of which they were well versed in the building of the simple amenities which the US Disaster Assistance Relief Teams required: a copious supply of untreated but potable water, latrines, tents and administrative areas for



The first Kurdish men to arrive at Refugee Camp 1, helping to erect screens around their latrines.

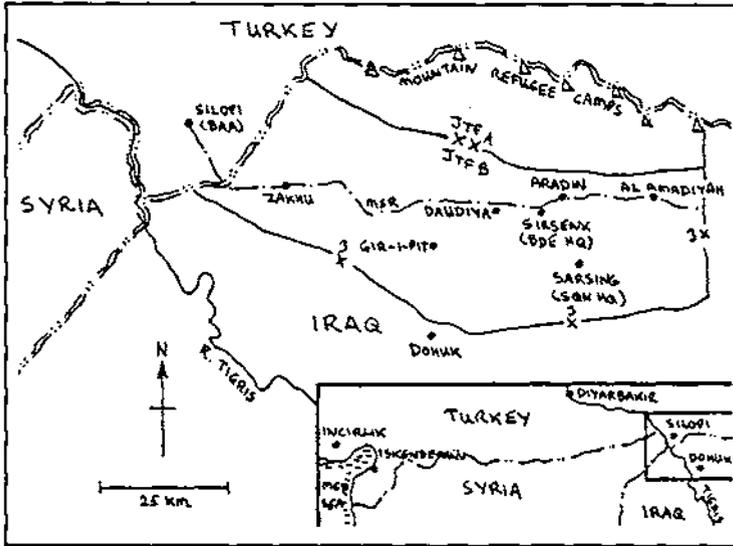


Figure 1 — The area of Northern Iraq occupied by 3 Cdo Bde RM during Operation Haven, showing key towns, international borders and military boundaries. The inset map illustrates the extended lines of communication from sea and air ports of entry into the area of operation.

the issuing of food. As the troop left Zachu to prepare to move further East into Iraq, they spent their last day showing the first Kurdish arrivals how to build their camps themselves before handing over responsibility to 18 (US) Engineer Brigade. By now Zachu, originally occupied by Iraqi troops and a divisional headquarters, had been cleared of both uniformed men and many plain clothed secret policemen. Slowly this important town was returning to life as Kurds moved back to their homes and the nearby camp.

Whilst Sapper efforts continued at Zachu and in Silopi, plans were being formulated for a bold move reaching some 85km into Iraq, aimed at securing the major valley running from Zachu in the West to Al Amadiyah in the East. This would provide the backbone of the Prime Minister's promised safe haven. Before relating this operation it would help if first the overall command structure is outlined and then the Sapper ORBAT described. Operation Haven (or *Provide Comfort* in US terms) was commanded from a US 3 Star Combined Task Force Headquarters (CTF) based at Incirlik. Also at Incirlik was the British National Joint Forces Headquarters, known as Headquarters British Forces Haven (HQBF) working back to JHQ High Wycombe. Under command CTF were two US led Joint Task Forces: Alfa and Bravo (JTFA and JTFB). JTFA (Brigadier General Potter) was responsible for ensuring the Kurds in the mountains survived, and for assisting

with their movement South. It coordinated the massive fixed and rotary wing air resupply operation and commanded the US 10th Special Forces Group operating in the mountain camps. 40 Commando Royal Marines also operated under tactical control (TACON) of JTFA for much of the operation, in the valley immediately to the North of 3 Commando Brigade's own area of operations. JTFB (Major General Garner) was responsible for providing the security of the safe haven to which the Kurds would return, and then for assisting with their resettlement. JTFB eventually comprised 3 Commando Brigade Group less 40 Commando; a French Brigade; a US Marine

Expeditionary Unit (24 MEU); a US Airborne Battalion (3-325 ABCT) and Spanish and Italian airborne battalions. The map above shows key locations and geographical areas of responsibility.

By the time the Brigade was ready to move into Iraq the Sapper component had become clear. It comprised 59 Independent Commando Squadron, including 19 augmentees from regiments in BAOR; our affiliated troop of 49 EOD Squadron; 51 Field Squadron; 524 Specialist Team and a Resources Section of 6 Field Support Squadron. 59 Squadron with its attachments was to move with 3 Commando Brigade and provide close support, both to its units and to the humanitarian operation within its boundaries. 51 Field Squadron and 524 Specialist Team were placed under TACON 18 (US) Engineer Brigade. 18 Brigade in turn provided the general engineer support for JTFB and comprised a US Army Combat Heavy Engineer Battalion; a US Navy Construction Battalion and a Dutch Army Engineer Battalion, in addition to the British contribution. The ubiquitous Resources Section of 6 Squadron provided the core of 18 Brigade's resources capability and also detached a small element forward to 59 Squadron Echelon.

THE MOVE INTO IRAQ

With planning complete and battle procedure under way 3 Commando Brigade led the coalition advance into Iraq on 2 May 1991. At this time the only

Sappers in theatre were the two STRE officers and 56 men of 59 Squadron, organised into two small field troops plus the recce element of the third; a two man support 'troop' and a small Squadron headquarters. Seven Land Rovers, two troops' worth of Equipment Table stores, some extra Standard Water Purification Units (SWPU) and a few tents completed our order of battle. Balance was not something which was easily achieved. The Squadron's support to the Brigade was as follows. Three recce teams flew or drove forward with rifle companies with the specific tasks of finding a good water source, conducting a detailed Main Supply Route recce as far East as possible, and assessing the abandoned Iraqi airfield at Sirsenk for future use. We had been warned that allied aircraft had used Sirsenk as a bomb dumping ground on their return from sorties into Iraq from Turkey during Operation *Desert Storm*. The field troops were configured for airmobile moves forward to execute tasks as they arose, but with particular emphasis on securing and constructing a Brigade Water Point as early as possible. The headquarters elements were split between a very reduced Echelon to remain at Silopi to meet the rest of the Squadron, and the Brigade Main and Tactical Headquarters.

By the end of the day our limits of exploitation had been reached without mishap, despite a sizeable but compliant Iraqi military presence. 1 Troop had by now been flown forward to Aradin where an artesian water source had been found which was to supply the entire British force in Iraq with potable water for the duration of Operation *Haven*. This was a tremendous find, and a better source was never found anywhere in the Brigade area. The second field troop followed the first forward by air and, shortly after 59 Independent Commando Squadron established itself in Sarsing, which was to become its home for the next seven weeks. Meanwhile the buildup of men and equipment continued back at Silopi.

Our early days in Iraq were characterised by acute shortages of equipment, resources, vehicles and radios and we spent nearly ten days relying on Land Rovers and radios borrowed from commandos who had been allowed to deploy with equipment in excess of their immediate requirements. Tasks soon came in in abundance and we quickly devised an 'Engquest' system so that units could bid for engineer support via our SHQ, to the Engineer Desk in Brigade Headquarters, which had now moved to Sirsenk. Nightly tasking conferences were instigated and rapidly the Brigade's reliance on its Sappers became only too clear to all. As Iraqi

forces withdrew, troops of the Squadron became heavily involved in continued water supply for the Brigade units forward in Iraq, for the BAA in Turkey and for 40 Commando to our North who, despite being under Tacon JTFA, were still reliant on our engineer support. At Sirsenk airfield several million pounds worth of Iraqi plant had been abandoned and wrecked, presenting a challenge for our plant operators and fitters who succeeded in re-activating much of it and putting it to effective use. EOD clearance of the airfield proved to be a smaller task than had been anticipated with a few hundred, rather than thousands of bomblets needing destruction. The larger task carried out by both the EOD troop and our field troops was the destruction of massive quantities of Iraqi Land Service Ammunition (LSA), ranging from tank and artillery ammunition to mortars and RPGs. We also spent a sizeable proportion of our time clearing areas for operational use which were thought to have been mined. Much of the countryside was mined, particularly around abandoned Iraqi Army positions and along the verges of roads. A few mines had clearly been laid recently but the majority were in older minefields, some dating back twelve years or more. The fragile and sometimes unstable nature of these coupled with difficulties of detection meant that the policy we adopted was to fence off and leave all minefields after an initial reconnaissance to establish the types of mines used and the laying patterns. Mines found were predominantly Italian (V-69), although one or two other types of Chinese and Soviet origin were also found. Local Kurds appeared to be used to living with the mine threat, although this did not prevent them from sustaining casualties. Several children were also killed or seriously injured by exploding ordnance which they had thrown into bonfires. Despite warnings they continued to do this. Much time and effort was given to providing company and troop locations with adequate sanitation facilities, and electricity and water supply. The easiest means of providing electricity and water was often to repair the supply to the whole village concerned. Small teams, led by JNCOs and key tradesmen, worked wonders in almost every town or village in our area. Normally the repair of a large generator engine would restore a town's power, which in turn allowed water pumps to be operated and thereby provide mains water. Although our directive was still to make support of the Brigade units our priority it was clear that, once this task neared completion, we would be able to contribute much directly to the humanitarian operation.



One of many truck loads of Kurds returning to the safe haven from their mountain retreats.

Finally, almost two weeks after the Brigade's advance into Iraq, the balance of our vehicles, tents and equipment arrived, having travelled by sea to the Turkish port of Iskenderun and then over land via Silopi and into Iraq. At last we could consolidate our position and start to give our full and effective support to the operation. We began by re-organising ourselves. Squadron Headquarters continued to occupy a large house in Sarsing, with the exception of our Engineer Operations Cell which remained at Brigade Headquarters. 1 Troop stayed at their water point site, while 2 and 3 Troops moved into Sarsing Police Station and Fire Station respectively. Recce Troop grouped with the Mountain and Arctic Warfare Cadre to form the Brigade Patrol Squadron; and Support Troop, our Resources Team and the REME Workshops formed Squadron Echelon at a large abandoned bakery just outside Sarsing. It was from these bases that we were to support the remainder of Operation *Haven*.

CONSOLIDATION

Now that the security of the safe haven was assured a number of other agencies began to appear and become involved in what, until now, had been a purely military operation. New humanitarian relief organisations arrived almost daily. To describe them all would be difficult but the key ones included non-government organisations such as Médecins Sans Frontiers and CARE; United Nations related groups such as the United Nations High Commission for Refugees (UNHCR) and World Health Organization; and national government organizations. In the British case the

latter consisted of the Overseas Development Administration and comprised engineers, medical teams and agricultural specialists. Over the coming weeks we were to have frequent dealings with many of these groups.

The manoeuvre units of the Brigade (45 Commando, 29 Commando Regiment, 1 Amphibious Combat Group and 40 Commando to our North) had now begun to broaden the scope of their work to include the storage and distribution of food and provision of medical aid to Kurds as they began to re-occupy their homes. For many of the Kurds, however, 'home' was still occupied by Iraqi forces to our South. In

particular the city of Dohuk was the home of an estimated 350,000 Kurds. As yet the city was occupied by Iraqis, although 3-325 ABCT and 24 MEU had closed in to its outskirts. Our Brigade Area of Operations now stretched 105km from East to West (with our BAA a further 25km to the West at Silopi) and an average of 35km from North to South (not including 40 Commando's area to our North). As a Squadron, 59 were responsible for meeting the engineering needs of all of this area, less the airfield itself at Sirsenk, the maintenance of which fell to 18 (US) Engineer Brigade. The troops of 51 Field Squadron were employed building refugee camps at Zachu and Shiladiza and a US accommodation camp at Sirsenk. 524 Specialist Team became a greatly appreciated design cell within 18 Brigade Headquarters and worked very hard for their keep, whilst 6 Squadron's Resources Section provided a capability without which 18 Brigade would not have been able to cope. Needless to say, we found ourselves fully employed looking after our own area of responsibility and the men of 59 Squadron must be amongst the most widely travelled in the Brigade.

In mid-May the inaugural meeting of the Central Development Committee (CDC) took place. This was an initiative conceived by our Brigade Commander, Brigadier A M Keeling OBE, designed to allow leaders of the Kurds to meet regularly, initially with the military leaders within the Brigade area and subsequently also with representatives of the many relief organisations who would gradually take over the aspects of what had been a military-run task. The main intention was to provide aid for

the Kurds of the type they wanted and in the places which they wanted it, rather than to 'herd' them, like cattle, into massive camps. Within our area this marked the turning point in our relationship with the people we had come to Iraq to assist. I was soon co-opted onto the Committee as engineering adviser, as were medical personnel and linguists to advise in their fields. A British military organization called the Kurdish Liaison Team also took an active role in the CDC. This tri-service group was formed specifically to provide an interface between the Brigade and the Kurds which could glean information from a variety of sources to help our work. By now the Squadron's work in support of the Brigade's units was nearing completion and the steady

trickle of new tasks arising daily represented just a small proportion of our total capability. It was against this background that we plunged headlong into what I had hoped to do since we had arrived in theatre: become directly involved in work alongside the Kurds themselves. As a start the CDC agreed that two Way Stations would be built, one at Batufa and one at Daudiya. These were aimed at providing a facility at which Kurdish families, moving South from the mountains, could acquire food, water and medical assistance during their journey. Sanitation, fuel and limited vehicle repair facilities were also to be provided. Although the manoeuvre units were to be responsible for the running of the Way Stations, it became the Squadron's responsibility to build them—a troop task at each site. The next stage was to provide those Kurds who were unwilling or as yet unable to return to the homes they had left two months before with somewhere to live temporarily.

A new complication to the resettlement scheme now emerged. Whilst many of the returning Kurds had fled from Dohuk and cities further South at the time of the Baghdad government's current purge, it transpired that they had only moved to those homes four years before as a result of a previous similar purge. In 1987 Baghdad, in concert with Ankara and Tehran, had decreed that a *cordon sanitaire* would be created in the vicinity of the three countries' borders. With the exception of only about a dozen small towns, every village



The Archimedes Screw core removed from the well shaft at Daudiya.

within our area had been either razed to the ground by bulldozers or attacked with chemicals. Entire valleys were sprayed with defoliant to prevent cultivation. Now, it seemed, the Kurdish tribal leaders were using the CDC to pronounce their intention to rebuild their original homes, rather than move back to their recent ones in Dohuk or elsewhere. Our Kurdish engineer was soon elected as the apolitical leader and spokesman for all his people within our area of operation. Quickly he drew up a scheme which he hoped would lead to an orderly resettlement of the Kurds although, perhaps naturally, his aim was to restore something of the old order, rather than the status quo of 2-3 months before. His plan, which we accepted as the basis on which to proceed, was to construct a number of settlements at key positions throughout the area. At each of these there would be marked out community areas in which the inhabitants of former villages, now destroyed, could live in tents and shelters on a temporary but medium term basis whilst they re-built the old villages from their ruins. Each settlement would have a water supply; a simple road network; a food supply to supplement locally produced staples; simple sanitation and a Kurdish organised administrative structure. Families would be directed by an extensive psychological operations campaign to the settlement from which 'their' village would be rebuilt and would come under the administrative umbrella of that settlement while they lived there.

Utopian as the scheme may sound, it was what the Kurds themselves wanted; it seemed to work and, most importantly, it was difficult to devise a better one which met with universal approval.

Initially the Kurds had grandiose ideas of up to eighteen settlements, many of them in inaccessible locations, but common sense and a degree of persuasion on our part reduced this to just five. The number itself was not important. What was important was that the Kurds were taking the lead and we, the military and the relief organisations, were assisting them rather than coercing them. As had been expected, the Squadron's work changed in nature during the next few weeks. The first of the new settlements was to be at Daudiya and was to serve some 15-20 destroyed villages which the Kurds stated were ready for rebuilding immediately. We were already familiar with the site having built the Way Station there, but now our work became more involved. Semi-permanent aggregate roads were first set out and then constructed by our Plant Section. Its fleet suddenly expanded to in excess of thirty machines as more Iraqi plant from Sirsenk airfield was coaxed back to life, and a group of Iraqi tippers with drivers was employed on a daily-paid basis to supplement our own four 10 ton Iveco Fords. Whilst the plant operators showed off the Brigade's armour (our CETs), 2 Troop set to work to construct a permanent water supply and distribution network which would deliver water to the heart of each temporary village community in the settlement. The original borehole which had supplied Daudiya before its destruction was located with the aid of local assistance. The rubble of the old pumphouse was soon cleared and the core of the borehole was cleared out. This consisted of 120m of Archimedean Screw which had previously been turned through a gearbox by a diesel engine. With the borehole clear it now remained for ODA engineers to procure an electrical borehole pump to be lowered on its delivery pipe into the hole. My own criteria for commitment of military engineering hardware to any Kurdish support project were that we should expect to recover it before we left the theatre and that we should man it while it was in place. It would have been easy to solve every problem we met using military equipment: it would have been equally easy to commit most of the Corps' holdings of certain equipments to projects from which they would never return. Since I did not expect too many thanks from UK for leaving vast quantities of equipment behind, I was grateful that Brigade Headquarters supported me fully on this.

The result was that we did have to leave a number of half sections on various sites, running and maintaining equipment, but we were also able to provide instant solutions at many locations, pending the arrival of equipment which could be left indefinitely, procured through the ODA. The borehole pump for Daudiya fell into this category. Meanwhile the troop installed a tower and an elevated tank, both found locally, onto a welded steel grillage constructed by Support Troop welders. This provided the header tank for the gravity fed distribution system. The pump and engine to push water from the ground storage tank, fed from the borehole, to the elevated tank was found semi-submerged in a pond. A complete rebuild of this single cylinder relic and its centrifugal pump, both built in 1904 in India, was undertaken by the Squadron's REME Workshops, and they were then successfully installed on site. As this work proceeded the latest variant of the Moslem Deep Trench Latrine was constructed in quantity.

At the other sites reconnaissance work continued, conducted jointly by our Squadron teams, Kurdish engineers and ODA engineers, the latter to assess the equipment they would need to procure through their own channels. By the time that our second site, at Gir-i-pit, was ready for construction it was clear, however, that events were taking a new turn. First, several of the locations initially identified by the Kurds as 'important' for their future reconstruction work were found to be unsuitable, either due to their remoteness and difficulty of access, or because of lack of water sources. Second, it was by now becoming apparent that many Kurdish communities were returning voluntarily directly to their old destroyed villages. They were 'camping' there and recultivating their farmland whilst they began rudimentary reconstruction work. Finally Dohuk had been cleared of Iraqi troops and secret police by 24 May and many Kurds began to return to the homes they had occupied there between 1987 and early 1991. This last event removed the requirement for large numbers of settlements to be built and ultimately led to a decision to complete Daudiya settlement and build essential services only at a second site at Gir-i-pit. Although both the Brigade and civilian relief agencies had declined to become involved in permanent reconstruction of Kurdish villages, we agreed to assist with provision of services at these sites. Yet more water supply equipment was installed on a temporary basis at many locations by us; medical teams established on-site clinics

where full-time medical support was needed, they visited the others on a rotational basis; food was delivered in bulk to the villages to be broken down and distributed by the Kurds themselves.

In just six weeks in theatre we had jointly achieved a major reversal of the situation which had led to our deployment to Iraq in the first instance. The Kurds were returning *en masse* from the mountain 'sanctuaries' to which they had fled two months before. Dohuk was now open to them, and many had chosen to settle in the valleys from which they had been evicted four years earlier, rather than move further South beyond the limits of the safe haven. By early June UNHCR was co-ordinating the work of many government sponsored groups and non-government relief organisations. Distribution of food; medical support; agricultural assistance, and engineer assistance were now all in the hands of civilian groups. The Brigade now provided little more than the force needed to ensure the security of the safe haven. Our work with the Kurds continued in the form of repairs to hospitals and clinics; site surveys; route reces and a feasibility study for the construction of a footbridge to enable refugees to cross the wide and fast flowing Great Zab River, as well as the major work in the settlements. However, we were now making a conscious effort to disengage from the Kurdish assistance projects and revert to our priority role in support of our Brigade. This coincided, fortuitously for us, with the move South of 40 Commando. In the space of only a few days the mountain camps emptied completely and the itinerant Kurds in JTFA's area to our North either moved South or in a few cases decided to stay put near the town of Begova. JTFA was quickly 'disbanded', its *raison d'être* having gone, and 40 Commando began to take over 45's area, returning to TACON 3 Commando Brigade as they did so. Although 40 were taking over 45's patch, they retained responsibility for security in their old area, and also required 59's assistance in establishing their new locations. Thus we found ourselves fully employed again directly in support of the Brigade. More tasks in this category were identified when I made a tour of all unit locations in early June. By the end of the first week of June we had finally exhausted all sources of work — the first time we had found ourselves in such a position since our deployment from UK. However, we had now been warned of a possible return to UK at short notice. 45 Commando, 51 Field Squadron, 524 Specialist Team and a number of

other small units had already departed as part of a 25 per cent reduction of UK forces in theatre. Our attentions were now thrown wholeheartedly into packing equipment ready for our move back, but we had no sooner loaded the majority of our vehicles than we were faced with a challenge we could hardly refuse.

As a result of our joint reces, ODA engineers had placed several expensive orders for equipment to be shipped from UK for permanent use at a number of sites. Although the equipment had just arrived they were now placed in the embarrassing position of being unable to install it without our equipment and expertise, and we were due to move out imminently. The ODA assessment of the time required to complete their work at eight sites was four weeks. We had five days available if we were to meet our loading deadline: just the type of challenge required to instill a sense of urgency amongst the men at a time when thoughts might otherwise have been wandering towards home. A detailed 'O' Group on Day 1 brought looks of astonishment and disbelief to the faces of the civilian engineers, many of whom had never been part of a military operation, working against a strict time deadline. The Squadron then unloaded its equipment again and rolled into action. By the end of Day 4 our tasks were complete: all of them related to supply of either water or electricity to villages being resettled and rebuilt by Kurdish communities. It was with considerable satisfaction that our stores were reloaded and manifested at the end of that week. On 16/17 June the Squadron moved out, air parties flying directly from Sirsenk to Cyprus, and the vehicles driving through Turkey to the Mediterranean port of Iskenderun. We did, however, leave 3 Troop behind as part of 40 Commando Group, the residual force required to remain in theatre pending coalition support for a full withdrawal. Most of the troop eventually returned in mid July and the final few individuals in mid-August. Now (September 1991) all that remains is a company of 40 Commando as part of the so-called Rainbow Battalion, a small multinational force based at Silopi as a deterrent to further Iraqi aggression.

LOGISTIC ASPECTS

LOGISTICS were vital in this as in any other operation and an account of our work in Northern Iraq would be incomplete without some reference to our equipment and how well it stood up to the test of the continuous use to which we put it. First a few words to set the scene with respect to our vehicle fleet. We

still drive around in Land Rovers of the Series III variety, which some will remember preceded the current I10 series. They average between ten and fifteen years of age and have spent many months of their life braving the elements on the open decks of Her Majesty's Fleet. All our vehicles and plant stand out all year round in barracks in UK and Norway. In short we have a ragged set of vehicles on which our MT and Workshops continually work wonders to keep them roadworthy. It was with relief and some amazement that all the vehicles completed the journey from docks to BAA without mishap. It was little short of a miracle that almost all our vehicles and plant worked almost all the time throughout the operation. To achieve this we reduced our servicing and inspection intervals considerably, and gave each troop the equivalent of a day per fortnight, as dictated by our tasking, for vehicle and plant maintenance. The result was that our capability was never really degraded by unavailability of equipment with one exception. Our Light Wheeled Tractors (LWT) (we took three) proved to be the ideal equipment for much of our work, particularly trench digging, and worked overall at five times their normal monthly rate. Hydraulic hoses proved to be the weak component and at the time we needed them most many of the Brigade's spares had been impounded by the Turkish authorities at Diyarbakir, together with hundreds of litres of vital OM 33. Luckily we were able to borrow US Army Unimogs with small front-loading buckets and back-acters. They proved to be greatly superior trench diggers to our LWTs and had the distinct additional advantage of being able to self-drive, instead of requiring 10 ton tippers to tow them on tilt trailers. Of our other plant and vehicles our CETs proved valuable until gearbox failure on one and steering failure on the other forced them both "off the road". Doubtless due to post *Granby* constraints no spares were forthcoming and they remained "off the road". For the remainder, our equipments held up very well and the problems which could not be fixed immediately nearly all arose due to movement difficulties for spares.

In addition to keeping a close watch on vehicles and plant we conducted a 100 per cent stores muster of all items as soon as all our freight had arrived in theatre. This confirmed several suspected losses in transit and gave us an essential firm base for stores accounting from which to start. Thereafter troops were required to monitor closely movement of all Equipment Table stores to their many widely dispersed sites to ensure

that we could recover them all at short notice whenever required.

This was particularly important for water supply equipment. In addition to our own three Light Weight and one Standard Water Purification Units we drew four additional Standard Sets and needed them all for much of the time. We had also just received three Gilkes Pumps into the Squadron's inventory. These proved invaluable and were often used, together with the Grindex Pump from the Combat Engineer Power Tools, for high speed pumping of large volumes of water, for example into 20,000 litre road tankers. Overall we found that our water supply equipment stood up well to two months continuous use and, together, our water points supplied approximately five million litres of potable water during the two months for which the full Brigade Group was deployed. An interesting discovery in the last two weeks of our deployment, made after the dreaded 'dues out' appeared following a demand for calcium hypochlorite, was that large chlorine tablets, similar to enormous steritabs, were very effective for fixed dose chlorination. The field hygiene section approved their use; there were abundant supplies in the Brigade Maintenance Area and also they did not leave dissolved calcium in the water as calcium hypochlorite does. Perhaps the Corps should look further at this?

The other key feature of our logistics system in the Squadron was our reliance on the Resources Section attached from 6 Field Support Squadron. In our NATO role we would rely on the Resources Troop of 131 Independent Commando Squadron Royal Engineers (Volunteers). I use the phrase "would rely" for two reasons: first we rarely see them and second it is rare on exercise for the interface between engineer resources teams and the local economy to be established. On Operation *Haven* all of our materials were found in theatre; either literally found locally in Iraq and taken for the common good of all, or bought in both Turkey and Iraq from civilian supplies. Some of our timber was transported in from as far away as Ankara. Without a dedicated Resources Section this would not have worked.

REFLECTIONS

PERHAPS the greatest lesson I learned or relearned during Operation *Haven* was of the extraordinary flexibility and adaptability of our Corps field squadron structure. Other countries committed a variety of engineer squadron equivalents to Turkey

and Iraq, but they all seemed too specialist and too equipment orientated to be capable of making a real contribution. Combat engineer units could only combat engineer; heavy engineering companies were useless unless building roads and runways; foreign EOD units were unable to handle anything other than EOD work. Much of what was achieved by 59 Independent Commando Squadron was achieved by ingenuity, commonsense and abundant initiative, frequently at a very low level. A good tradesman with a few 'working hands' worked wonders on many occasions repairing and maintaining local water supply and generating equipment which had been 'written off' by others. It was particularly pleasing to know that if a task was there to be carried out it could be given to a troop or section, as appropriate, and that they would complete it, and complete it well without any further prompting or supervision.

The other major lesson, also relearned and thus of no surprise, is how well-suited we as a Corps are to disaster relief and humanitarian support operations. Operation *Haven* encompassed nearly every Sapper skill there is. From the day we arrived in theatre until the day before we left, the Squadron worked to capacity with only a slight lull in the middle. We were one of the few units of the Brigade to do so, which in itself demonstrates the validity of my claim. Although cuts to our ORBAT have now been announced, we must not allow others to lose sight of our capabilities in fields beyond pure military operations.

It was good to feel that someone, whether Marine or Kurd, was benefiting from all that we did. I believe that, to a man, we in the Squadron felt that everything we were doing was making a real contribution to the operation as a whole. Frequently we were engaged in conversation by Kurds who openly expressed their gratitude for all that the coalition forces had done. Out in settlements we always seemed to gather a Pied Piper-style gaggle of smiling children who followed us constantly shouting "Hello Mister". However it was alarming to see how differently human life was regarded in a country with a culture radically removed from Western values. Whether this was natural or a consequence of the tremendous suffering these people had endured was not clear. Although the gun-toting Peshmerga frequently assisted us and were overtly pro-coalition forces it was never far from the front of our minds that allegiances can change quickly in such a volatile area and that a few more deaths on either side would mean little

to a society for whom death and disease are part of daily life.

Whether or not to send a Regimental Headquarters to command the two Squadrons and other specialists was still being agonized over long after the full deployment was under way. In the event I am convinced that the solution arrived at was the correct one. It would have been difficult and frustrating for an RHQ to have tried to exercise any form of command in the circumstances, with 59 Squadron dedicated to close support of 3 Commando Brigade and 51 Squadron and 524 Specialist Team operating under TACON of 18 (US) Engineer Brigade. What was required was frequent liaison between 59, 51 and 524, particularly over issues which affected us jointly, such as resources support. This we achieved without any difficulty.

Overall, Operation *Haven* was a unique experience and one which will remain with me and the Squadron for some considerable time. I am immensely proud of what my Squadron achieved in two short months and I believe that the Corps can rest assured that all of its representatives acquitted themselves well throughout a very different sort of operation.



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The Road to Rome

BRIGADIER J CONSTANT MA EMBIG FICE FIMICH MIEE



After the "Shop", John Constant was granted a Regular Commission by King Edward VIII in 1936 and followed his YO Course at Chatham and Cambridge by a year at Corsham on underground works.

Then, as a Troop Leader in 1st Field Squadron, and the first Adjutant of 7th Armoured Division Engineers, he supported armoured formations until 1942. After three years in the Middle East, he went to Staff College Quetta and became Brigade Major of an Indian Infantry Brigade in Burma until 1945.

His post-War duties included command of 32 Fortress Squadron and 51 Port Squadron (the first regular unit of that type), DAA and QMG (Ops, Plans and Trg) British Troops Egypt, CRE Arab Legion, MI 1 Colonel in the War Office, R&D in the Ministry of Supply, Chief Engineer ME Land Forces, Commandant Defence NBC Centre, Greenwich War Course and Commander Engineer Support Group.

Invited by the Minister of Transport, he led a four-year Government feasibility study for a "fixed-link" across the Channel, and then became Technical Director of an industrial company, before acting as an independent consultant on Saudi Arabia and China. He has been based for 24 years on his farm in South Devon.

I CANNOT let 1991 conclude without mentioning some personal memories of half a century ago; that year the German Army met its first defeat of World War II by the British Eighth Army during the *Crossader* Campaign in November-December 1941.

The year had started auspiciously with our trouncing the Italians in the Western Desert of Egypt and driving them out of Cyrenaica.

As we advanced, I heard talk about "The Road to Rome" and found that, when the Italians had first invaded Egypt the previous summer, the Western Desert Force had resolved not only to push them back, but to defeat them to such an extent that our attack would follow the way they had come and, indeed, lead all the way back to Rome itself: so our Axis of Advance became known thus, well before the Germans moved across the Mediterranean with their *Afrika Korps* under General Rommel.

I was Adjutant of 7th Armoured Divisional Engineers which had formed up in the UK in April 1940 and, after many vicissitudes, had arrived in the Libyan Desert, South of the Gulf of Sirte, in March 1941.

Our CRE, Alan Crichton-Mitchell, had been Brigade-Major in an Indian Division. We had two units, 4th Field Squadron and 143rd Field Park Troop, which were well trained, with a high

proportion of Regulars but our equipment was sadly lacking in offensive weapons.

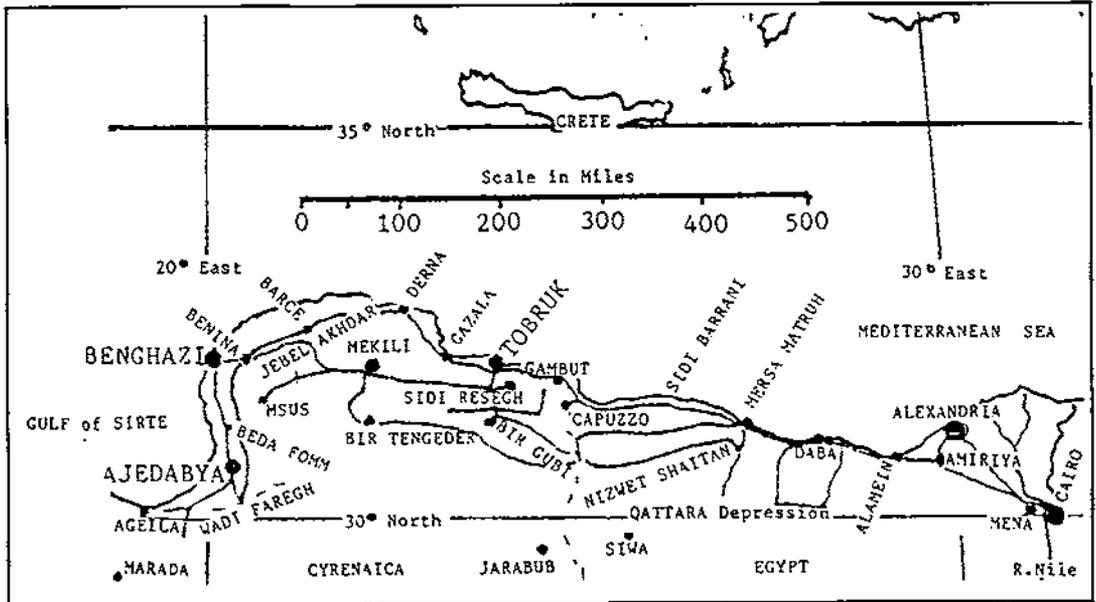
7th Armoured Division had just been withdrawn (including the Cheshire Sappers, which had supported the advance) and we were now to support 2nd Armoured Division, recently arrived from UK and not acclimatised.

An armoured car regiment, the King's Dragoon Guards, were deploying right forward and Headquarters 2nd Armoured Division was moving into the area of Ajedabya, where the CRE and I were to join them. The Field Park Troop was to be close by, with the Troops of 4th Field Squadron deployed down towards the armoured cars and with them.

We quickly got to know the countryside, particularly the water sources and some of the obstacles such as the Wadi Faregh. A number of mines had been spread here and there so that several of our vehicles hit one or other of them and usually lost an axle — no spares!

There were increasing numbers of German aircraft appearing and we learnt that the German army had landed in Tripolitania. One armoured car near Marada reported seeing a leopard, which seemed quite a surprise, but it was confirmed that leopards did exist in that part of the Desert.

Australian Sappers from 9th Division were also in Cyrenaica, and were working on improving the



Map showing Northern Libya and Egypt in 1941

water availability and setting up water points on our Lines of Communication (LoC). The very day we joined up with 2nd Armoured Division and met their Commander, Major General Gambier-Parry, we heard that a German 8-wheeled armoured car had been seen down near Ageila. General Headquarters (GHQ) in Cairo thought we were all safely training in the area, with no enemy other than a few Italians to worry us. As the signal reporting these sightings was dated 1st April, it was thought by the duty officer to be an April Fool's joke. The report was in fact serious because German troops, as well as Italians, had been identified and were beginning to "lean against" our armoured cars.

In those days Sappers had no wireless sets, so only knew what was happening when close to a headquarters. In our current role, we were spread over a wide area and had the greatest difficulty in passing orders. A great deal of my time as Adjutant was spent acting as Liaison Officer, trying to find our chaps to tell them what the CRE wanted.

The maps of the area were really hopeless with several places much displaced.

It was in the area of Ajedabya that I first came across "desert rats", the gerbils or jerboas, charming little animals. 7th Armoured Division chose one as their Divisional sign.

I remember one tank unit being equipped with Italian light tanks as fast as they could be recovered at Beda Fomm, where the final battle of the winter

campaign had destroyed their rearguard. There should also have been a regiment of cruiser tanks but as no transporters were available, these tanks had had to come across the rocky Desert on their tracks. Quite apart from wear and tear, many of them had broken down on the journey from Mekili.

We then had some eight days of continuous operations virtually without sleep, as the Germans built up; they pushed in our armoured car patrols and took Ajedabya, gradually forcing us North towards Beda Fomm and beyond. To avoid providing a linear target along the road, the General ordered units to move in open formation and thus we crossed a series of wadis, some of them with precipitous sides. Divisional Headquarters, bogged down with its big office vehicles and Armoured Command Vehicles, lumbered slowly northwards and very nearly got stuck at the crossing of the Wadi Garridla, where we feared the Germans would catch us up but enough sappers, British and Australian, were there to get the unwieldy circus through.

We retreated northeast into the hills and I remember the first occasion we saw our 25-pounder guns firing at tanks over open sights. We also had a Troop of heavy anti-aircraft guns near Benina Airfield; the guns were used in an anti-tank role most successfully, but as there was a shortage of such weapons, strict orders were given to return them for the air defence of Tobruk. The Germans were using their 88s with devastating effect.



"Tank busting" was developed by Sappers as a means of denying the enemy any possibility of recovering their (or our) AFVs, when they might otherwise have been used against us. This Italian M13 shows what could be done.

The CRE and I each had a civilian-type Ford saloon car painted with camouflage and basically unsuitable for cross-country work. They had been modified with over-sized tyres and had the standard "desert system", provided for all vehicles, so that the water which boiled in the radiator was automatically recondensed.

A stray bullet from a German machine gun had gone through the back of my car and grazed the fuel tank, from which petrol was leaking. We were terribly short of transport and did not want to abandon the car. Fortunately I had remembered a few essentials, one of which was chewing gum; this, held in place by a medical plaster, succeeded in blocking the hole sufficiently to enable us to keep going. These cars were not designed for traversing hundreds of miles of rocky desert, and it was particularly difficult to keep a look out for enemy aircraft. How we would have blessed the (then unborn) Jeep!

Moving eastward into the mountains near Barce, the CRE and I met up with Lieutenant General "Dick" O'Connor, the Force Commander, and had a meal. He was handing over to his successor, General Neame, a Sapper. We later heard the two Generals had been captured soon after we left them.

Withdrawal from the Ajedabya area took place so fast that there was little time for sleep. Lying on the surface for a few hours one night, I was woken by my driver, Vickers, just before first light. Being fully dressed, I scrambled out of my bedroll, complaining of discomfort. As he started to roll up the bedding, Vickers leant down and picked up a

large iguana by the tail, he looked towards me with his long face, saying "Not surprising!" and our laughter cheered us up.

We continued across the southern face of the Jebel Achdar crossing wadi after wadi, each of which created something of a defile with vehicles bunching up as they tried to find ways through the combination of large boulders and steep sides. Low-flying German aircraft relished the opportunity and, in spite of the gallantry of the Bofors gun crews, casualties occurred.

Italian "thermos" anti-personnel bomb clusters had been dropped on some of the tracks, resulting in further casualties before we reached Mekili Fort. There we met 3rd Indian Motor

Brigade, with welcome supplies of water and fuel. It was cold at night but we were able to move in the moonlight, though such action often led to disaster on a mine or unseen declivity. By day however vehicle movement resulted in "dust-devils" easily visible to the enemy.

My "desert boots" were beginning to wear out and I had no alternatives. One of the Indian Units had a shoemaker in Mekili Fort itself, where I sat while he did the repair. A lone enemy gun started spasmodically to shell the fort and I realised, quite illogically, that my lack of footwear made me feel very vulnerable.

Having no wireless sets our Sapper detachments, spread widely over the Desert, had to operate without any information about the enemy and could only guess the CRE's intentions.

These difficulties were increasingly being shared by other Arms because they did not have enough charging engines to keep batteries effective. Moving so frequently and even when not moving being at say 15 minutes notice to move, there was little time to set up charging arrangements. Very few of the Divisional links were "through" but I do not think we realized how bad the situation really was, as we continued to make jokes to fortify our spirits.

In the middle of the night 7/8 April 1941, the word came that we were to move further east and to be ready to do so at first light. We did move but almost at once shooting started for a few minutes, then sudden silence and I was quite amazed to see, just in front of me, the General's command vehicle stopping and pushing up a white flag. I can

remember being incredibly angry to think that all my training and preparation for battle was now to be wasted. It seemed incredible that without our knowledge the Germans had moved up in some force in the night and that a regiment of their tanks was attacking us.

The Divisional Commander realized there was no point in trying to resist, as we simply did not have the weapons to deal with the situation.

Having withdrawn some 400 miles in eight days with little rest and almost no sleep, the General looked terribly tired when the Germans led him away with the CRE and other senior officers. The rest of us were told to abandon our vehicles and to go to a designated spot about 600 yards away.

There seemed to be little pressure at the time, so I carefully packed a few necessities for health and hygiene, with a change of underclothes and socks. Being unsupervised, I was then able to utilise the wire "in-tray" for burning my official papers. By the time I had finished this I could see a dejected crowd of several hundred sitting in the desert, as instructed, waiting for orders. I really felt sick with anger, as I joined them.

Having seen no sign of friendly aircraft throughout the retreat, it seemed the last straw for our morale when a small British two-engined aircraft now appeared and, seeing the situation it dropped a small bomb.

Leaving my haversack with the few belongings I had packed, including my camera, I walked off about 50 yards to have a pee in the desert and spoke to John Bond, who was doing the same nearby. We agreed that we should just keep walking and nobody took any notice of us; we walked to the place where we had earlier left some vehicles.

I was a bit shocked when we got there to find German soldiers examining the vehicles and trying to start them. Without drawing their attention we got into a 15 cwt truck. It started up and as I drove it away we both waited anxiously for a shot, but none came. Obviously the Germans thought we were two of them.

Glad as I was to be escaping, I felt sorry to be leaving the men of our little Royal Engineer Headquarters: Vickers the driver, Richards the clerk and Dudley North the draughtsman. I was also sad to leave

my Leica camera, with the photographs I had taken during this retreat.

I was driving, with John sitting beside me in the cab of the vehicle. Unable to be sure that our luck would hold, we agreed to drive in a southwesterly direction as that appeared to be clear of everything. We drove for about an hour and were then very worried to see several German aircraft, Junkers 52, landing on a salt pan.

To avoid danger or discovery I stopped the vehicle at an awkward angle with the doors open, making it look as if it were abandoned, we just laid down under it gladly accepting the shade as we were still dressed for the cold of dawn.

After about half an hour the aircraft, presumably now unloaded, took off, and the desert seemed to be empty. We decided to continue but before long we suddenly saw a motor bicycle and sidecar, obviously German; quite a shock!

The rider, possibly lost, wanted company and turned towards us. The desert there is rocky but the big tyres of the truck could take it, and I felt the excitement of accelerating to overwhelm him. Realizing at the last moment that we were unfriendly, he tried to turn his bike and fell off. I stopped just short of running him over. While John jumped out and stood over him, I rushed round and got hold of the rifle from his sidecar. We menaced him and, taking turns to keep him under guard, removed any items of interest including his fuel can; the first "Jerry can" I had ever seen.



The legendary 88mm Hvy anti-aircraft gun adapted for anti-tank use. Recovered by 143 with its ammunition, from a German column. We would have liked to keep it for self-defence but discipline prevailed and we gave it to Technical Intelligence.

Brig J Constant MA
The Road to Rome (p243)



A 'stepping-stone' fascine, as used for crossing anti-tank ditches.

We then had the problem of what to do next; we knew from our instruction in Military Law that the treatment of prisoners should follow a pattern defined by the Geneva Convention, but had no equipment for tying him up, even if that were permitted.

We took his water bottle and most of his clothing, leaving him only in his shorts and shirt, but without his boots. We then made him sit on top of the cab of the vehicle and continued to drive.

Our chosen route was South of Bir Tengeder and then towards the frontier of Egypt. Watching the ground we drove over, we could see a multitude of tracks from which could be identified types of tanks which had passed.

It was clear that a considerable force of German armour had moved in the direction of Tobruk; this confirmed our resolve to keep well to the South. Every hour as the afternoon wore on we changed over as drivers to avoid undue fatigue. This gave us a chance to observe our prisoner, whose presence under way was only manifest by the sight of his feet in front of the windscreen.

We were already familiar with the aircraft (Fieseler Storch) which accompanied the German troops as a spotter. Seeing one a little to the North of us, I decided to stop, so that we should not draw attention to our presence by the usual plume of dust; I later learnt that it may well have had General Rommel as a passenger at that moment, so he probably would not have been interested in our one vehicle.

There was a tin of fruit in the back of the truck, as well as biscuits and bully beef, so the three of us sat on the ground and shared this food. In those days I was fluent in German and tried to converse with the prisoner. He was willing to say that he was Schultz, from Silesia, but was well drilled in what he should not say, so conversation was limited.

He was clearly terrified and probably beginning to feel cold, as the evening was drawing on. Also, not unnaturally, he was worried about falling off the top of the cab, though I do not think he was as drowsy as we were.

As we wanted to drive fairly hard across the Desert during the night, it was no good trying to keep him up there but we did not dare have him in with us in case he tried to pull some trick. We decided to put him in the back of the truck and found a blanket in which he was able to wrap himself, lying flat on the floor amongst the boxes there.

We continued taking turns in driving, and each time we changed over checked the prisoner. The hour came when we found the back empty; No boxes, No Schultz!

We had, from time to time, driven over the edge of little precipices such as surround the various depressions in the Desert, I can remember one, in the previous hour, which must have had a drop of four or five feet. At the time it happened, I was worried about whether the springs of the truck would break; afterwards I could only assume that that was the moment when Schultz must have been thrown out, along with the other contents.

We had a bad few minutes wondering whether we ought to backtrack to find him, for humanitarian reasons, but reluctantly came to the conclusion that it really might not be effective and that we would lose our own timing if we did. We were anxious to reach the frontier near Fort Madidalena by first light. I often wondered what happened. He probably survived to be picked up by the Bedouin, of whom there were a certain number in that desert in spite of Mussolini's efforts to keep them out. We still had the Jerry can, his rifle, clothing, boots, water bottle and other bits and pieces.

So we continued and reached the massive wire fence put up by the Italians to prevent the movement of Bedouin into and out of Egypt.

We knew there were gaps in this obstacle, so we drove North until we came to one, drove through and up the other side. Now in Egypt, theoretically a neutral country at that time, we felt that Rommel had quite enough on his mind going for Tobruk and that we should be alright, as indeed we were.

Having driven well over 300 miles across the desert from Mekili, we had to look for petrol and were fortunate enough to find a dump being guarded by a lone Egyptian soldier. My Arabic was sufficient to persuade him of our need as we still had 150 miles to reach Mersa Matruh, our chosen goal.

Arriving in the early afternoon, after more than 24 hours almost continuously on the move, tired and very hungry, we reported to Headquarters and Brigadier Lomax received us; we were very conscious of being scruffy and unshaven.

He listened politely to what we had to say and after a quick word on the telephone to GHQ in Cairo, he sent me off at once in our truck, with his own driver — another 350 miles!

John Bond was sent to Desert Force Headquarters, by then somewhere near Gambut. However, they still had communication with Tobruk, to which he then went to give what information we had gleaned during our escape, for the benefit of 9th Australian Division, already actively preparing the place for the expected German attack.

In spite of the discomfort of lying twisted in the front seat of our truck, I slept deeply until we arrived in Cairo in the early hours of 10th April and I took a room at Shepherd's Hotel. At GHQ I was interviewed by Brigadier Shearer, in charge of Intelligence there. He had, I believe, been on the reserve before the war as manager at Fortnum and Mason in London. In a kindly way he asked me all sorts of questions; he even wanted me to meet General Wavell, the Commander in Chief. However, after about an hour General Wavell was still not available, so I missed that distinction; perhaps all to the good, as my morale was rather shaken and I was still quite exhausted, both mentally and physically, having eaten irregularly and slept very little for the ten days back from Ajedabya to Cairo. No doubt my great fatigue was nothing compared to that of Wavell himself, whose experiences that week, I have since learnt, included:

Saturday, 5 April

Germans attacked Greece and Yugoslavia, both of which Wavell had the responsibility to defend.

Sunday, 6 April

Churchill's representative Anthony Eden, a leading member of the British War Cabinet, accompanied by the Chief of the Imperial General Staff, Sir John Dill, visited Cairo for meetings with Wavell and the other Commanders in Chief.

This visit coincided with Wavell receiving news that Lieut General Neame, his new Commander in the Desert, had just been captured with Lieut General O'Connor, Neame's immediate predecessor.

Monday, 7 April

Wavell received news from Abyssinia of a resurgence of activity by those Italians not yet captured.

Tuesday, 8 April

Mekill in Libya fell, as did Salonika in Greece.

Wavell flew to Tobruk to give personal orders for it to be held in the face of Rommel's advance.

On the way back, Wavell's aircraft had to make a forced landing in a dangerous area near Gambut and he was out of touch for many hours.

Wednesday, 9 April

Wavell returned to Cairo after a night in the Desert without sleep.

Friday, 11 April

Rommel's troops surrounded Tobruk and cut off its land LofC.

Main British defence line in Greece broken by Germans. Wavell received orders to improvise yet another new force to relieve the attack on Habbaniya by Raschid Ali's Iraqi troops.

Saturday, 12 April

Wavell flew to Athens to order progressive withdrawal to Crete.

Having extracted all the information he wanted from me, Brigadier Shearer said I should come back the next day to talk about the equipment taken from our prisoner, which I still had in the truck. I went back to Shepherd's and slept again until the next morning — nearly 20 hours — when I was interviewed by Colonel Wintle, a cavalryman. He was a very keen horseman in charge of Technical Intelligence. I remember his remarks about the "Jerry can", which he showed to several of the Staff officers who rather derided it because it was an expensive product: of course, after a few months, the can was being copied; later by the million.

That "Jerry can" was actually the first one to fall into British hands in Egypt. Some interest was taken in the other articles brought in, but they were visibly disappointed that John and I had not succeeded in keeping our prisoner. So indeed was I but I was even more delighted to have got clear as I do not think that the role of Prisoner of War would have suited my nature.

Later I met Major General "Daddy" Hughes, the Engineer in Chief, who told me that John Bond was in Tobruk, concentrating on ensuring that our many small detachments eluded the German grasp. I was told to have a couple of days rest and to re-equip myself; then I should start to make arrangements for re-forming 7th Armoured Divisional Engineers, as they would soon be evacuated from Tobruk. By courtesy of the Royal Navy, they arrived within a couple of weeks and formed up in Mena, absorbing all former members of the unit, as well as reinforcements from UK. Then to Amiriya, where we re-equipped ready for the desert. Philip Clauson, safely returned from Crete, took over as CRE and



Lieut Colonel 'Patch' Chisum, CRE 7 Armoured Division at Bir Hakeim 12 July 1941, the long hot summer before Operation Crusader

Gerry Duke was welcomed as the new OC 4th Field Squadron. We were soon fighting again in Operation *Battleaxe*, around Fort Capuzzo and the Libyan frontier. After initial success, the fighting ended inconclusively and we spent a long hot summer growing at the Germans while, treacherously, Hitler attacked Russia.

As autumn approached, Western Desert Force was renamed Eighth Army, and 7th Armoured Division gradually swelled with troops, some recovering from their experiences in Greece.

Although the United States was not yet in the War, our armour began to receive the first of the American tanks sent under "Lend-Lease".

The Field Park Troop was upgraded to a Squadron and I was given its command, with a few weeks to concentrate on training, albeit in the forward area, before the great day: 18th November, when Operation *Crusader* began.

A month later, after hard fighting and much excitement, the German *Afrika Korps* were soundly beaten and many of our units were withdrawn from the desert to reinforce the Far East where the unthinkable had occurred: the Japanese had attacked the Americans and brought them into the War.

What was left of the Division after all this fighting round Tobruk was then directed westward towards Msus, with a view to repeating its success at Beida Fomm, but unfortunately the German rump just slipped away ahead. As we progressed

in some good going, one of my Troop Leaders Jack Bence, was taking his turn at navigating the Squadron and leading us in open formation across the scrubby desert. Suddenly I heard a shot and found that Jack had killed a gazelle with his rifle, while both he and his quarry were on the move: brilliant marksmanship and the Sergeant Major picked it up for cooking that night. Surprisingly, very few of the men would eat game.

Once more at Mekili and John Bond's Troop of 4th Field Squadron was there as well; he was

ordered to clear mines at a wadi to the West of us; at the same time I was informed that there was a minefield causing havoc nearby. I went to reconnoitre and found it fairly well defined by wind erosion.

Very foolishly I removed one of the mines before realising that it might have been booby-trapped! It was a new type of Italian barmine, which we had not met before. I then put wires around several others, partly visible, and pulled them all.

Each one I pulled was booby-trapped and exploded. I could hardly believe I had been so fortunate having picked up the only one not so prepared. Later that morning I was able to present a couple of these mines in a safe condition to the Chief Engineer, by then Brigadier Gausson of 30 Corps, which had taken over from 13 Corps, the old Western Desert Force.

My relief at having survived was rudely spoiled when I received news that John Bond had been killed whilst clearing some Italian "thermos" bombs. It did seem to be a cruel stroke of Fate that John, who had successfully escaped with me from Mekili on 8th April, should have been killed there in December of the same year. Writing about this tragedy to John's father, who was at that time Engineer in Chief India, was one of the most difficult letters I have ever had to compose.

As the month progressed we pushed on across all those wadis emanating southward out of the Jebel Akhdar, the "green mountains"; the same wadis we



Captain John Bond MC, (just before he was killed near Mekkati in December 1941) examining one of the German armored half-tracks which 143 had recovered. It was sent back some 700 miles to the Engineer in Chief in Cairo, as an example of the sort of equipment needed in preference to the "soft" vehicles with which we were equipped.

had crossed with such difficulty during our retreat in early April. Eventually we got to the pass at Mbus and stopped for the night alongside 4th Field Squadron. Gerry Duke was there and told me he had been ordered back to Cairo and I was to look after his Squadron as well as mine.

We were to stay forward to continue mine clearing, and water supply, until such time as 1st Armoured Division's Sappers could come up and take over from us.

There are a number of amusing incidents which stick in my mind. One example was when a sergeant of 4th Squadron, who was accompanying some of the 12th Lancers, was told that if enemy aircraft appeared, they lay low. He was not used to this because we now had a Bren gun in each section so, when a German 109 came over, he shot at it.

The Squadron Commander of the Lancers said afterwards that he would have been furious, but the fact that the aircraft crashed to the ground at once gave them all much pleasure. He was forgiven.

On another occasion, a corporal was sent to



In July-August 1941, 143 Field Park Squadron provided a water point at Buq-Buq, then further West than any other allied troops in Egypt. For some reason it was never attacked by the enemy, although they could see it from the escarpment near Halfaya Pass.



Driver Sykes and Cpl Patterson with my 15 Cwt truck, used throughout the Crusader campaign in preference to a car, as Jeeps had not been issued then. The Divisional Sign was a red jersey and the number 50 indicated my unit, 143 Fd Pl Coy. In the truck we always carried our bedding, as well as our Bren gun, petrol, mines and explosives for "tank-busting".

Gambut airfield to check whether it was mined or not, prior to the Royal Air Force using it. He had the strange experience of seeing a German aircraft land there; he drove up and, as the pilot got out, pointed his gun and told him to surrender. The German Officer could hardly believe it, having no idea that Gambut was no longer in German hands. He was taken prisoner still protesting and handed over to the Royal Air Force for questioning.

The rest of the Division then went back to Cairo ahead of us, and it was not until the end of the month that we started our return. With what remained in the field of both the squadrons, we spent New Year's Eve at El Adem airfield, which the Royal Air Force were once more making operational.

That evening was not convivial, as we were all tired and deeply conscious of those of our companions we were leaving behind in their desert graves.

There is a well known tendency for the human mind to act like a filter in that unpleasant experiences tend to be overgrown in time by the tendrils of happy or bizarre memories.

So ended 1941, quite a busy year for me.

Least my reminiscences of 1941 appear to be too inconsequential, may I offer, as a framework for them, a quotation from Barrie Pitt's book *The*

Crucible of War—Western Desert 1941 pages 388-9, recounting the events of Operation Crusader:

"Throughout this period and indeed until the end of the year and well into the next the troops were living in conditions of acute discomfort. Although in the daytime warmth was engendered by action and the bright but often watery sun, the nights were bitterly cold and rain always fell at some point, so that during the brief spell of half light in which every day's 'stand-to' took place, the desert was spotted with clumps of bone-chilled, unshaven, unwashed men groping clumsily for their weapons, for their water bottles, for any remnant of their rations which they had saved, and for their boots if they had cared to take them off before they had fallen asleep.

If their days had not been riven by battle, pain, fear and the deaths of comrades, then they had been spent either in dry, dusty, flea-bitten and scorpion-ridden boredom, or in equally dusty and much more thirst-making hard labour at the wheel of a lorry, at the shaft of a spade or pickaxe, or confined within the shaking, reeling, jolting box of some vehicle or other, as it swayed across the lunar landscape with such inconsequential and unpredictable jumps and drops that it was necessary to cling fast all the time to some comparative fixture in order to avoid not only painful knocks, but the ever-present risk of broken bones.

Thirst, fleas, grit, sweat-caked clothing, cuts, bruises and desert sores, sanitation at its most rudimentary; this was life in the desert for men of both Eighth Army and *Panzergruppe Afrika* during the last days of 1941. The only comfort, even for those whose sense of privacy and individuality was the most developed, was the proximity of lives circumscribed by the wall of a lorry, the hull of a tank, or, for infantry in defence posts, the line of weapon-pits or the chasm of a wadi. Even for the formations which had not yet seen action with the enemy, such as those of the 22nd Guards Brigade organising and watching over the Field Maintenance Centres by now well established South of the Trig el Abd, the aridity of life drove men in upon themselves, limiting their horizons to the world of platoon, battery, troop or even just tank crew; and if memories now recall the comradeship and the flashes of excitement and occasional triumphs, they forget the fear, the cold, the aching guts, the dreadful sights, the stench, the disgust."

The Road to Rome (p248)

Notes on Yugoslavia: September 1943 — February 1945

BRIG P N M MOORE DSO** MC BA



Peter Moore, served in India from 1935-40 with the Royal Bombay Sappers and Miners, and with 7 Indian Infantry Brigade in Egypt until 1942.

After a stint on the Directing Staff at Haifa he joined Brigadier Fitzroy Maclean's mission to the Partisan forces in Yugoslavia where he worked mostly in Slovenia.

Following a tour in the Far East he returned to Palestine to be CRE 6 (Airborne) Division. He came back to the UK to the Directorate of Weapons and Development and later commanded regiments in North Africa and Korea before joining the directing staff of the JSSC at Latimer, where he was married.

Promotion to Brigadier followed with a three year command in Malaya after which he was successively BGS(Weapons) in the War Office and Deputy Commandant of the School of Land/Air Warfare before retiring, at his own request, in March 1962 to join the Ministry of Agriculture, Fisheries and Food for 13 years.

ARRIVAL

In September 1943 I was dropped into the Yugoslav Partisans area by parachute two or three nights after Brigadier Fitzroy Maclean.

THE AIR SITUATION

My first impression was one of surprise at the way the charcoal-gas truck which took us to Lajce moved openly in broad daylight. Although we stood ready to dismount at the sound of a hostile aircraft, it was clear that the Partisans had a firm grip on the countryside in the liberated areas and that the enemy air surveillance effort must be limited. I learnt however on arrival that a similar truck had been machine-gunned from the air a day or so earlier.

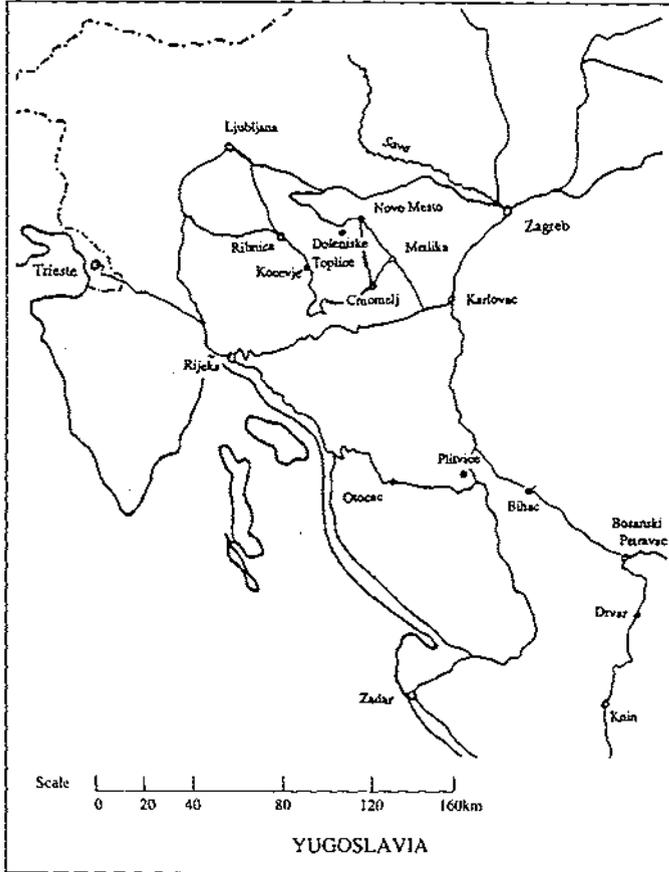
THE FIRST VISIT TO SLOVENIA

AFTER a short stay and consultation with the Chief Engineer at Tito's Headquarters, I set off for Glavni Stab Slovenje (GSS) (Headquarters Slovenia). I have vivid memories of the journey starting off sitting on the milk delivery tray of a motorcycle combination. By this time the Partisans moved relatively freely on the roads and had day-to-day

control of considerable liberated areas. They wisely did not attempt to stop incursions by armoured columns but melted away into the woods to strike elsewhere at the enemy's exposed communications. It was beyond the Germans' resources to maintain themselves in such areas. The Germans did however maintain close control over certain main routes. Of these the Bihac-Knin road was one. Although large Partisan forces could break across these routes, normally such operations would have been needlessly costly and it was more usual for reinforcements, essential supplies and officers and political leaders attending conferences to cross the road at night with an escort of platoon or sometimes company strength. With the relatively short nights of summer this required considerable physical fitness.

My recollection of crossing the Bihac-Knin road was of sitting under a rock in pouring rain listening to a fascinating discourse on every subject under the sun by Moshé Pijade who was travelling that way. He was a very gallant old gentleman who was later to become Vice-President of Yugoslavia.

Having crossed the road it was necessary for scouts to go ahead and check that the first village



Army Headquarters in Slovenia, but not the political directorate, were located.

THE KOMANDUR MJESTA

It may seem strange that it was possible to pick up transport, guides and escorts as we went along and the organisation which enabled us to do this is worth describing. Every village of any consequence had its *Odbor* or Committee, whose job it was to know who was on their side and to organise help for the National Liberation Army whose local representative would be the *Komandur Mjesta*. The *Komandur Mjesta* had a difficult job. He had to satisfy himself of the genuineness of all persons passing through, to persuade the *Odbor* to arrange safe housing, meals at a time when food was very scarce, and transport if available. He also had to arrange rendezvous with the Local National Liberation Army units and ensure that travellers were routed safely to the next Partisan-held village. I well remember spending many weary hours with my back to the stove waiting for the *Komandur Mjesta* to arrange food or a guide to

we were due to enter on the farther side of the road was not temporarily occupied by the enemy. I have spent some time describing such operations as it was an experience I had again and again.

We were glad enough to dry out our clothes in blazing sun at the first village in the Lika — a high plateau in Croatian Bosnia. We then set forth standing 40 at a time in captured Italian lorries singing lustily as we went along.

After a night at Otocac I went on again next day more comfortably by private car with my french-speaking officer escort expecting to pass through Rijeka. In the event when we arrived at the top of the hill leading down into Rijeka, the Partisans were being forced out of the town and we moved off northeastwards on foot meeting some stragglers and having the very occasional mortar bomb dropping nearby. After changing cars we found another car and travelling along by-roads we arrived at Kocevje late that night. After sleeping late we went on by car to a large schloss some eight-ten miles West of Novo Mesto where the

the next village. Sometimes after arriving at the *Komandur Mjesta*, onward movement could not be arranged before dark and it was necessary to spend the night but the delays were for good reasons. Never once was I steered into trouble by a *Komandur Mjesta* and I must have passed through the hands of scores through my travels in the country.

GLAVNI STAB SLOVENJE

I LODGED in a school with the wireless operator who provided our link with HQ in North Africa and visited the GSS at a delightful old *schloss* at I think Zuzemberk. At that time Major Jones, the trusted British Liaison Officer in Slovenia was living at the political headquarters in a camp in the forest.

DISCUSSIONS

I WAS able to see him and also had a long discussion with Edouard Kardelj, who had his head bandaged, and Boris Kidrich in the drawing room of the schloss. At that time the Partisan forces in Slovenia

were absorbing large numbers of new recruits and immense quantities of equipment surrendered by the Italian Army in September. On the other side of the balance sheet they were well outside the range of Allied fighter cover and very short of anti-tank weapons and in particular anti-tank mines. Although Novo Mesto and many other towns and villages in the Bela Krajina were held by the Partisans, a substantial build-up of enemy armour on the Ljubljana-Zagreb road was reported. We agreed that the situation was menacing although the Partisans were getting stronger every day. The question was how long would the enemy wait? For technical reasons the dropping of any quantity of anti-tank mines was beyond our resources and I remember that my immediate preoccupation was to try and design a locally-made striker with a shearpin which could be used in the nose of an Italian shell as an improvised anti-tank mine but the enemy moved before this could be completed.

A QUICK MOVE — THE GERMAN 5TH OFFENSIVE

FIVE days or so after my arrival I was told — at luncheon in the *schloss* by a lady interpreter — that we must leave at once as German tanks were in Novo Mesto. Hastily loading the wireless set, batteries and charging engine into a converted ambulance we set off as soon as darkness fell over some exceedingly rough roads. After 24 hours of travelling and leaving the vehicle halfway we were established in a small hamlet high up on the edge of the Kocevje Rog and that evening we watched German tanks and personnel carriers investigating hamlets on the other side of a steep valley.

Two days later we were nearly caught at the village by a strong fighting patrol of company strength. We struggled up the hill carrying the wireless set, generator and batteries but had to bury them under a tree when the pursuit got too close taking the crystals and codes with us. Fortunately they were not found. Then followed a fortnight almost continuously on the move through the forest with rations getting shorter and shorter and the cattle on the hoof which accompanied us getting fewer and thinner. We had an escort of about a strong platoon and of course we were all armed. Captain Davies, Royal Artillery, a man of immense physical strength was a great asset during this time.

We used to break bivouac soon after first light and move two or three kilometres in single file and then all turn off the track simultaneously leaving as little individual trail as possible, march for a few hundred

metres and then sit in the forest with the minimum movement for the whole day only conversing in whispers. It was by then the end of November and getting extremely cold and moving our position to remain in a patch of sun was the main exercise. I took the opportunity of learning as thoroughly as I could the contents of a Serbo-Croat grammar and tried the results on my patient comrades.

An hour before dark we would concentrate, moving off again and find a camp site where as soon as it got dark we would light a huge fire, dry out our boots, sing Partisan songs and have a meal of stewed meat, if we were lucky, and *polenta*. We then pulled our great-coats around us and slept on the ground sometimes finding ourselves covered with snow in the morning. I remember long discussions with an architect from Ljubljana who was the engineer officer at GSS, at the time. On one occasion we could look down on Kocevje through the trees and watch the German transport on the road.

Eventually as the enemy relaxed his efforts we joined up with the political headquarters and I met Major Jones again who had heard German troops walking over his underground bunker. Here we slept three of us in a tiny wooden hut in imminent danger of burning down through a very welcome wood-burning stove which was the height of luxury. We sent off a party which recovered the wireless set and batteries and after many attempts succeeded in contacting base once more. I then moved to a Partisan demolition school established in a house above Crmosnjice. I remember it over looked the valley running South from Semic to Crnomelj and that I once skied down to Toplice in the other direction for a bath in the hot springs there. My principal task was the writing of a manual on anti-tank devices for use by the Partisans. In this I was much encouraged by General Stanni Rozman, the General Officer commanding all Partisan forces in Slovenia and the neighbouring Italian Tyrol. He was a veteran of the Spanish Civil War and one of the most impressive of the Partisan commanders whom I met.

THE FIRST JOURNEY ON FOOT

SHORTLY before Christmas I received instructions to return to headquarters in Bosnia to report. I set off with a guide and the necessary *propustnica* and I remember crossing the river *Kupa* on Christmas Eve and being escorted across the Karlovac-Ogulin road by the Karlovački Odred, the resident Partisan striking force. After one or

two hard marches I reached Otocac in the Lika but the situation ahead was uncertain and I was held up there for nearly a month as with the deep snow that had now fallen onward movement across the Bihac-Knin road was hazardous for any but experienced couriers. I was however fortunate to stay with Major Reed the British Liaison Officer at Otocac and to meet General Gosnjak the General Officer Commanding at Glavni Stab Hrvatske (GSH) (Army Headquarters Croatia). Early in February 1944 I was able to move on again and crossing the Bihac-Knin road without incident arrived in Drvar where President Tito and Brigadier Maclean with the Mission were now established.

ARRIVAL OF A RUSSIAN DELEGATION

IT was about this time that a Russian Mission arrived by glider with a daylight escort of United States Lightnings from Italy. I also visited a landing ground and dropping zone near the hamlet of Bosanski Petrovac where Captain Henniker-Major (later H E the British Ambassador in Copenhagen) was recovering from typhoid. The whole area was under deep snow and I remember hearing the wolves at night and regretting arranging a solo journey on skis across the hill to Drvar which went off however without mishap.

RETURN TO SLOVENIA

EARLY in March I returned to Slovenia taking with me Captain Jimmy Goodwin, United States Corps of Engineers who was to replace Major Jones as the permanent Liaison Officer at GSS. Apart from being chased out of a village by the Germans shortly after crossing the Bihac-Knin road the journey was uneventful. By this time GSH had moved to some wooden chalets at Plitvice. After an uneventful journey we arrived in HQ Slovenia and were established in a school house at Crmosjnice.

BACK TO DRVAR

THREE weeks later I set off again for Drvar this time with Major Jones. This was something of an occasion. Major Jones had been with the Slovene Partisans since their most difficult times in the late summer of 1943 and had a great reputation. A very smart guard of honour was turned out for his inspection.

A BRUSH WITH THE ENEMY

WE had a rapid journey to GSH where we picked up a large party of downed United States aircrew who

were to accompany us over the Bihac-Knin road but were all unarmed. On account of their numbers we had to pass through a fairly large village so that they could take a meal and word must have reached the enemy of our presence. That night we were billeted in houses round the end of Krbavsko Polje.

Next morning just as we were about to have breakfast we were surprised by a considerable force of reputed Chetniks and Germans with armoured cars but a gallant and skilful rearguard action fought at the entrance of the village by our very small escort and the steadiness of the aircrew enabled some 70 out of our party of 80 to get away by walking steadily westwards in open order across the Polje until we were out of range. Major Jones and I brought up the rear our single escort having returned to the village to help delay the enemy. As the Polje widened out the main body kept going but to avoid fire from an armoured car on the North side of the Polje we had to swing southwards into some woods and lost touch with them. Here we contacted some three or four United States airmen but we were unable to regain touch with the main body ahead and the rearguard had clearly withdrawn from the East end of the Polje by another route.

NAVIGATION AT NIGHT

MAJOR Jones and I now had to find our way across the Bihac-Knin road without the help of Partisan guides. Fortunately there was a bright moon, the high ground was open and we were able to navigate ourselves by map and compass to my previous crossing point arriving just above the road in the late afternoon of the following day and crossing at a point we found temporarily held by the Partisans apparently sent to cover the crossing by the main body who followed later. Once over the main road I slept for 12 hours in the first safe village but the indomitable Major Jones, then well over 55, pushed on for another three hours to arrive at Mission Headquarters almost speechless with exhaustion.

TEMPORARILY IN CHARGE

MAJOR Jones was flown out of Italy two or three days later to recount his experience to the Commander-in-Chief of the Mediterranean Theatre in Algiers. I reported to Lieutenant Colonel Street who was in charge of the Mission while Brigadier Maclean was in London for a conference with Mr Churchill. Lieutenant Colonel Street then left for Italy leaving me temporarily in charge of the

Mission. Apart from occasional bombing and machine-gunning by German aircraft there was little activity. This was ominous and the Mission had one or two practice "stand-tos" at first light with everything packed for a move.

PREPARATION FOR D-DAY

In the third week of May Lieutenant Colonel Street returned and I flew out to Bari from Bosanski Petrovac for briefing on demolitions required in Slovenia to support the advance in Italy and also the opening of the Invasion Front in France. After three or four days being briefed and arranging for a substantial drop of explosives to accompany me I returned to Slovenia by parachute and was soon closeted with General Rozman and Boris Kidrich giving them the Commander-in-Chief Mediterranean Theatre's requests. These were that as soon as possible after D-Day on the Invasion Front the Ljubljana-Trieste railway line was to be cut and kept cut for, if possible, a fortnight. For the date of D-Day we would have to await the announcement.

The alternative courses of action were an attack on a major bridge that would take some weeks to repair or a series of line-cutting operations. The decision fell on to a major bridge demolition and the Stampetovski Most, a masonry viaduct some miles West of Ljubljana was selected. One span had been destroyed once before in the later summer of 1943 in Major Jones's presence. To make an extended break we needed to bring down one of the piers of the viaduct which meant holding the bridge for long enough to do this. This required either the placing of charges in bore-holes which would have to be drilled by hand — we had no power tools — or placing in a demolition chamber which we could not be sure existed, or making use of a little tried new technique of a very large pressure charge on one side of the pier which would mean bringing up very large quantities of explosives in carts possibly under mortar fire. We settled on the last course.

The bridge was well guarded with armour-plated pill boxes at either end and a well built sandbag post big enough for 30-40 men overlooking the bridge. This operation would clearly require a considerable force to seize the bridge against heavy opposition and to hold it for long enough to complete the task. Blocking forces were also needed to prevent interference by an armoured train from either direction along the line or by motorised forces from Ljubljana by road. The secret assembly and holding

in readiness of such a large force posed considerable tactical and logistic problems for the 17th Corps Commander, Lieutenant General Popa Tanaskovic, one of the few Slovene general officers in the former Royal Yugoslav Army. Generally speaking, Partisan units who were not engaged in operations were dispersed to ease the problems of feeding them in an area now very short of food. Concentration West of the road Ljubljana-Kocevje would have revealed our intentions.

THE PLAN

In the end a large part of the force was concentrated East of the road Ljubljana-Kocevje and crossed secretly the night after the D-Day invasion was announced on the radio. I followed with General Tanaskovic and two days later we were overlooking the bridge on a beautiful summer's evening with a large force concealed in the woods poised for the assault and a gun being brought up into position to deal with the pill boxes. Comparable forces were due to occupy the line and tear it up some two kilometres on either side of the bridge.

THE ACTION

As soon as the noise of explosions cutting the rails to the East by the blocking force was heard the gun opened up on the pill boxes knocking out one and silencing the other. The assault then went in on the fortified post which was reduced after 20 or so minutes of fighting. The *Belogardists* ran away but six elderly German soldiers fought to the last man. The explosives which had been kept out of harm's way were brought up at the gallop in *kolas* and at about the same time mortar shells started landing round the bridge fired from an armoured train which was held up to the East. The charges were rapidly placed and fired with complete success collapsing the pier and leaving a 30 metre gap which was too long for a stock replacement railway bridge. Then followed continuous marches throughout the night and a brief halt at midday: after a further long march the majority of the forces crossed the road Ljubljana-Kocevje on the following night. A noisy night ambush was brushed aside and I remember wishing I had not been lent a horse on this particular occasion.

VISIT TO IX CORPS

AFTER returning to GSS things were quiet and I was fortunate in being able to go on a liaison

visit to the IXth Corps area around Gorizia known as the Otranko. Here the Partisans were strongly established in a Slovene speaking area. *En route* I was able to inspect an airfield under construction at, I think, Naslik, for the evacuation of wounded. It was possible to move freely in this area and after crossing the railway at Postojna our party of three with one light machine-gun was able to travel fast. After a few days stay with the British Liaison Officer, at HQ IXth Corps in the hills above Gorizia I was able to return with the same party to HQ Slovenia.

OPERATION RATWEEK

At the beginning of August I flew out by Dakota to Bari from, I think, the Naslik airstrip in order to help plan operation *Ratweek*. This was a highly successful operation and has been fully described by Brigadier Maclean in his book *Eastern Approaches*. I need only add that the Stampetovski Most Viaduct was broken again and the Zidani Most, the railway bridge by the river *Sava* between Ljubjana and Zagreb was cut in a brilliant daylight operation in which Captain Jimmy Goodwin, the Allied Liaison Officer who was in charge of the mission, was wounded in the leg. This bridge was not repaired for a very long time.

RETURNING TO SLOVENIA

In late October I returned to Slovenia flying into an airstrip established near Metlika with a Soviet Military Mission in a converted DC3. By this time GSS Slovenia was formally established on the outskirts of Crnomelj and supplies were arriving in quantity from the air. This was the occasion of a very serious tragedy. Trying out a British two inch mortar General Rozman was killed by a premature explosion in the barrel. This was a near disaster both for Slovenia and the Allies. General Rozman was an outstanding Commander and I personally felt his loss very keenly. It subsequently transpired through comparable accidents in North-West Europe that this particular mark of ammunition was unsuitable for air dropping as a heavy landing could open a safety shutter.

LARGE RAF AIR DROPS

Just after Christmas a very large air drop of over 100 aircraft arrived and using the latest electronic aids all dropped their loads on target in appalling flying conditions with the clouds right down below the mountain tops.

Subsequently on New Year's Day a very large number of wounded was safely flown out from the Metlika airstrip. This was a considerable operation for the Partisans, entailing as it did large forces to hold a ring round Metlika and the logistic problem of moving wounded in carts from various hospitals down to the plains. The need to hold ground for a definite length of time of over 48 hours to allow for a weather cancellation exposed the Partisans to the risk of a set piece defensive battle which it was still rightly their policy to avoid.

DEPARTURE

TOWARDS the end of January I handed over the Mission to Major Reed, the Intelligence Officer who had been with Army Headquarters Slovenia since early summer. In company with my guide, who later became a judge, I was chased across the river Kupa, and marched 50km in 24 hours to get away. I then took off from Zadar in an American DC3 leaving for the last time Yugoslavia in which I had met and left so many friends amongst the Partisans.

COMBAT STRESS

'Perhaps the
bravest man
I ever knew...'
and now, he
cannot bear to
turn a corner



Six-foot-four Sergeant Tony GITTLE, DCM, was perhaps the bravest man his Colonel ever knew. But now, after seeing service in Aden after being booby trapped and ambushed in Northern Ireland, Sergeant Tony cannot bear to turn a corner for fear of what is on the other side.

It's the bravest men and women from the Services that suffer most from mental breakdown. For they have tried, each one of them, to give more much more than they could in the service of our Country.

We look after these brave men and women. We help them at home, and in hospital. We run our own Convalescent Homes and, for the old, there is our Veterans' Home where they can see out their days in peace.

These men and women have given their minds to their Country. If we are to be to them, we must have funds. Do please help us with a donation, and with a legacy too perhaps. The debt is owed by all of us.

"They've given more than they could - please give as much as you can."

If you're not convinced, this is an amalgam of several such case histories of Veterans' Home care.



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To Become a Chartered Engineer in The Institution of Civil Engineers — MICE

COLONEL W H T SPAIGHT BSc(ENG) CENG EURING MICE MIHT FBIM

As a result of changes in the rules for membership of the Institution of Civil Engineers it is now possible for those who have not graduated from a Professional Engineering Training Course (PET), to become chartered members of the Institution of Civil Engineers (ICE).

You might have read the light-hearted piece by Alan Macklin in last August's *Journal* on how to gain chartered status, and the aim of this article is to put some flesh on the bones and add some detail. Sadly this article might be considerably more boring than Alan's effort.

First, and the most important point, all Sapper officers are engineers; some might have concentrated on combat engineering whilst others have decided to specialise in construction engineering. If any Sapper wishes to become a member of the ICE he will be given the maximum help and advice by Engineer 5 and the ICE.

Second, and as important, the new rules are not a soft option. A comparison can be made with the Open University. Obtaining a degree through a normal full-time course requires less personal and spare time effort than obtaining a degree through the Open University. Similarly it requires a lot more personal effort to become chartered as a result of project experience gained during military service compared with graduation from the PET course where specialist experience and training with industry have been tailored to the requirements for chartered membership. If you have that commitment read on!

There are four main routes to MICE for Sapper Officers:

First as a graduate with an accredited civil engineering degree and with about four years practical experience.

Second as a chartered engineer of another British professional engineering Institution.

Third as a graduate with more than eight years experience. This will probably be the route followed by the majority of non-PET Sapper officers.

Fourth as a "mature" student, at least 35 years of age, who does not have a relevant degree but has experience in lieu of the approved academic qualifications and training. This is also a possible route for Garrison Engineers.

GRADUATE ENTRY WITH FOUR YEARS' EXPERIENCE
The approved academic qualification will probably be one of the accredited degrees on the list held by the Institution. Alternatively a UK Degree in a subject related to engineering together with passes in papers from the Engineer Council (EC) Examination Part 2 as stipulated by the ICE is acceptable. All aspiring MICE should apply to become graduate members of the ICE as soon as possible — ideally on the YO Course. Candidates should then request an experience appraisal which is normally carried out by an independent assessor appointed by the ICE who might call the candidate forward for an interview to discuss his (the candidate's) experience. If for any reason, the assessor feels that the candidate has insufficient or inappropriate experience he will always propose an interview, so that he can advise the candidate on how to widen his experience to bring it up to an acceptable level.

It is vital that the candidate should obtain and maintain a Record of Continuing Professional Development (*CPD Record-ICE 108*), and should undertake at least 30 days continuing education during preparation for the Chartered Professional Review (CPR) of which a minimum of 15 days must have been completed before the experience appraisal. This continuing education might cover anything from military courses in some subjects eg management and possibly finance, to Joint Professional Meetings with Institution of Royal Engineers and ICE. The ICE requires all candidates to undertake some Health and Safety at Work training. Advice on this topic can be given by the Corps Health and Safety Officer who is part of Engineer 5. The following papers will be needed for the experience appraisal.

- A 2000 word typewritten report on the candidate's experience to date, which also sets out how the core training objectives have been achieved. (For guidance on the preparation of this report see opposite page, top left.)
- The candidate's record of continuing education to date (a photocopy of the *CPD Record-ICE 108*).
- A list of the Institution's core objectives with the candidate's personal assessment of his level of competence and the date it was achieved.

- Documents which demonstrate that the candidate has met the Institution's core objective to identify, define and solve an engineering problem of some complexity. All the documents must relate to work which the candidate has produced during the normal course of employment.

It should be noted that the 2000 word typewritten report (which must not be a mere inventory of work prepared and executed) must describe the tasks on which the candidate has been employed, whether in investigation, planning, design, construction or research. The account should set out the candidate's training and practical experience in the development of his/her career to date, and should explain clearly the precise positions occupied, together with the degree of responsibility assigned to him/her. Reports should indicate how the core training objectives were achieved. The candidate should enlarge on any special problems met with and on any areas where he/she has obtained extensive experience. Where appropriate, some indication of the size and costs of the works should be given. The candidate should emphasise his/her personal experience, bring out the principal lessons learnt, and avoid extensive job specifications and descriptions. It would also be useful to the examiners if candidates attached a single page summary in chronological order of experience. The core training objectives are listed in full in the *Training Record ICE 107*. Once a candidate has cleared the hurdle of the experience appraisal and has completed at least 30 days continuing education he/she can apply for the CPR. The review procedures are designed to enable the candidate to demonstrate that during their employment they have:

- Developed and proved their technical competence, including the exercising of independent technical judgement requiring both practical experience and the application of engineering principles.
- Acquired an understanding of financial, commercial, statutory, safety and environmental considerations.

The evidence used to reach a decision as to whether or not a candidate has reached the required standard for the CPR comes from the following sources:

- A 2000 word report on training and practical experience as used for the experience appraisal (described above).
- A 4000 word project report (see above top right).

- The candidate's record of continuing education to date (a photocopy of the *CPD Record-ICE 108*).
- An interview at an appointed centre by two senior corporate members of the Institution acting as reviewers.
- Two essays written under examination conditions.

The purpose of the 4000 word typewritten project report is to demonstrate the candidate's technical and professional competence. Reports should describe particular projects or parts of projects in which the candidate has played a major role during the periods of training and practical experience. The candidate should indicate his/her role in the development of these projects, and give the background to any important decisions for which he/she was responsible. The report should incorporate numerical analyses, drawings and/or other illustrations as appropriate, and should include costs data to show that the candidate has an adequate understanding of the financial implications of the decisions taken.

At the interview, the candidate will be given 15 minutes in which to make an informal presentation of the project report. Following this presentation he/she will be invited to respond to such questioning by the reviewers as is required to determine that the criteria listed above have been satisfied. The interview will normally last from 45 to 60 minutes.

Later the same day the candidate will be required to write two essays, both of which are intended to test the ability to communicate in good written English, and to marshal thoughts and express them on paper in a clear and concise manner. The candidate is allowed 90 minutes for each essay.

The first essay will be on one of two technical subjects set by the reviewers in the context of the 2000 word report, and the interview. The purpose is to allow the candidate to expand upon particular aspects of his/her experience and technical knowledge.

The second essay will be on one of two topics selected by the reviewers from a list published by the Institution. The purpose of this essay is to enable the candidate to demonstrate that sufficient thought has been given to the role of civil engineers in the community, to be able to form a broad view of the social value of the work, and to demonstrate that the candidate's knowledge of modern management concepts is sufficient to provide a foundation for his/her developing leadership roles. On successful completion of the CPR, the candidate's applications for admission as a corporate member

of the Institution will be placed before the appropriate committee for approval.

TRANSFER FROM ANOTHER INSTITUTION

A CHARTERED engineer of another institution may also join the ICE provided that he/she has also practised as a civil engineer. He/she will be required to produce documents as for the CPR listed above and will sit the CPR.

GRADUATE ENTRY WITH EIGHT YEARS' EXPERIENCE — THE DIRECT ENTRY ROUTE

THIS route is similar to the graduate entry with four years' experience except that an experience appraisal is not necessarily required by the ICE. However it is strongly recommended that all candidates seek advice from Engineer 5 or the Institution to confirm that they have adequate experience to apply for the CPR, to avoid unnecessary hard work and headache later. In summary the candidate will attend the CPR, as described above, having completed 30 days CPD and having sufficient engineering experience to satisfy the CPR requirements. This route is likely to be the most used one for successful RE applicants.

MATURE CANDIDATES

THIS is not an easy option and not many candidates are accepted each year. This route is open to any non-graduate or graduate with a non-qualifying degree. It is possible that some Garrison Engineers might wish to apply for corporate entry via this route.

The purpose of the Mature Candidate Review is to provide a route to membership of the Institution for those who, although they do not have formal academic qualifications at the required level, are able to demonstrate that in later life they have achieved standards of engineering competence comparable to those of their contemporaries who have become Members (Chartered Engineers), by the normal route.

Candidates must be at least 35 years old at the date of application. Those applying to become Members must have had experience in posts of increasing responsibility over a period of at least 15 years.

Candidates must be sponsored by four corporate members of the Institution, of whom normally at least two are fellows and the others are members of at least three years standing.

All sponsors will be requested to complete a confidential questionnaire (ICE 135) regarding the candidate's background, experience and suitability

for the grade of membership for which they have applied. It should be emphasised that sponsors have a crucial role to play in the assessment of candidates.

A conventional examination would not be an appropriate method of testing mature candidates. Therefore the Institution has devised a two-part procedure to verify that the candidate's experience, understanding and application of engineering principles meet the requirements of the grade of membership for which he/she has applied.

The first part of the procedure, termed the "Assessment", requires candidates to submit a 2000 word Report on Practical experience and a synopsis of the proposed Technical Report referred to below. When this submission, along with confidential questionnaires completed by the candidate's sponsors has been considered and approved, the candidate will be informed and invited to proceed with the second part of the procedure.

This second part, termed the "Mature Candidate Review", enables the candidate to demonstrate his/her understanding and application of engineering principles by submitting a technical report of not less than 5000 words, and undergoing an interview.

The procedure adopted by the Institution has been harmonised with the requirements of the Engineering Council who will appoint one of the reviewers for the CEng candidates. Successful candidates will therefore be registered with the Engineering Council in the appropriate grade ie CEng. Candidates who fulfil the Institution's academic requirements for a particular grade are not eligible for admission for that grade under the Mature Candidate review procedure.

The Report on practical experience is a 2000 word report exactly the same as that required for the CPR (described in detail on the previous page). Experience in meeting the requirements of the Health and Safety at Work Act should also be stated.

As an appendix to this report the candidate should include, on a single page of A4, a synopsis of the proposed technical report.

By means of the technical report, of at least 5000 words, the candidate is expected to show that his/her experience has fully compensated for the lack of formal academic education and training normally required by the Institution.

The candidate will be expected to offer an ordered and critical exposition of some aspects of civil engineering practice in which they themselves have played major parts, defining the problems involved and demonstrating how they have been resolved by application of engineering principles and knowledge.

Submissions may take a variety of forms but they will generally fall into one or other of the following categories:

- A collection of reports on design and/or construction projects, with a commentary and connecting dialogue indicating how the material meets the specified objective of the review; or
- A speciality paper based on a design or construction project(s); or
- A report on a candidate's original work.

The submission may include such calculations and drawings (folded to A4 size) as the candidate deems necessary.

Reports should include more than descriptive matter that could be accumulated from published material, they should provide reasoned analysis and synthesis, with a discussion on the validity of the fundamental principles underlying the subject of the submission.

Whatever form the submission takes, the documentation must be the product of the candidate's own inspiration and expression. Historical reviews should not be undertaken except where necessary as essential background to the topic under discussion.

The mature candidate is not expected to demonstrate an advanced mathematical or computing ability but should be able to show engineering judgement in estimating the accuracy of and possible errors in numerical work, and should also know how practical consideration might affect the assumptions on which theory is based.

In certain circumstances the candidate may need to use information supplied by others. In such cases the reports must show the candidate's understanding of the engineering principles underlying the specialist information or advice. It will not be acceptable to state or imply that such information or advice was accepted uncritically, however eminent the source.

The reports, typewritten and in English, should bear the candidate's name and signature together with the signature of at least one of the sponsors. Once submitted, the reports and the copyright over them become the property of the Institution. They may not be published, either in full or in part, without written permission from the Institution.

Candidates whose technical reports are considered potentially satisfactory will be invited to attend for an interview in the United Kingdom. At the interview the candidate will be required to make informal presentations lasting about 15 minutes of the work

covered by the technical report. Other material which the candidate considers will be helpful in making his/her presentation may be brought along. Following this, the candidate will be invited to respond to such questioning by the reviewers as is required to determine whether he/she has a full understanding of their reports, and has the ability to discuss them intelligently and with the depth of knowledge expected of normally qualified members of the same age and comparable experience.

Later on the same day and in order to complete the overall assessment, the candidate applying to become a Member should expect to take a written test. This will be set by the reviewers in the context of the candidate's technical reports. The test is intended primarily to verify the candidate's ability to communicate in good written English and to marshal his/her thoughts and express them on paper in a clear and concise manner in the 90 minutes allowed.

The successful candidate will be recommended to the relevant committee of the Institution for admission as a Member. He/she will also be registered with the Engineering Council. Sadly neither the Institution nor the Engineering Council will be prepared to enter into correspondence concerning the final decision or to divulge the reports of the reviewers.

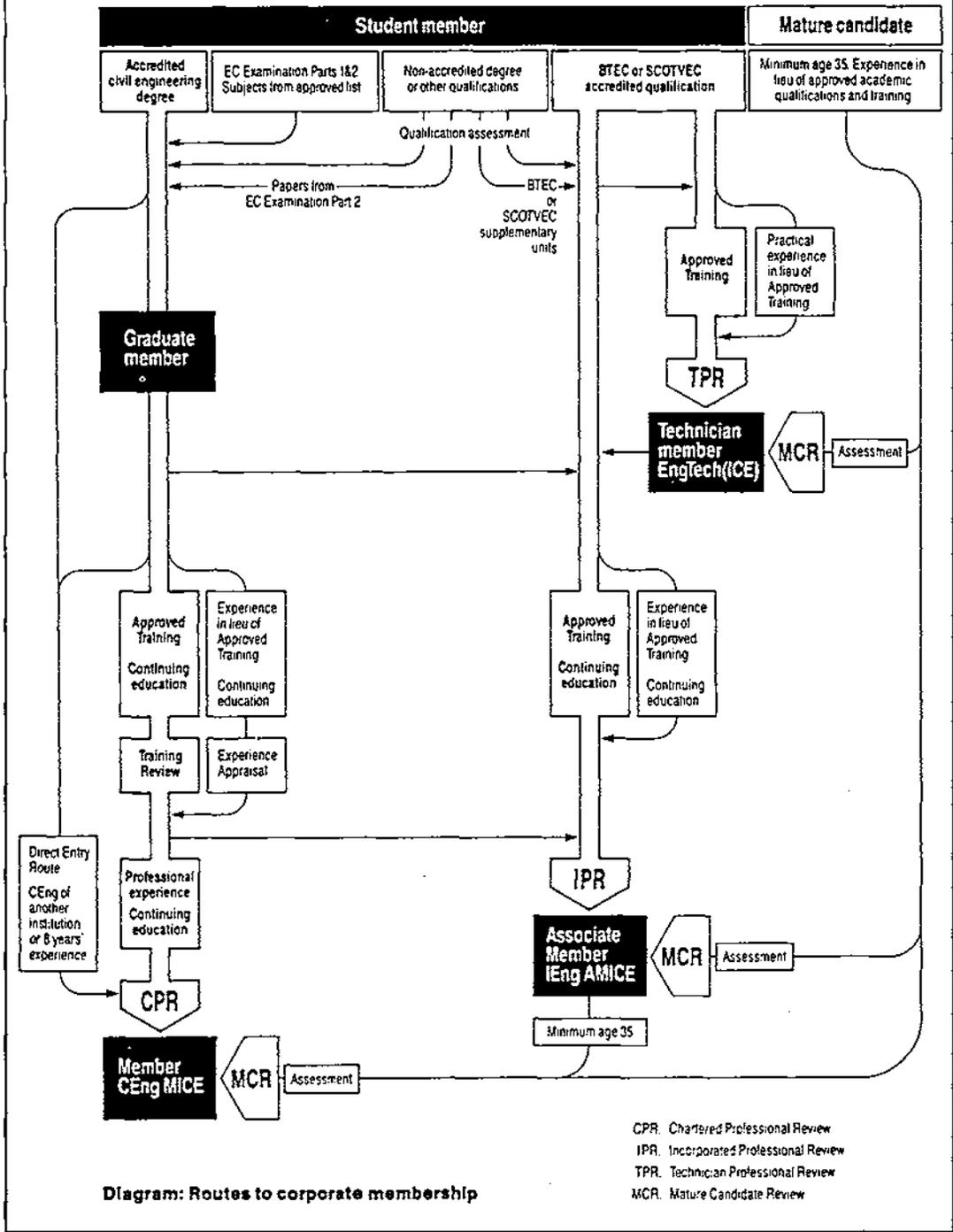
SUMMARY

THE most likely route for non PET course trained Sappers is the 'Direct Entry Route' — a graduate with eight years experience or the 'Mature Candidate Route' for non graduates. The requirements for the Chartered Professional Review (CPR) and the Mature Candidate review are very important and the prospective candidate must be certain that he/she can fulfil them. In addition all candidates must have completed 30 days continuing education. A diagramme showing the routes to corporate membership is shown opposite.

HOW TO START

ANYONE who wants to try for membership of the Institution of Civil Engineers should contact Colonel Engineer 5 — Colonel W H T Spaight, Telephone Main Building 85047. Address — Ministry of Defence, Engineer in Chief (Army), Room 254, Northumberland House, Northumberland Avenue, London, WC2N 5BP. He will give advice on whether or not it is worth pursuing the case and if it is, make contact with the ICE on behalf of the applicant and act as sponsor as required from then until success!

THE INSTITUTION OF CIVIL ENGINEERS



Operation Granby

Preparation and Deployment for War

COLONEL J D MOORE-BICK OBE MA(H)



Command of 21 Engineer Regiment on Operation Granby was the final phase of Regimental duty for Colonel Moore-Bick in a career covering commando, amphibious, and armoured engineer postings. On graduating in Forestry from St Catherine's College Oxford, Colonel Moore-Bick was commissioned into the Royal Artillery. He subsequently discovered and transferred into the Royal Engineers and served his early years in Arbroath and Dover.

His posting to 23 Amphibious Engineer Squadron in Hameln began a time of employment in Europe which was to include the German General Staff course, Command of 26 Armoured Engineer Squadron and the post of Military Assistant to the Chairman of the Military Committee in Brussels.

Insights into other aspects of the Army have been provided by staff postings in UKLF and the Falkland Islands and, to add variety, he has just moved to his current post in the Ministry of Defence as Colonel Army Plans.

With a propensity to saunter, Saudi Arabia, Iraq and Kuwait were about the last places he had expected to see service, but the weather turned to his liking soon enough.

Editor's Note: Members should be aware that Mrs Moore-Bick has made an important contribution to this article.

WARNING

The day started briskly after a warning for the Higher Command and Staff course with the concomitant posting in the near future. During the subsequent telephone calls from well wishers, several *cognoscenti* assured me that 21 Engineer Regiment would NOT be deployed to the Gulf. Thus the right tone was set for a deployment where unpredictable Arabian influences made themselves felt far outside the Gulf and provided the cutting edge of excitement to a great professional challenge. By lunchtime, we were warned to deploy a troop, squadron or regiment, depending on which headquarters spoke to us when, and two of us were drawing tropical kit to stand by for the operational reconnaissance. The Regiment had just deployed to all corners of Europe for a month of projects, adventurous training and attachments to other Services and, with a great deal of personal and PRI money committed, very cautious recall plans were developed.

Starting in a small group, training documents, atlases and reports of Iraqi techniques in the war

against Iran were speedily researched and compared to newspaper reports showing the development of the Iraqi grip on Kuwait. By the end of that afternoon Sapper ORBATs to complement each of the three force models (Armoured Brigade, Artillery Group or Reconnaissance Battle Group) circulating in London had been roughed out and troops identified to fill them if needed. With most of the Regiment deployed away from Nienburg a quiet, keen atmosphere descended in which a clear list of the following likely roles precipitated out:

- Water supply
- Obstacle breaching for armoured forces
- Basic camp structures
- Promotion of wheeled mobility

Working in close liaison with the First Armoured Division, it was not long before the spectre of "rate capping" loomed, which was to cause so much damage to ORBATs and patience throughout the later stages of preparation and deployment. Strong emphasis on Challenger and Warrior left us feeling that we would need to run hard to ensure that the

Sapper contribution was properly equipped and administratively supported, whatever its size.

A Divisional briefing at Fallingbommel followed on the next day, and, as if planned for the most dramatic effect, at the end of the briefing our divisional commander was informed that the full armoured brigade option had been decided by the Cabinet. The effect was electrifying to those of us present, but confusion prevailed as to whether the Regiment or a mixed armoured and field squadron only was to deploy. As it was also confirmed that 7 Field Squadron would continue to deploy on Operation *Descant* (Northern Ireland), for which training was about to begin, recall plans for the worst of all worst cases were implemented with all members of the Regiment (almost past, present and future) being recalled from all other commitments. With the prevailing uncertainty, considerable resistance was encountered in getting some men released, and the ability to trawl for equipment to replace the Nienburg non-runners was hampered. On the other hand, an impressive wave of offers of equipment and manpower flooded in, much of it spontaneous and probably doubtfully authorised by commanders!

PREPARATION

Work continued apace on an ORBAT which has been described elsewhere. At the same time a rear party ORBAT was hammered out to find the total manpower bill. The Regiment was in the process of being brought to full strength for two *Descant* tours and we knew we could count on about 120 ranks of our usual friends, 26 Armoured Engineer Squadron, but the requirement to leave 7 Squadron intact, and a surprisingly large number of medically downgraded ranks led to us being able to take up lots of the offers of individual reinforcements.

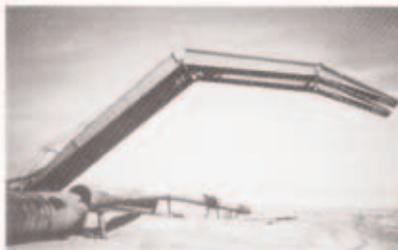
It was clear that the uncertainty pertaining to the size of the ORBAT would only be finally removed by the operational reconnaissance party. The departure date for this came and went several times, but the practical work of preparing the full number of vehicles continued. In vast production lines all vehicles were examined, dissected cannibalized or put to one side depending on how much faith we had in them. 7 Squadron kept her manpower but lost her vehicles to the melee. The vehicle state of the Regiment, typical of most in BAOR, was not encouraging, with vehicles having been VOR (Vehicles off the Road) for up to 187 days. Again, the generosity of those who lent us diesel Landrovers, Armoured Fighting Vehicles (AFVs)

and Combat Engineer Tractors (CETs) to replace our decrepit vehicles was notable. Also notable was the issue of new vehicles, some of which came from the factory with notices drawing our attention to parts that were not working as they came off the production line!

Little training was carried out at this time since the deadline for embarkation of the vehicles was less than two weeks away. As the mechanical preparation activity subsided, painting took over, a firm in Bremen having been discovered which could manufacture and supply the colour. 25 Engineer Regiment had already supplied our new Electrical and Mechanical Engineer (EME), Captain Andy Morris, and followed up with stalwart support in a painting party, enabling our men to start their training. 7 Squadron was stood down from its *Descant* tour so that, at last, the completion of the regimental ORBAT and the forming up of the Rear Party could be completed. Some of the major points in completing the ORBAT are worthy of note:

- Maximum REME and RAOC support was included to allow for the attrition of sandy conditions.
- Medical support and ambulances at squadron and regimental level were needed to cover offensive breaching operations.
- Regimental Headquarters had to be capable of supporting the manoeuvre formation forward as well as logistic operations in the Brigade Maintenance Area, with implications for levels of officer manning and means of communication over the long distances of desert operations.
- A well balanced Headquarters Squadron needed to be formed to ensure medical, logistic and administrative support over long distances with additional squadrons taken under command.
- Sufficient redundancy had to be built in to allow immediate replacement of key personalities from within the Regiment.

At this stage in preparation there was a keen awareness that casualty rates in the breaching operations would be high and that the normal BAOR performance of our equipment did not augur well for the extra trials of the desert. On both counts, our fears proved to be unfounded, but led us to ensure that Rate Capping took from the "teeth" of field sections and not from the "tail" of Command, Control and Communication (C3) or maintenance manpower. We were determined that our whole effort should be equipment rather than manpower orientated right from the start. The starting point



Chiefain Bridgelaye

was of course the War Establishment but this would not have met the requirements above in an independent brigade setting.

PRE-DEPLOYMENT TRAINING

WHEN the Regiment was warned for deployment we had to impose a training regime on all of it until detailed organisations were confirmed. At best we could count on four weeks of training before loading began on the forecasted date of 29 September. There were three major constraints. First, vehicle preparation (including desert painting) was on the critical path. Second, reorganisation of the Regimental ORBAT and, subsequently, reinforcement by posting in some 80 men, meant that some initial training would be missed by later arrivals. Third, the despatch of task vehicles by sea would effectively limit sub-unit collective training to section skills and turret crew drills. Consequently, the first two weeks were part-time training only. Fitness was the first priority. Fitness training, principally squad marching with increasing loads, was also a key means of developing robust attitudes, determination and group identity and spirit. It progressed to bayonet fighting and unarmed combat later. A high standard of individual preparation was essential and, to enable the chain of command to train too, the residue of Squadron Headquarters (SHQ), 7 Field Squadron formed a training team to orchestrate facilities, programmes and the many visiting lecturers and presenters to best effect. We managed some main armament firing on open ranges with our troop reconnaissance vehicles and began our Giant Viper training with 26 Armoured Engineer Squadron. Otherwise we prepared to match the threat, principally the desert environment, Nuclear, Biological & Chemical (NBC) and mines. Fitness training was increasingly carried out in full NBC protection, on one hot afternoon we witnessed

soldiers waiting for First Aid Tests playing a complete game of basket ball so dressed. Progressively more chilling detail was entered into as First Aid training progressed encouraging a more realistic attitude amongst the men — each becoming determined to become more skilled in all aspects so that casualties might be avoided and, if incurred, efficiently dealt with. The least satisfactory area was skill at arms and remained so since even our training in Saudi Arabia on the brink of war did not produce adequate opportunities for men to become properly skilled, particularly where anti-tank weapons were involved. The pure inadequacy of engineer training facilities in BAOR was exposed and it proved difficult to train realistically in mine warfare until we had been in the desert several months. Then, the availability of realistic model mines and the good and exciting training with live mines which we devised recovered the position. As the deployment began we found ourselves as well trained as we could have been in the circumstances but had exhausted the available training facilities. We also had packed off our G1098 to the Gulf. Awaiting call forward we took the opportunity to have weekend breaks letting the men rest from their hard work and aimed at keeping them relaxed and cheerful. It worked, and determined and happy men stepped off the plane in Al Jubayl, ready to face the future head on.

THE RECOGNISANCE

NATILY dressed in tropical combat uniform, we met at Hanover, bound for High Wycombe for the initial briefing. Movement arrangements assured that our time would be as gruelling as possible before getting to the bunker, but we were constantly buoyed up by the feeling of being part of a very professional team with important work at hand. Bombarded by questionnaires at Strike Command,

we were then briefed prior to flying out to Riyadh. An empty VC10 proved to be the ideal medium for an intense period of cross fertilization and staff work and the duration of the flight a godsend for sifting and weeding out floods of duplicated questions: most staff branches had submitted questions of greater detail than the operational recon was planned to answer, but in the Sapper case most of the subsidiary questions could be answered. We had a head start: Lieutenant Colonel Meryon Bridges had already visited the Theatre and gained valuable information on infrastructure, resources, topography and water sources. Major Sean Naile, in Bahrain, had gleaned more, especially on the airfields side of life. It was impressive to see how our men in theatre, notably Lieutenant Colonels Nick Thompson and Peter Searle on the Al Yamamah Project, were able to tap into local and expatriate connections throughout the Gulf to help find the information we needed. In one sense however the preparatory work had backfired: some of the information needed by the recon team had already been trawled in the Gulf but sent back to London, where the team did not have access to it prior to deployment. While the operational recon team was confined to the hotel, pending successful negotiations by the political and strategic team, regular visits by our representatives and their contacts broke the back of the investigations. By the time we were free to start visits, the team had been joined by Meryon Bridges and we had the enormous advantage of seeing very clearly the direction in which our questioning was to proceed. For three days however, our routine remained the unreal one of impersonal luxury hotels, mixed with visits to the air conditioned buildings taken over by various British and American headquarters. We had no chance to experience heat, dust, sand or thirst first hand. Our reception was exceptionally enthusiastic, even from the RAF, whose dusty response to the earlier Sapper recon had to be modified in the face of build up of sewage at Tabuk — we had called at just the right moment to take note of their concerns but refused to listen until they had given us some refreshments to make up for the last visit!

As the recon drew to a close we flew to Jubayl, the Brigade Commander and I having the illuminating opportunity to fly by helicopter through-



Some obstacles were easier to clear than others.

out the 1 Marine Division (1 MARDIV) Tactical Area of Responsibility (TAOR). This was the single most useful part of the recon, allowing a coarse assessment of topography, soil, sand, roads and distances to be gained. The complete visit gave us a view of the most tremendous port and airfield infrastructure awaiting us, allaying many of the fears about any inadequacy of the Sapper ORBAT in the Forward Maintenance Area, and convincing us that we had entered at the opposite end of the scale to Port Stanley!

Our first impressions of the United States Marine Corps (USMC) were gained on the visit and were confirmed by everything we did with them later on. Professional, polite, robust and determined, it was the start of a happy military alliance in which the organisation, equipment, strengths and weaknesses of 1 MARDIV and 7 Armoured Brigade complemented each other perfectly. It was to be a very moving, proud, but sad ceremony three months later when Brigadier Cordingley and a handful of us were lunched out by them with a band and a splendid meal, the latter being something they had learnt from us in the intervening period if early rations were anything to go by!

The pace of the recon quickened with staff meetings, final answers and the prospect of a VC10 equipped with word processors and stenographers.



Welding in the field

to get our reports into print. As the more experienced readers now predict, this was replaced at the last minute by a Hercules, pencils and paper, sitting on compo boxes and it is a tribute to the leadership of the recce party by Brigadier Mike Walker and Colonel Martin White that the final amendments of the manuscript report were added as the bus took us back to High Wycombe. (To be fair it must be added that the crew of the Hercules, aware of our expectations and predicament, supplemented excellent packed meals with a bottle of wine apiece!)

The debrief followed, with major discussions on casualty arrangements, hospital ships, naval air squadrons for casualty evacuation and — the long awaited confirmation of the full Sapper ORBAT, comprising 21 Engineer Regiment (-), 49 EOD Squadron, 14 Topographic Squadron and an element of the Military Works Force (complementing the deployment of 39 Engineer Regiment who were getting a foot on the ground which is described elsewhere). At the debrief it was possible to get the first taste of the myriad of organisations and personalities who would be involved in the operation and how difficult it might prove to be to get to the source of knowledge or decision. Further meetings at Corps Headquarters in Germany followed, to finalize ORBATs, mounting details and minor equipment procurement. After the close of the recce stage the main conclusions for us could be summarized as follows:

- The Regiment would deploy with two field squadrons, one having two armoured engineer troops, our support squadron with additional plant, and a strong headquarters squadron.
- The greatest challenges came in the field of mine counter measures and in maintaining 7 Armoured Brigade in the desert.

- Timber resources would be scarce until stocks were shipped in.
- Greater redundancy would be needed in the field of armoured engineer equipment to deal with earthwork obstacles and the mine threat.
- The best map scale for land operations in the area would be 1:100,000.

FINAL PREPARATIONS

AND so back to Nienburg where an intensive programme of individual training was in full swing. The movement plan constantly changed but the imperative to get Challenger into the field was added to by the need to modify all power packs in Theatre before moving into the desert. Our armoured vehicles led off, the square filling and emptying as impressive fleets of Commanders and Mercedes Benz transporters loaded up. The square then refilled with lines of wheeled vehicles which waited — and waited! It soon became evident that the order of march for us would be that least desired and that we would be operating without our echelon support for some considerable time, with many other units doing likewise. However, these were all problems for the future and the days were full enough. To our demanding training came a steady stream of visitors, generous in their encouragement and praise. It was not until later that we learnt of the casualty estimates that were known only to them, but, thankfully, not to us. Their wishes and leave taking were often poignant, but their obvious confidence in us gave us more pride than ever as the days with families and friends ran out inexorably. The last vehicles eventually left, save those which would fly out with us on the advance party; visiting helicopters had rapidly swept the autumn leaves off the tree lined square, and the bustle of training was gradually replaced by a wintry stillness and, to those remaining, an empty feeling which our strong rear party began to fill. *So at this stage it may be as well to hand the story line to my right hand woman!*

THE HOME FRONT

WHEN the decision was finally taken that the whole of 21 Engineer Regiment would deploy to the Gulf the atmosphere became charged with nervous tension. I realised the huge responsibility that rested with those of us left behind to run the Rear Party. Our decisions and our reactions would have a terrific influence on everyone, whatever situation might arise. The total number of wives and children left in Nienburg was almost 700. Only five people elected to return home for the tour.

Lieutenant Colonel Bobby Lampard assumed command of the Station and Rear Party. Once he knew who would be left behind he could begin planning how best to run that Rear Party with all the demands and commitments that it would entail. A comprehensive 21 Engineer Regiment families guide was produced and a briefing held for all wives in the Regiment. Over many cups of coffee (and cigars) we discussed the wives' and children's side of events. Knowing it would be a long haul we planned to pace ourselves with events and urged others to do the same. It would be no good having a splash of entertainment through until Christmas and then financial bankruptcy, exhaustion and disillusionment thereafter! Several started with an enthusiasm which it was plain that they could not maintain.

A Rear Party Welfare Committee was set up comprising all key Rear Party personnel and this Committee was to meet every fortnight throughout the deployment to coordinate all events and activities and to ensure that all necessary information was publicised. In these early stages queries on pay, allowances and the frequency of post were uppermost. Flights became a major issue nearer Christmas and the pressure imposed by media coverage was a constant source of annoyance and anxiety.

Our Chatterbox restaurant became the Families Information Centre. Since it was already a popular rendezvous it was a success from the start. In the early days of preparation for deployment it was full of soldiers and families and many made a beeline for it on their first full day back. Orders on blueys were even received from the Gulf! The aim of those in charge of the Rear Party was to keep life in Nienburg going as normally as possible. All day to day activities continued, but behind the scenes casualty information procedures were being learned and practised and from January onwards after some excellent briefings, John Wolfe, our SSAFA Social Worker held discussions and working groups to tutor Assistant Casualty Visiting Officers. ACVOs were all wives of officers, warrant officers and senior NCOs, some drawn from the Rear Party, but most with husbands in the Gulf. We all knew that whatever casualties befell the Regiment, and at one time it was thought that these could be considerable, life would somehow carry on. These groups were crucial in drawing us together and also in establishing our own individual strengths and weaknesses, giving us all plenty to ponder on in the intervening days.

For me one of the lowest points of the tour was when our Garrison Commander, Brigadier Ian

Durie rang late one Sunday evening in mid November to say that HQ 1 Armoured Division was also deploying. From that point I could see that we were very much alone and would survive solely on our own strengths and indigenous resources in Nienburg. However, throughout the five months we were supported and encouraged by a stream of well wishers and the high point was the visit by HRH Prince Michael of Kent. In recognition of the support given to us by our local community, Prince Michael signed Stadt Nienburg's Golden Book in the presence of Herr Heinz Interemann the Stadt Direktor. He then met representatives of SSAFA in the Division and a wide cross-section of our own community.

The cohesion and loyalty experienced by the Rear Party lasted not only through the desert tour, but continued to provide the infrastructure and security of life in the post-war leave period. At the end of it now, the contribution in Nienburg is recognised to be very much on a plane with that in the Gulf, not only by those who have held together so well here, but also by those now returning to the activities and duties in Nienburg.

Colonel Moore-Bick continues:

DEPLOYMENT

Air advance parties deployed between 11 and 13 October, preceded by a long-planned dinner night to say farewell to our departing divisional commander, Major General Wheeler. The atmosphere of that evening will probably not be recreated for many a year for the Regiment. Confidence and pride were supreme, tinged with apprehension, sure in the knowledge that we would be required to prove ourselves in breaking into Kuwait. Our minds were fixed on the short timescale running to 16 November, our operational readiness date, when we thought we would go to war. None of us foresaw the length or final shape which our operations would take and none expected the astonishingly light casualties which our deployment would sustain.

Air deployment and the arrival of our shipping was a piecemeal, messy affair, relying as it did on a miscellany of ships of differing size and indifferent reliability. The reception of our parties through the enormous warehouses of Al Jubayl was systematic but poorly run and very badly rationed! Standards of food and hygiene were those accepted over the many preceding weeks by a very hardy USMC presence, but not those of which a British Army should be proud, or to which such an Army should

need to stoop. Had we known what was planned for us, we could have done much better. Nevertheless, conditions were adequate and a positive reminder to the less experienced that normal life in Germany is a pampered one.

High standards of discipline and hardiness now had to be rediscovered and improved to cope with heat, living in close cramped conditions, maintaining bodies and equipment and presenting the correct image of a British expeditionary force. A lack of self-discipline was evident in all units and the habits of the Sony Walkman youth culture had to be transformed into those values espoused by our illustrious forebears before we could adopt their title of 'Desert Rats'. The roles played by junior officers and senior NCOs had to be re-affirmed, with demands for practical leadership and example emerging over technical knowledge and long experience or familiarity with the BAOR rhythm of life.

To a background of shipping delays and postponement of successive air deployment, recce parties deployed to the desert to test skills, recce and plan training, and liaise with our USMC friends. Discussion and drawing up of equipment modifications had now continued unceasingly, with clear eyes on 16 November. As the deployment of Challenger drew nigh, outstripping the readiness of the rest of the force to support armoured forces in the field, it became clear that the Sappers would have to deploy without waiting for our equipment to arrive. All sorts of resources, equipment and human, were borrowed, hired and "misappropriated" to get water stocks into the desert and to maintain and expand upon the very limited road network either side of the motorway towards Kuwait. The Regiment progressed by trial and error, the errors being mercifully few. Meanwhile the Brigade had accrued valuable experience and had fully appreciated the need for Sapper support to precede the Brigade into any new deployment areas to provide the infrastructure for training and living. Most of the achievements in this phase have been covered in a previous article for the Royal Engineers *Journal* by Major Max Heron, Officer Commanding I Field Squadron, and will not be repeated here. The succession of VIPs and press visitors in the phoney war of November was drawn to water points, road works and the diverse operations of 45 Field Support Squadron, based in an enormous quarry, so that the stage was not left entirely to Challenger and Warrior.

DESERT TRAINING

ONE month after the first advance party, the Regiment could be said to be complete in Saudi Arabia, though key vehicles and some accompanying crews languished in rust buckets on the atlas of the Middle East. Ambitious first exercises involving the breaching of long obstacle belts up to 5km in depth were embarked upon and a fleet of hired plant was built up to carry out earthworks to support wire, minefield fences, pipes and other elements of known Iraqi defences. Our intelligence of Iraqi obstacles was felt to be very accurate at this stage, providing clear models for exercises and training. With the Secretary of State in the van of visitors, it soon emerged that we were regarded by our allies, and by the USMC in particular, as the leading experts in armoured engineering; with our imminent committal as the leading element of any USMC assault on Kuwait, we set out energetically to ensure that this reputation was solidly founded. Throughout the time of preparation however, we had emphasised the fact that our equipment, especially Chieftain AVRE, was inadequate to the task in numbers or quality. The use of armoured engineers in providing mobility support to an armoured brigade over short moves in Germany had been perilously confused with the requirement to conduct operations reminiscent in scope to those of the Normandy landings. Requests for extra mineploughs from East German stock, for *Skorpion* scatterable mines and for Centurion dozers to augment the underpowered and unpredictable Chieftain AVRE had been turned down. (The gulf between the Regiment deployed in the desert and the senior staffs who controlled our resources seemed extraordinarily difficult to bridge, except by personal visits to us in the desert, for which we were always very grateful — we also got our command information more by such means and from our wives than from the usual channels.)

OPERATIONAL READINESS

By the date of declaration of our operational readiness, techniques had been developed, equipment modified, logistic systems refined and skills had been honed, and there was no doubt that we could have gone to war successfully if required to assault into Kuwait. Serviceability levels of machines soared into the 90 per cent bracket and stayed there for the following five months. Water had become a routine of supply and stockholding. If one difficulty can be mentioned which was not



Continuum AVRE, Magnetic Influence Mine Induction Coil at side

overcome, it is that of breaching complex wire obstacles. Work continued on wire cutters for armoured engineer vehicles but wire remained a difficulty to which we provided no clear answer, especially when reinforced with mines. The flaming ditches also provided a challenge we did not meet and we were always doubtful that any equipment solution which we could man would be up to the task. Our view was that we should go somewhere else or use air bombardment to disrupt the pipe system; in effect this is what was done on the eastern flanks where the oil ditches were too shallow to be an obstacle of formidable worth. We continued work on rapidly laid minefields, pipe mines to reduce embankments, improvement of AVLB as mine clearing vehicles and reaching maximum reliability with Giant Viper. A bag-packet sketch was successfully converted in-theatre to a mine roller device and many other developments gave an outlet to Sapper versatility and inventiveness. But, despite the enormous pride and enthusiasm in our work, a feeling of relief was the first thing that came over us when the decision to reinforce was announced. Whatever the frustrations which were later to be borne out of the need to adapt to the requirements of a higher headquarters, the thin beige line of 21 Engineer Regiment at the front of 7 Armoured Brigade and 1 MARDIV was awfully thin and we knew that it was time to move over for others to play their part. And so it was, at this stage, toward the end of November that the Regiment handed over its pioneering chapter to the 1st Armoured Division. It meant we could then concentrate solely on our training for whatever new role would be ascribed to us. Whilst not fundamentally different in type, the speed, responsiveness and degree of All Arms cooperation in live firing which was subsequently

achieved by the Brigade and its supporting air power, set standards for all of the allies and for ourselves which will remain long after the victory.

ACKNOWLEDGEMENTS

THERE are a lot of people to thank, but a few must stand out. Lieutenant Colonel Nick Thompson is mentioned for his part in supporting the recce and the gleaming of early information, Colonel John McKeown for visiting and trawling out what we really needed, Colonel Ray Bradbury for unstinting work in getting the Vehicle Launched Scatterable Mine System (GIAT/STORMER) into service before the war and the firm of Anabeeb in Al Jubayl for meeting all our heavy welding demands in the early days; last but not least, Lieutenant Colonel Frank Kabelman, Combat Engineer Battalion 1 MARDIV for all the bits and pieces, men, machines, MREs (Meals Ready to Eat), fuel, resources and just about everything else when we first got to the Theatre. Without all of these people and many more we would not have been able to keep up with the enthusiasm of our soldiers and our commanders to get into the fray of training or war.

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Operation *Granby* 23 Engineer Regiment

LIEUTENANT COLONEL D J BEATON BSc(ENG)

BACKGROUND

23 ENGINEER Regiment is normally 3 Armoured Division's close support regiment but in October 1990 we were warned to provide the engineer element of 4 Armoured Brigade for Operation *Granby* 2 the following year. We had just begun the process of reorganizing and training to take over from 21 Engineer Regiment and 7 Armoured Brigade when we were ordered to deploy to the Gulf as reinforcements on Operation *Granby* 1.5.

The Regiment's war organization is for three close support squadrons; one per brigade in the Division. For both *Granby* 2 and 1.5 it was decided to mirror the *Granby* 1 ORBAT by supporting the Brigade with both a close support (CS) and general support (GS) squadron although the detailed ORBAT differed to that of 21 Engineer Regiment to reflect our close support experience. 39 Field Squadron remained as the Brigade close support squadron but was reinforced to provide each battlegroup with a British Army Training Unit Suffield (BATUS) style close support troop of two Assault Vehicles Royal Engineers (AVREs), two Armoured Vehicle Launched Bridges (AVLBs), two Combat Engineer Tractors (CETs), two field sections in Armoured Fighting Vehicles (AFVs) 432 and two recon sergeants in addition to the troop commander and Combat Vehicles (CVs). 73 Field Squadron re-rolled to a general support squadron of three mechanized field troops and a support troop. To meet this ORBAT and to man a rear party approximately 200 reinforcements were needed; the majority came from 26 Engineer Regiment.

The most pressing initial problem was equipment preparation. Many of the Regiment's most serviceable equipments had been given to 21 Engineer Regiment for Operation *Granby* 1 and others had been stripped of major assemblies for spares. The Regiment's equipment had to be brought up to war establishment and made fully operational for shipping to the Gulf in just over two weeks. With AVREs and AVLBs being hurried through base repair and others coming from as far afield as BATUS and Bovington, this task proved a major challenge and was only completed on time by abandoning any hope of carrying out training during the period.

In preparation for *Granby* 2 some fitness and Actual Time of Departure (ATD) training had begun but serious training did not get fully underway

until after our vehicles and other equipment had sailed for the Gulf. As a result only limited engineer and no collective All-Arms training was carried out prior to our deployment. However we were able to begin to address some of the command and control problems and experimented with various options for integrating a regiment into a brigade ORBAT whilst at the Brigade and Battlegroup Trainer (BBGT) in Sennelager.

DEPLOYMENT AND TRAINING

THE Regiment deployed over the Christmas and New Year period and, having married up with our vehicles and equipment at the port of Al Jubayl, moved into our initial desert locations on the East coast of Saudi Arabia to begin acclimatizing to the new environment. We were required to be fully operational by the end of January so with little time to lose we began to carry out collective engineer training concurrently with individual and survival training. There was time for one Regimental level exercise which concentrated on rehearsing the command and control problems associated with carrying out a deliberate breaching operation against a prepared Iraqi obstacle belt and developed some Signal Operation Instructions (SOIs) for the task. It was during this exercise that we first experienced the very real problems of moving and, equally importantly for engineers, regrouping at night in featureless terrain—a factor which was to influence much subsequent tactical thought and was only partially overcome by the issuing of limited numbers of satellite navigation equipments. Battlegroups came together for the first time in mid January and carried out a series of dry and live battle runs. This was due to culminate in a full brigade exercise but unfortunately an operational move to a new assembly area further West prevented the Regiment from participating.

From our arrival in theatre a series of Map Exercises (MAPEXs) and study days were run at divisional level. Gradually, or at least so it appeared to us, the emphasis changed away from the deliberate breaching of Iraqi first tier border obstacles to the breaching of the less heavily fortified second tier obstacles and later to the possibility of only hasty breaching operations being required. However, although the emphasis changed to reflect the changing role of 1 Armoured Division in the forthcoming

offensive we were always required to be prepared to carry out a deliberate breaching operation should this become necessary. Two divisional Formation Training Exercises (FTXs) were run. These concentrated largely on the mechanics of transiting a US made breach and on practising brigade level manoeuvre and counter-penetration tasks. The counter-penetration tasks brought out a particular problem of using obstacles in such featureless terrain — they tend to fix the orientation of one's own force yet can easily be out-flanked if identified by the enemy. Hence the brigade preferred to use obstacles only if a particular ground feature had to be defended or where they could be placed 'in the face of the enemy'; usually by the use of unsecured scatterable minefields.

EQUIPMENT

In the week or two before the ground offensive began the Regiment took delivery of a number of new equipments. The most significant of these was the Pearsons MLI Plough and Universal Dozer Kit (UDK). However welding the 'quick fit' brackets required to secure the equipments onto the front of the AVREs and AVLBs almost proved disastrous as welding, designed to be carried out in the warm and controlled environment of a base workshops, was attempted in the field in near freezing temperatures. Welds became brittle and cracked as they cooled too quickly and for an agonising 24 hours we contemplated crossing the start line, in only a matter of a few days time, without any front-end equipments to our engineer tanks. To our rescue came the old Number One Burner which by playing flame on the area of the weld managed to heat up the hull just enough to prevent cracks occurring. Other equipments we took delivery of included the magnetic influence mine clearance device MIMIC, which we fitted to all engineer tanks, and four scatterable mine clearance devices which were fitted to four Army Personnel Carriers (APCs) in 73 Field Squadron to enhance their mobility support capability. Finally, as we moved into the Forming Up Point (FUP) before breaking out of the US breachhead, we received three *Scorpion* Vehicle Launched Scatterable Mine Systems (VLSMS) with



AVRE and Giant Viper preparation

supporting vehicles — better late than never! And these were placed under command of 73 Field Squadron to provide a rapid flank protection or hasty counter penetration capability.

In addition to the Pearsons MLI Plough and UDK the Regiment's AVREs were uparmoured with a new steel top plate and both the AVREs and AVLBs were modified to receive front chain mail to defeat HEAT missiles and Warrior side armour to improve side protection. All such uparmouring was gratefully received by the tank crews but the combination of the chain mail and front mounted MIMIC made vision from the vehicles even more difficult than usual, particularly at night, and the vehicles came more and more to resemble ungainly research prototypes!

At the beginning of the deployment, equipment availability was generally poor particularly in comparison with the Challengers and Warriors in the Brigade. However, with continuous use and a gradually improving spares situation availability steadily improved. The 430 fleet remained as reliable as ever, the Combat Vehicle Reconnaissance (Tracked) (CVR(T)) and Chieftain fleets had their rogues but generally achieved good availability and the Combat Engineer Tractors (CETs) were better than our worst fears anticipated but could seldom be relied upon. The net result was that by, and during, the ground war equipment availability was not a major concern because sufficient logistic resources were thrown at the problem. A related problem was the small population of some



Brigade operation briefing — the 'plan' inverted.

equipments supporting battlegroups, particularly engineer tanks and CETs. Even with only one equipment unavailable a battlegroup could be 50 per cent down on a critical equipment and battlegroup commanders were seldom impressed by the explanation that there was good availability across the fleet as a whole! Much more importantly however, no amount of logistic support or improved reliability would enable our current range of engineer vehicles to keep up with a battlegroup of Challengers and Warriors. The reality was that in fast moving manoeuvre warfare of the kind experienced in the desert, engineer vehicles could not keep up with the battle and if engineer support was required the battlegroups invariably had to wait for it.

THE PLAN

In outline the VII Corps objective was to attack and penetrate the Iraqi defences and then destroy the Republican Guard Force Command (RGFC) within its boundaries. The concept was to conduct a swift and violent air-land campaign to destroy the RGFC with the minimum of friendly casualties. (UK) Armoured Division was tasked to attack through a US breachhead in southern Iraq and to swing East to destroy the enemy tactical reserves in order to protect the right flank of the Corps. The GOC's directive was to fight by manoeuvre not attrition; focussing on the destruction of enemy mobile reserves rather than seizing ground. The emphasis was on maintaining a high tempo of operations to retain the initiative. The Divisional area of operations was broken down into a series of objectives and phase lines with an inter-brigade boundary running approximately East-West with 7 Brigade north and 4 Brigade south.

THE WAR

AFTER a generally trouble free transit of the breach and passage of lines with the UK 1 (ID) Mechanical

Division, 4 Brigade moved across its Line of Departure in the breachhead at 1930 hours on 25 February 1991. As had been laid down in Brigade SOIs and practised frequently on FTX the 14/20th Battle Group (BG) led the Brigade and, being the only armoured battlegroup, were the Brigade point of main effort. The Royal Scots (RS) and 3rd Battalion The Royal Regiment of Fusiliers (3 RRF) followed closely behind. Invariably Brigade Tac HQ moved with the lead battlegroup, Brigade Fwd HQ behind the lead battlegroup and Brigade Main HQ behind the rear battlegroup. The Brigade Commander's concept for battle was to launch a series of sequential battlegroup attacks to roll up enemy positions from an unexpected direction; usually the rear. With air supremacy and Multiple Launch Rocket System (MLRS) often in the direct support role, resistance, though initially quite stiff, usually crumbled quickly as we were able to stand off at a distance and destroy the enemy armour before moving in to clear an objective.

The Regimental SOI for the advance was for each Close Support (CS) troop to move under TACON of its affiliated battlegroup with the primary task of providing mobility support. The Squadron Headquarters (SHQ) of 39 Field Squadron was collocated with whichever battlegroup was at the point of main effort; usually the 14/20th if they were leading. The role of this SHQ was to keep forward to identify any additional engineer assets required by the battlegroup and maintain command of all CS resources deployed. If necessary the Officer Commanding (OC) could also give more experienced advice to battlegroup commanders than that provided by the CS troop commander. It was normal for 73 Field Squadron to move behind Brigade Main HQ with the primary task of being prepared to provide hasty counter-mobility support to the Brigade either to the flanks or as part of a counter-penetration position. If no additional armoured engineer assets were allocated to the Brigade, 73 Field Squadron also provided the Regimental reserve for mobility support with a mobility troop based on CETs, 432s fitted with the scatterable mine clearance device, up to four Grant Viper (GVs) and, if necessary, dismantled sections for hand breaching of mines and wire obstacles.

Although we had developed SOIs for all phases of war we soon rediscovered that old adage 'no plan survives first contact with the enemy' and the first task given to 3 RRF required them to be prepared to provide flank protection to the Brigade and subsequently to destroy a large number of enemy

artillery pieces in an objective nicknamed 'Steel'. In view of this 73 Field Squadron was placed under TACON 3RRF and a field troop was allocated to each infantry company to dismount and destroy any equipments on the objective. For simplicity of command the CS troop affiliated to 3RRF also came under command of 73 Field Squadron for the task. The only other change to SOI task organization during the land war occurred when the Brigade was required to carry out an attack over a pipeline obstacle. The two infantry battlegroups were to attack in line with the 14/20H in reserve. A redistribution of engineer tanks was made from the 14/20H to the infantry battlegroups and the SHQ of 39 Field Squadron split to better coordinate the resources allocated to 1RS and 3RRF.

It is also worth recording that the need for rapid engineer response during a fast moving and unpredictable battle of manoeuvre, coupled with long and vulnerable lines of communication, placed a premium on carrying comparatively large quantities of M&E at first line. As an illustration of what was held 39 Field Squadron moved with 10 GVs and sufficient stores for 2.5km of four row barminefield and 73 Field Squadron held four GVs, almost 3.5km of four row barminefield and approximately 6km of scatterable minefield.

The Brigade carried out nine battlegroup attacks, destroyed about 60 tanks and larger numbers of APCs, guns and vehicles, and took 5-8000 Prisoners of War (PWs). In the 97 hours of the land campaign we moved 350km coming to an enforced halt just East of Kuwait City with the cessation of hostilities.

Post War

With the end of fighting there was little rest for engineers. The most immediate task was to mark, and where necessary clear, the brigade area of the mines and unexploded ordnance which had already begun to cause casualties to our troops. Both squadrons were involved and during one such operation we sustained our most serious casualty when a cluster bomb exploded causing severe shrapnel wounds to a troop recee sergeant. Once



4 Brigade Forward Headquarters

this task had been completed 39 Field Squadron was kept very busy carrying out battle area clearance. This required them to go back into Iraq to clear any fit enemy equipments of booby traps so that they could be recovered into Kuwait and to destroy any equipments or munitions which could not be recovered or were not wanted. Meanwhile 73 Field Squadron deployed to Kuwait City to assist with the task of civil recovery. They took on a myriad of tasks including clearing electrical power sub-stations of booby traps and unexploded ordnance, water supply to embassies and other infrastructure tasks.

CONCLUSION

When we finally boarded the aircraft to return home at the end of March most of the Regiment could hardly believe our good fortune. Few who serve in any Army can relish the prospect of taking part in a major armoured battle in a chemical environment, and before the land offensive began most of our imaginations had worked overtime painting images of the mutual destruction we feared. Yet we had taken part in a major campaign and achieved success quickly and without serious loss. At the end of the day superior technology and superior professionalism at the strategic, operational and tactical levels had brought about overwhelming success. We were proud to have played a part.

Waterbeach at War — 39 Engineer Regiment's Part in the Gulf War

MAJOR G R W MAC GINNIS MA



Major George Mac Ginnis joined the Corps as an Undergraduate Cadet at Trinity College, Cambridge. He has served as a troop commander in 31 Armoured Engineer Squadron, commanded the RE Mobile Display Team and spent nearly six months in the Falklands as SO3 J3 (Army) at Headquarters British Forces Falkland Islands. He joined 39 Engineer Regiment as Adjutant in December 1988 and was still serving in that post when the Regiment deployed to the Gulf. He was appointed as Second-in-Command of the Regiment in May 1991.

In August 1990, shortly after the Iraqi invasion of Kuwait, a flurry of signals arrived in Regimental Headquarters (RHQ) to herald the start of Operation Granby. Rumours came and went that the Spearhead Troop would deploy. Eventually that duty passed on to another regiment and it became time for most of us to depart on our annual "flying" exercises to the airfields of Germany. "Relax, rest assured you will be last unit to go" we were told before heading across the Channel.

The Royal Air Force (RAF) bases were a hive of activity. All the talk was of the Gulf, which brought some welcome relief to the doom and gloom of the likely airfield closures under *Options for Change*. 48 and 53 Field Squadrons (Construction) embarked on their training programmes, plant was taken out of mothballs, holes cut in the airfield pavement and training for airfield damage repair (ADR) began in earnest.

On the 19 September, 48 Squadron was in the middle of a major test exercise. The airfield was at a simulated war footing with troops running around, repairing craters and damaged services at an impressive rate. Bad news always seems to come in waves—and this was to be no exception. Overnight, Sapper Simpson had managed to crash into the RAF's last flying Varsity aircraft in his dump truck. Then, out of the blue, the first warnings that the Regiment would have to deploy to the Gulf came.

Precise details were impossible to obtain, but the warning was enough to trigger a hive of activity.

Early the next morning the CO, Operations Officer (Ops Offr) and I flew down to Joint Headquarters (JHQ), initially to gather more information and then to pass on the first detailed warning orders. Squadron Commanders were called from as far away as Güttersloh and Belgium to be given the simple message—pack up, get back to Waterbeach and prepare for war. The task seemed straightforward—but the obstacles were enormous.

By then it was Thursday night. The CO and I set off back to Waterbeach, leaving the Ops Offr to co-ordinate the move back. A road journey at lightning speed, followed by a rough crossing, assured we were back in Cambridge early on Friday. Over the next few days the fever-pitch level of activity began to take effect. Most of the deployed squadrons returned on Sunday, although some of the heavier vehicles were not back until the next Wednesday. Although there were still no clear orders (or ORBAT), common sense was the order of the day. There was no time to resolve problems of under-manning or equipment deficiencies. Even more difficult was the added burden of having to leave behind many downgraded and near-retirement soldiers, leaving several gaps in what were key positions. At times, everything seemed to be working against the Regiment, a point brought home to us when it became impossible to obtain desert paint and camouflage nets—there were to be no issues until our notice to move was less than three days—hardly time for the last vehicle's paint to dry.

Finally the ORBAT became clear. About 280 men, organised into an RHQ Tactical, 53 Field Squadron (Construction) and Headquarters 60 Field Support Squadron (SIHQ) and Resources Troop would be heading off to Al Jubayl to prepare the way for 7 Armoured Brigade (7 Armd Bde). At the same time a 50 man troop from 48 Field Squadron (Construction) would deploy to RAF Tabuk, some 600 miles to the West, to provide ADR cover and assistance with "works for war". Well before this was clear a four man advance party, led by the Quartermaster, deployed by air into Dharan and moved North to Al Jubayl. They started the fruitful liaison with the US Marines, tried to hire suitable transport, locate resources and gather as much intelligence on our tasks and the other forces in the area as possible.

Friday 28 September was D-Day for the Regiment. After a hastily arranged press conference, the first of three chalks to Al Jubayl together with the troop deploying to Tabuk formed up to go. For those who had struggled to pack their kit, complete with a quite unforeseen 35lbs each of Nuclear, Biological and Chemical (NBC) equipment, the final blow came when the Regimental Quartermaster Sergeant greeted everyone with the new "sleeping system" — better but bigger, so how do you fit it in?

Arriving at South Cerney, we were met by a young NCO who promptly announced "This is the movements brief for Exercise *Granby*". But few men were under any illusion that this was other than a deployment to a war zone when a couple of hours later, in Brize Norton, we were told "all webbing to go into the hold, but take all your NBC kit in case we land in a dirty environment". Now was the time years of training would be put to the test.

There was still time to reflect on the events of the past ten days. Few people could have imagined that we could move at such speed and the achievement was certainly a great credit to all involved, particularly the junior ranks.

Our flight was the first British jet into the airport at Al Jubayl and was remarkable for the night landing. The pilot wasn't sure where the airfield was and the ground controller wouldn't turn on the lights until the aircraft was on its final approach. Fortunately the *impasse* was short-lived and we landed safely. But our troubles weren't over yet. Our disembarkation was delayed by a minor technical hitch as the only set of steps available bogged into sand on its way to us. Thus it was that a keen REME recovery mechanic shinned down the nose wheel of the VC-10 to beat the CO onto *terra firma*.



"Baldrick Lines" — the 2000 man tented camp goes up in the port at Al Jubayl.

Our advance party had obviously been busy. We were greeted by a convoy of American trucks, looming out of the darkness with a science-fiction appearance, and transported down to the docks to take up residence in a hangar (actually a warehouse, but it is difficult to cast aside the familiar Waterbeach term). On our way, we passed long lines of Apache attack helicopters, blades folded and packed as close together as possible which was our first evidence that Uncle Sam was already there in force.

From an early stage, two things became obvious. First, that we would be dependent on the US Marines for everything, including food, water, transport, real estate and information. Second, that in the absence of any higher headquarters, we would have to establish all the necessary staff functions. Stores for the initial task and much more started arriving by air, and the division of responsibility became clear. 53 Squadron started on the initial task of constructing a 2000 man tented camp. It was to be put up on an asphalt surface without damaging that surface (what, no tent pegs?). 60 Squadron established not only the Engineer Park, but started to receive all ordnance and other stores, moving them from the airhead to the dock side. Meanwhile RHQ began planning ahead, identifying real estate to locate incoming logistic units, transit accommodation for 7 Armd Bde units whilst they married up with their vehicles and deployed, and planning the reception of the initial wave of troops. Daily conferences were held to coordinate plans with the few other British troops in the area.

The initial problems were enormous. There were three different telephone systems in the port, none of which was easy to master, requiring the caller to go through several layers of operators to make a

Maj G R W MacGinnis MA
Waterbeach at War (p273)



Improvised waste oil distributor for soil stabilisation

single call. The credit cards, issued as our answer to resources and hired transport problems, proved useless in the nervous environment where only gold or dollar bills counted.

By now the Regiment was working to a well established routine. 'Sheep pens' were put up using spare pallets to delineate squadron lines in the warehouse where we were living. Food was cooked and delivered by the US Marines, with an 'MRE' (Meal Ready to Eat) issued for lunch. Grateful as we were to have their support, the impression that US Forces ate well was soon dispelled.

As deadlines for construction of the camp neared, the frustration mounted as plane-loads of space heaters and brown biscuits arrived before tentage and plumbing stores. Nevertheless the tented camp was completed in time for the first elements of Headquarters Force Maintenance Area (HQFMA), which arrived on 8 October. Out went a small RHQ and in came a bewildering number of senior officers. Every service branch appeared to have at least one lieutenant colonel.

Before the ships arrived with much of the heavy equipment, not everyone was fully employed and opportunities to send individuals up to the US Marines 1st Combat Engineer Battalion (1 CEB)

and to the US Navy "Sea-bees" (Construction Battalions) provided some excellent cross-training, and went some way to redressing the balance of support.

With the arrival of formed logistic units and later the first ships, the size and scope of the logistic effort went through a dramatic increase. The Regiment's activities shifted to focus on three areas.

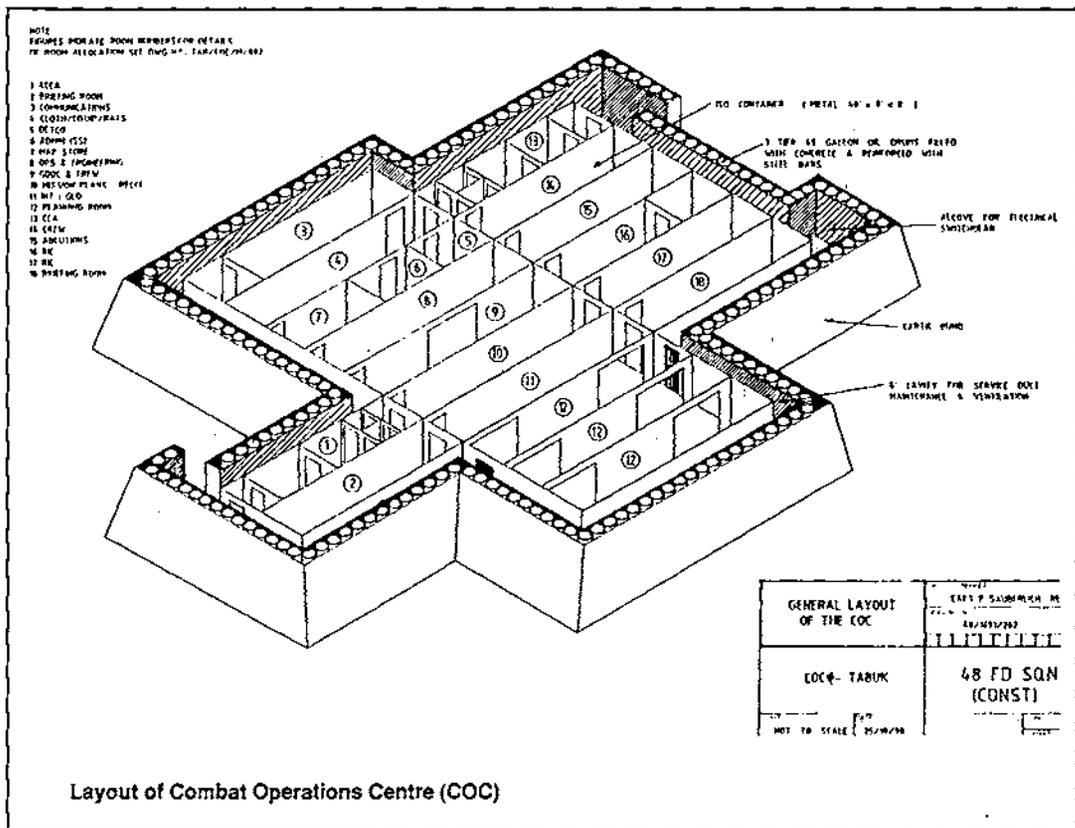
60 Squadron concentrated their activity in the Engineer Park, not only receiving a vast array of engineer stores but also starting an active local procurement programme and setting up a small manufacturing workshops. In the weeks to come they produced shower units, field latrines, improvised 'desert rose' shower buckets and much more.

Meanwhile 53 Squadron undertook an array of tasking within the FMA area. Principal among these was the construction of 33 Field Hospital (see *Journal* August 1991 — *Ei Kol Makan* by Lieutenant Colonel Bridges), built mainly inside a warehouse with NBC collective protection and needing all electrical and plumbing services installed. Nearby, an helicopter landing site (HLS) was prepared on an open sandy site using waste oil for soil stabilisation. The Squadron also set up and ran showers and water points through the port area to serve the warehouses used as transit accommodation by 7 Brigade. They also helped in the construction of roads and protective bunds in a joint US/UK ammunition depot in a disused quarry out in the desert.

RHQ continued to co-ordinate the activities of the two squadrons, and was tasked with setting up a former migrant workers camp as a base facility for the units of 7 Brigade. As the weeks went on this would eventually be handed over. It was time to take stock and a major review of the shape of Sapper support to the RAF and FMA was conducted in conjunction with Headquarters British Forces Middle East.



Improvised ablutions and shower block — Al Jubayl



Whilst all this had been happening in Al Jubayl, the troop from 48 Squadron had been busy at Tabuk. Although a modern airfield, the RAF had to set up their own facilities. The largest and most significant undertaking was the construction of a protected command centre (see above), made from international standard organisation (ISO) containers joined together and fitted out with a suite of pilot briefing facilities, operation desks and the like. The whole complex was protected by strong earth bunds and a reinforced roof. They were also tasked with the construction of field defences for Rapier sites, protection for key equipments and the construction of emergency bulk fuel installations (EBFIs).

In mid-November, the review of Sapper support to the RAF and the FMA led to a series of redeployments. 53 Squadron started a phased move to take over responsibility for support to the RAF and was replaced in the FMA at the end of November by 3 Field Squadron, deploying from UK. RHQ and SHQ60 Squadron returned to the UK at the end of November, and on completion of 53 Squadron's

deployment, the troop from 48 Squadron at Tabuk also returned to the UK.

53 Squadron was to provide the construction and ADR force at the three British air bases at Muharraq in Bahrain, and Dharan and Tabuk in Saudi Arabia. All the technical elements (including those normally integral to the squadron) were grouped into a separate Specialist Team Royal Engineers (STRE) (Airfields), whose role was entirely works related, and there were detachments at each of the three bases. The RAF formed the main Allied presence at Muharraq, and it was this, rather than the availability of alcohol, that made Bahrain the obvious choice of location for Squadron and STRE headquarters. A troop was deployed to each at Dharan and Tabuk, although local restrictions at the latter often meant that actual numbers were rather small.

The Squadron continued the programme started earlier of hardening up the bases, making air raid shelters, splinter protection units and accommodation. At Muharraq, areas of waste ground were identified as extra aircraft dispersals and a contractor was called in to do the work. This proved



Water pump at Al Jubayl

vital later on during the air war when extra aircraft were deployed. The Squadron also developed an *ad hoc* method of ADR. Responding to the lower threat and sizeable redundancy but with the added need for repairs to be trafficked by wide bodied jets, an asphalt paver was hired for the job and proved effective in training.

Whilst all else had changed around them, Resources Troop, 60 Squadron had remained in Al Jubayl as the 'Middle East Engineer Park' handling the reception and dispatch of all engineer resources. January brought a renewed flurry of activity as the elements of the 1st Armoured Division deployed and the out-load for the ground war began in earnest.

Nor had it been all peace and quiet back in Waterbeach. A constant demand for individual

tradesmen and reinforcements meant that more men deployed to the Gulf than had returned, leaving the barracks strangely empty.

In late January, the turn of 34 Field Squadron came as their troop on *Spearhead* duty was despatched to support the prisoner of war (POW) guard force. They deployed to the Forward Force Maintenance Area (FFMA) and were tasked with building POW camps, a job made difficult by the late arrival of vital stores. Nevertheless, the cages were there when they were needed.

The closing stages of the ground war brought the last great upheaval, 53 Squadron, whose widely dispersed troops had been sitting at the receiving end of the Scud attacks was suddenly given marching orders. On 28 February, the Squadron reformed at Al Jubayl before heading North for Kuwait to take their place among the first Allied troops to enter the capital city. Initially they moved into the airport, which although it had escaped much of the bombing, had been badly vandalised by the Iraqis. Some work was done to reopen it before moving into an old ambulance station which was to be their base for two weeks. Inside the city, the Squadron was involved in the repair of the British Embassy, route clearance and the production and distribution of water for hospitals, embassies and other units. Meanwhile, Support Troop was employed constructing bunds around damaged oil wells to help stop the spread of oil.

Towards the end of March, the troops who had served through the war were quickly replaced and



Emergency Fuel Handling Equipment farm at Al Jubayl

returned home, bringing to a close what had been for some nearly six months of deployment.

The lessons were many and varied. 39 Engineer Regiment had taken on much of the less glamorous side of Sapper work, and provided the springboard for the deployment of 7 Brigade. Elements from all four squadrons, and of course RHQ and Workshop REME, had deployed as formed units at various stages. Additionally, a large number of men was also deployed as individual reinforcements, serving with other units from Riyadh right up to the front line. Certainly the Regiment's work had been appreciated at every level and letters of thanks were received from all quarters. Major Bill Fawkner-Corbett, who commanded 53 Field Squadron (Construction) throughout, identified two key lessons which stood out above all others and applied equally across the Regiment.

First, much of our success must be attributed to good training. The variety and unusual nature of much of the construction work proved a challenge to the artisan and design skills. At troop and section level, the benefits of having spent precious time carrying out a wide variety of minor construction projects were immense and the experience gained by two of the troops in 53 Field Squadron in Kenya earlier in 1990 was most useful. The point that engineer construction projects are not a swan but a vital part of our preparation for war cannot be over-stressed.

The second point is perhaps more contentious. Sappers were often forced into accepting complicated establishments and command



Troops refuelling from an EBFL at RAF Tabuk

arrangements, generally as the result of strict control of manning levels. Thus two troops from different squadrons were deployed almost simultaneously to two separate airfields, without the command or logistic support they would normally expect. They were eventually replaced by 53 Squadron. The formation of an STRE (Airfields) to work alongside, but neither subordinate to nor in command of the Squadron, also proved a complicated arrangement.

ACKNOWLEDGEMENT

In putting together this article, I have relied heavily on previous work by many other officers and I would like to thank them all. In particular, I have drawn from pieces written by Major Fawkner-Corbett and Captains Jones and Sauberlich, on support to the RAF.

50th Anniversary Articles

The Editor of the Journal would be pleased to receive further articles from anyone who took part in World War Two, with a view to their publication on or near to the 50th Anniversary of the events described. We are now considering, in particular, the events of 1942 but accounts of later events are always welcome as they can be kept for publication in the appropriate issue.

Waterbeach at War (p277)



A Walk With Heroes

Major General Charles Gordon 1833-85

It is the first day of spring. As I leave the gloom of MOD Main Building by the North Door, passing under Sir Charles Wheeler's oppressively heavy nudes of Earth and Water (1953), I pause, momentarily blinded by the sparkling sunshine reflecting across Horse Guards Avenue. This area has been the centre of power for centuries. Everything around me is dazzlingly rich in history.

Directly across the road is the Old War Office Building (1898) and on my right is Jonathan Carr's palace of flats, Whitehall Court, with the National Liberal Club at the far end. Completed in 1887, its chateauf style is surely amongst the most spectacular and prosperous developments of the late Victorian period. For me, it epitomizes the very essence of that romantic and self confident vigour which became the hallmark of that lost age of heroes. Further off to the left I can just see the Banqueting House (Inigo Jones, 1620) where Charles I lost his head, and on the far side of Whitehall rise Horse Guards (William Kent, 1751) and Old Admiralty (Adams, 1761).

Straight ahead at the other end of Whitehall Court is Old Scotland Yard on the site of the London residence of the Kings of Scotland dating back to well before the Norman Conquest. Latterly Scotland Yard became better known, of course, as the first headquarters of the Metropolitan Police from 1829 to 1890. And this thought brings me back to Victorian London and the purpose of my expedition.

We have not far to go however. My walk today is a very short one; no further, in fact, than Victoria Embankment Gardens on the east side of Main Building itself. The plane trees surrounding its lawns are bright with delicate new leaves bursting

forth in a profusion of green lace illuminated by a warm April sun. Turning left at the north east corner of MOD, into the sunshine beside the worn stone steps which mark the remains of the old Whitehall Palace destroyed by the fire in 1698, I find the object of my walk: the statue of Major General Charles George Gordon, born 28 January 1833 died 26 January 1885.

As Sappers we know well the saga of 'Chinese Gordon' and his ill-fated defence of Khartoum, and we are all familiar with his camel-mounted memorial outside the RSME at Brompton Barracks. But few, perhaps, are acquainted with this fine bronze statue by Sir William Hamo Thornycroft situated at the very heart of Empire and bearing witness to contemporary admiration reaching far beyond the Corps of Royal Engineers. Gordon's evangelical life of fervent passion ending in his unnecessary and untimely death made him one of the most magnetic and tragic military heroes of the Victorian era. His whole life was committed to the expansion of British influence and British values around the globe, and the British public loved him for it. His military career began in 1852 when he was commissioned into the Corps; he fought in the Crimean War at Sebastopol at the age of 22; he took part as a captain in the capture of Peking and the Summer Palace in 1860 and went on to lead his 'Ever Victorious Army' in crushing the Taiping rebellion; later, in 1874, he moved to Egypt and began establishing a chain of forts along the Nile in an attempt to eradicate the slave trade.

When Gladstone's Liberal government was confronted by an untidy colonial crisis in 1881 over the defeat of Hicks Pasha's Egyptian army in the wilds of Konfota, the people of England clamoured

for their popular favourite, the visionary hero 'Chinese Gordon', to restore the situation and their military self-esteem. It seems his fitness for this particularly perilous mission was never questioned, but whether in retrospect such an intense, impulsive and mystical figure was really the wisest choice must be open to doubt. In any event, he was despatched and then allowed to perish under the spears of the Dervishes, and the death resulted in a tumultuous uproar which reverberated around Whitehall until it finally brought about the fall of the Government in 1886. Has any Sapper officer, before or since, ever achieved so sudden or dramatic an impact on British political life?

The outpouring of popular grief, not only in Britain but also in the colonies and around the world, is hard to imagine today and has seldom been paralleled. The world had lost a hero, and Friday 13 March 1885 was declared a day of national mourning with special services in Westminster Abbey and St Paul's Cathedral. Parliament immediately voted funds for a commemorative statue which was unveiled in Trafalgar Square on 15 October 1888. It was later moved to its present position beside MOD in 1953. The sum of £20,000 was voted to his relatives. A recumbent effigy by Boehm was placed in St Paul's, and at Chatham the Corps commissioned the Brompton statue from Mr Onslow Ford and the 'Chinese Gordon' portrait from Mr Val Prinsep. Further expression of popular admiration and esteem was manifested in the establishment of 'The Gordon Boys' Home' in Woking as a national memorial to complement his philanthropic work for homeless boys in Gravesend between 1865 and 1871.

This statue by Thornycroft on the lawn outside MOD, with its richly decorated base bearing the words 'Charity', 'Justice', 'Fortitude' and 'Faith', is one of my favourite London monuments. It somehow manages to capture the powerful, romantic mystique and religious fervour of the man. He stands brooding, head down and silhouetted against the newly cleaned Portland stone of Main Building, looking out across the river in a deeply contemplative mood. A pair of binoculars is slung over his shoulder and he carries a Bible in his left hand. Unusually for a military hero, he is unarmed except for a cane, his 'magic wand' as it was known, which is tucked under his left arm. His earnestness, his modesty and his courage shine through. His life had been dominated by an unshakable Christian faith; he was indifferent to



praise or reward; he cherished a supreme contempt for money. He was every inch the hero and the warrior of God, 106 years after his death on the palace steps at Khartoum, and despite a somewhat cranky personality by modern standards, he remains an inspiring example to Royal Engineers everywhere. In the words of Tennyson: 'This earth hath borne no simpler, nobler man'. Death was an open gate through which he escaped to a happier place. The Dean of Rochester, in his address to mark the unveiling of memorial windows in the Cathedral on 9 August 1888, characterized him as 'Gordon the soldier — Gordon the martyr — Gordon the saint'. Here in Whitehall, historic centre of Britain's imperial heritage, this statue says it all.

Uplifted, Heave my sunny bench and head back to work via the South Door.

This is the first of an occasional series of short articles featuring great 19th Century personalities, written and photographed by Lt Col T.H.E. Foulkes

The Cyprus Connection August 1990 to August 1991

MAJOR R C SWANSON BSc(Eng)



Major Robin Swanson was commissioned into the Corps in 1974 and has had tours with 12 Field Squadron, 20 Field Squadron, 33 Independent Field Squadron, 42 Survey Engineer Regiment and Field Engineer Wing Royal School of Military Engineering (RSME). Between the first two tours he did an in-service Civil Engineering Degree at The Royal Military College of Science Shrivenham. From RSME he went on to a tour with 33 Engineer Regiment (Explosive Ordnance Disposal (EOD)) as Operations Major and then to a double hatted Grade 2 staff job as SO2 Engineer 1e/SO2 LSOR 5d sponsoring both Counter Terrorist Search (CTS) and Explosive Ordnance Disposal (EOD) policy and equipment. He took over Command of 62 Cyprus Support Squadron in March 1990.

BACKGROUND

The purpose of this article is to describe events in Cyprus during the period of my command because they include three successive operations undertaken by the Squadron; Operation *Granby* about which much has already been written, Operation *Blueblazer*, a local Operation name for our bi-annual support to United Nations Forces in Cyprus (UNFICYP), and Operation *Birdbath* which is an ongoing operation to supply desalinated drinking water to the Western Sovereign Base Area (WSBA) in Cyprus using Reverse Osmosis (RO) plants pioneered for the Gulf.

Before I embark on these operations, it is worth explaining that 62 Cyprus Support Squadron is a unique unit established like no other in the Corps. It has six officers, 68 Other Ranks and 58 civilians. The military ORBAT currently consists of a Squadron Headquarters (3+8) which incorporates a Project Planning Cell and a Training Wing, a Field Troop (1+21), a Plant Troop (1+20) and a Support Troop (1+19) incorporating a Resources Cell and Light Aid Detachment (LAD). The unit's function is to support British Forces Cyprus by providing Airfield Damage Repair (ADR) and Combat Engineer Support in Transition To War (TTW) and War; construction engineering, engineer resources, two high-risk search teams, a diving

team and boat operators for security patrols in peace. It was therefore with some surprise that I discovered on arrival that this tiny ORBAT was about to be subjected to a second Directorate of Army Management Audit (DAMA) inspection within 18 months to review their previous recommendation to cut 1+11 military personnel from the establishment.

In July we survived the attack of this team by retaining the military ORBAT intact but losing ten of the then 68 civilians on the establishment. The purpose of this preamble is to explain the background of how this small unit entered the year beginning 2 August 1990.

OPERATION GRANBY

Operation *Granby* began for us on 9 August 1990, exactly one week after the invasion of Kuwait. RAF planes carrying munitions bound for the Gulf started to arrive at RAF Akrotiri. These munitions were to form the 30-day stock required at what was later to become the Forward Mounting Base (FMB). Squadron Plant Operator Mechanics (POMs) were deployed to Akrotiri for a six week period to assist the RAF and Royal Corps of Transport (RCT) undertake the intensive task of unloading and transferring the munitions to the eastern munition dump. A quick training course on Henley Fork

Lifts allowed our POMs to form part of the combined RE/RAF/RCT shift teams. Only three days after this task started the RAF realised that the 30-day stock wouldn't physically fit into the space available. Antiquated bomb shelters with wooden portal frames and corrugated iron (CGI) roofs required demolition to allow in-service Material Handling Equipment (MHE) access to more areas. The Field Troop painstakingly dismantled two of these by hand attempting to save materials but a three day deadline imposed halfway through the task prevented these niceties and with the help of two Medium Wheeled Tractors (MWTs) the remaining shelters quickly became scrap.

The second phase of extending the available space for the RAF munitions required the construction of a further 25 munition bays, each 24m x 24m with a link road in-between. The bunds were to be 4m high; the bases and 900m of link road required 250mm of compacted Type 2 sub-base material to provide the wearing surface and this was laid by the BK 95 paving machine. Locally won material was used to construct the bunds and an estimated 70,000 tons of fill were hauled, shaped and compacted to form them. The task started on 20 August and the whole of Plant Troop, less MHE operators, worked shifts to complete the project. Four weeks later we handed over the site to the RAF. Enormous problems were encountered ordering material through the bureaucratic wheels of the Property Services Agency (PSA) and also with the inflexibility of local contractors, neither of whom could work or adapt to our shiftwork practices. Deliveries were sporadic and as a result the Cypriot factor had to be incorporated into overall planning times; something which the Squadron does as a matter of routine in peace but which is an aggravating factor when deadlines are imposed. This was to be a recurring problem throughout our Operation *Granby* tasks. At about the same time as the ammunition compound task was being undertaken, the need for an Emergency Bulk Fuel Installation (EBFI) was identified. We were tasked to construct three double sized EBFI bunds to house the equipment and 516 Specialist Team Royal Engineers (Bulk Petroleum) (516 STRE (BP)) was sent out to construct it.

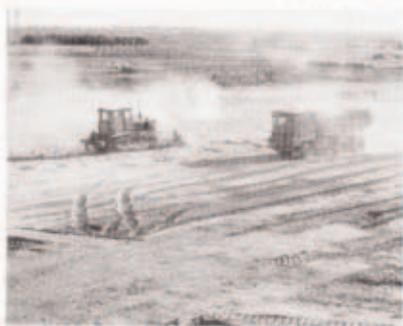
It was about a month after the completion of the Akrotiri tasks that I received a phone call from the OC of 33 Signal Unit RAF. He had a project directly associated with Operation *Granby* which would require substantial engineer effort to provide a level base 750m x 85m on which to put signals

equipment. Although funding had not yet been secured, Headquarters British Forces (HQBF) Cyprus tasked the Squadron with planning and setting out the task. As early as 19 October we were aware that 23 December 1990 was to be the deadline for the civil engineering works to be complete. The Project Cell, led by Captain Terry Curran, deployed immediately to do the ground survey and set in the base stations on what was a virgin site cultivated by Cypriot tenant farmers. During the following two weeks, some frantic planning designs were produced having established that there was a 7m drop in height along the length of the proposed base. Unlike most logistic engineering tasks where the client specifies his requirements and the resources and time are then calculated, we had to adopt the reverse process. This was exacerbated by the uncertainties surrounding the funding of the task and indeed when that decision would be made. We had a deadline. We had a fixed number of resources, in particular very limited manpower; and we had the optimum design criteria but no start date. Several assumptions had to be made and within a week we proposed a 2m drop in height along the length if we were to complete the task in time. The RAF agreed that they could compensate electronically for this.

A straight cut to fill process would have been employed but for the caprock 0.5m below the surface. On 5 November our only D8 dozer with ripper moved onto site but was simply not powerful enough for the job. Two civilian D9 dozers were hired to hack away a metre depth at the top end. At the other end the first load of fill, transported from a borrow pit 3km away, started three weeks of hauling.

The orientation of the site was critical and as late as ten days after starting the project, the RAF changed the direction by quote "only two degrees" (this represented 70m difference at both ends). The one surveyor on establishment, LCpl Palmer, became a key man. He checked the new orientation by Astro Survey and discovered we were only three minutes out which was deemed to be an acceptable deviation by our client. The whole success of the project depended on this young NCO and as a result he received a Commander's Commendation.

Importing the 120,000 tons of fill took three weeks. This was done using eight ageing haulamatics and employing every HGV 2 driver in the unit to man the shifts, including some of the SNCOs such as the SQMS and Resources Sergeant. A civil haulage contract was also let but this was unable to fulfil the whole requirement. Once the



Importing the 120 000 tons of fill took three weeks

centre section was level and compact, a Type 2 sub-base material was laid by the BK 95 paving machine to provide the wearing surface. Without describing each plant phase in detail, it is sufficient to say that the process was repeated in four sections as the levels were achieved. With a near to level base, 1020 concrete boxes 450 x 450mm had to be cast in 68 rows along the length, which had to be level, and exactly aligned with each other across the width. These and 136 larger end bases represented the completion of the Sapper input.

This massive and repetitive task could not have been achieved solely with Squadron manpower. Redeploying the majority of the Operation *LoneLine* Troop (61 Field Support Squadron) from UNFICYP on to the task, delaying their return to UK and working shift work, contributed to the timely completion of the task by the deadline date. There is no need to elaborate on the problems encountered when overstretching limited resources because these are self-evident but the knock on effect on our ageing plant fleet is still being felt now. By the end of this and the previous work at Akrotiri the output of the plant had been phenomenal.

Air defence of RAF Akrotiri had been provided by RAF Regiment Rapier and six Phantom F4s from the middle of August, although the Rapier subsequently deployed to the Gulf in two phases during October and November. While the air threat remained low throughout the build-up and the war itself, Akrotiri was within striking range of the Iraqi Air Force and the Scud B Al Abbas variant. Therefore with my other hat on as SO2 Engineer in HQBF Cyprus, I addressed our ADR capability in more detail. Prior to Operation *Granby*, we only had a 60 hour capability using the concrete cap method.

After a considerable amount of staff work, five Bomb Damage Repair Mats (BDRM) and the associated equipment to undertake this method were borrowed from a UK airfield and shipped to Cyprus arriving early December 1990. As the Squadron was fully committed at that stage, BDRMs were put together using manpower from the Queen's Own Hussars under Sapper direction.

In early January a team from 12 Engineer Brigade came to Cyprus to train the Squadron on the new equipment and by the time they left we were deemed to be operational. However there was a number of areas about which I remained sceptical. First was the lack of Restoration of Essential Services and Facilities (RESF) military manpower and equipment; HQBF Cyprus appeared content to accept that PSA tradesmen and their equipment could fulfil this role contrary to the advice given to them. Secondly, we had no Heavy Wheeled Tractors (HWTs) with which to lift the BDRMs and we had to adapt a means of using three MWTs together to achieve the lift. This was a most unsafe process and while it did not render us non-operational, it was not acceptable for training.

During the ADR training, Baghdad and Southern Iraq were bombed. The whole of Cyprus moved onto BIKINI AMBER and we remained on this alert for the duration of the war and for several weeks afterwards. The duty RE Search Advisers (RESAs), normally on two hours notice to move (NTM) were reduced to 30 minutes NTM and the duty RE Search Team was brought to two hours NTM. However the expected terrorist campaign never materialised. The remainder of our tasks were nearly all related to Internal Security. A total of 5km of Type 2 fencing was erected either side of the main Ayia Napa road running through Dhekelia and around Richmond Village, a married quarters area. Internal tracks were constructed within the wire and a number of additional temporary sangars were built at Vehicle Check Points (VCPs). Operation *Granby* funding was also approved to construct a Permanent Vehicle Check Point (PVCP) outside Ayios Nikolaos which became a six week task but was not completed until a month after the Coalition Cease-fire. However the project provided an excellent opportunity to construct an elevated sangar and use our BK 95 to lay black top, both of which were excellent training value for the Squadron. This was the last time materials had to be ordered through the PSA. With the advent of New Management Strategy (NMS) our Resources Cell now ordered materials direct from contractors with

the bills being sent direct to respective Property Managers. After our Operation *Granby* tasks, the Squadron deployed into Sector One of UNFICYP (the Danish Sector) to maintain and repair the patrol tracks after the winter rain. Operation *Blueblazer* is a routine biannual operation which takes four weeks and provides excellent training value for the POMs and Combat Engineers alike. The operation itself does not lend itself to further description here but it is sufficient to say that it bridged the gap exactly between Operation *Granby* and Operation *Birdbath* with little time to breathe in-between.

OPERATION *BIRDBATH*

THE WSBA of Cyprus had been reliably supplied with water since 1953 from the Kissousa Spring 25km to the northwest. The supply had been supplemented during the summer by poorer quality water from operationally secure boreholes in the WSBA. The dramatic rise in the civilian population since 1974, the increased use of nitrate fertilisers and the building of the Kouris Dam had caused a gradual reduction in quality and quantity of the borehole water available. HQBF Cyprus took this into account in their development plans with the construction of the Symvoulos Dam which was due to be completed in September 1991. Unfortunately the very low rainfall and the sudden reduction in the flow of the Kissousa Spring, possibly caused by a civilian tunnel being constructed nearby, unexpectedly compounded the water difficulties. The result was that a severe shortage of potable water with an acceptable level of nitrate contamination was predicted. Severe water restrictions were imposed and consumption considerably reduced but even with the restricted consumption there would still have been a water shortage. A recce team from the Military Works Force (MWF) visited Cyprus 24-30 April 1991 headed by Colonel John Bennett. He recommended the installation of six temporary RO plants in Happy Valley, Episkopi. These would produce 60,000 tonnes of pure water if worked continuously for four months from mid-July 1991. This task was to become Operation *Birdbath*. What a name!

The principal problem we faced from the outset was concerned with the resources that we were sent to use. The stores arrived in 23 International Standard Organisation (ISO) containers which had been hastily loaded in the Gulf without being itemised. Major George Small and a tiny team (I hesitate to put small team) from MWF gave us invaluable

assistance identifying and sorting out what would be required. This involved unloading every container, extracting items and re-stuffing 19 of them for onward transmission to UK. The victualic pipe, valves and ancillaries were all contaminated with fuel although at that stage it was hard to appreciate by how much. 516 STRE (BP) in Chilwell were tasked to investigate ways to achieve decontamination effectively. Trials concluded that if pipes were cleaned with water using a 10,000 psi pump for 20 minutes, the hydrocarbon level afterwards would be negligible. A suitable pump was hired in UK, flown out, and the process of cleaning 3km of pipework began.

Clearly we couldn't use fresh water for this, and the sea water was far from being hydrocarbon free. However, in the final analysis, it was deemed by our medical experts that even though 'traces' of hydrocarbons could still be detected after the cleansing process, they were so negligible that they were considered insignificant. The moral of this story is self-evident but because the whole project had to be achieved at "no cost", we had to use the stores which could be made available and prior to this operation these were all in the Gulf.

The RO plants themselves had been made by Basingstoke Pressure Vessels and designed by Weir and Westgarth. They had been pioneered for the Gulf with little or no trial period. Each one is fitted inside an ISO container which makes a compact package which is easy to transport but in hindsight is very difficult to maintain. Each plant is designed to produce 100,000 litres of drinking water from 400,000 litres of sea water during a 24 hour period. Three quarters of the intake water is discarded as brine and ideally put back into the sea.

The expected duration of the project was to be four months; five plants producing a total of 500 cubic metres of water per day. The sixth plant was to be the standby. The plants were to be powered by two Dawson Keith 200KVA generators with an additional two on standby. SSgt Harrison, the Clerk of Works (M) from Royal Engineers Technical Service (RETS), had become the expert in the Gulf on these plants and spent six weeks with us during the setting-up phase giving us his invaluable advice. It is only fair to say that without him we would have been severely disadvantaged.

We made some modifications to the original site design and the photograph (over the page, bottom left) shows the main part of the site situated in Happy Valley just at the western end of the 'tunnel' constructed by 32 Fortress Squadron in 1955. The



Constructing the Glass Reinforced Plastic (GRP) break tanks

sea water intake created a few concerns initially because the sea becomes very rough in the afternoons due to the high winds. Although the initial inlet was constructed within the Episkopi mole, the Sykes pumps used to feed the break tanks sucked in too much sand and silt which ended up at the bottom of the tanks. The inlet was eventually re-positioned using the Squadron diving team, some 20m out on the seaward side of the mole suspended 1m below sea level. An outlet break tank was constructed to collect the purified water from the RO plants. This water was to be pumped up a 2.5km pipeline by a Tangier Deutz mainline fuel pump to join the existing PSA pipeline which feeds the main Episkopi tanks and the new Symioulos Dam.

The construction phase took three weeks but this excluded the two weeks sorting out the stores beforehand. Field Troop, led by Lieutenant Patrick Brown, gained invaluable experience working with



Main part of the site showing the six RO plants, 4 GRP break tanks and generators

bulk petroleum equipment and constructing the five hydroglass break tanks. These tanks are virtually identical to Braithwaite in design but are made of GRP. Provision of a level base is as critical as it is for Braithwaite and because we were utilising a car park to construct this on, a simple sand base with Bailey Chesses for grillages was considered the best temporary solution.

On 9 July 1991, the plants were formally opened by Commander British Forces Cyprus, Air Vice Marshal A F C Hunter CBE AFC. He was accompanied by the Cypriot Press, TV and local dignitaries from the three principal Water Boards. Phrases such as "British lead the way in water production" appeared in most Cypriot papers afterwards and the subsequent interest in the British technology to achieve this has been most encouraging.

Manning the plant for four months on a 24 hour basis was addressed during the recce phase by Colonel John Bennett. He had suggested an ORBAT of 1+20 which has since proved to be successful. Seven of these tradesmen were provided from BAOR Regiments, nine came from 62 Squadron and the four drivers came from other units in Cyprus. There are four shifts of four men which rotate every week so that one shift is always on a week's stand-down.

Once the plant was up and running we had about ten days of reasonable trouble-free production using six RO plants. By 21 July we started to dip below the predicted production line and as I write this the estimated date to produce the 60,000 tonnes of water is sometime in early January 1992. The principal cause for the reduction in output centres around the RO plants themselves and since that initial honeymoon period we have rarely had more than three out of the six plants running. It soon became very obvious that these "state of the art" equipments were actually undertaking their trial period and many design faults came to light. In hindsight I do not believe they were ever designed to run continually for extended periods. The most basic design fault has been a result of the requirement to squeeze all the workings into a neat, compact and easily transportable container. The result has been to leave very little space for maintenance. The single most common fault has been weld failure on the inlet manifold caused by vibration from the high pressure pump which forces sea water through the membranes. This vibration was being transmitted through the frame of the container and perhaps did not come to light in the Gulf because the containers might have been placed

on sand. While we await a formal design change, a thick gasket material has now been placed under the pump mountings which is absorbing much of the vibration to the manifold. The main credit for the successful repairs to these plants and local redesign work goes to SSgt Clarkson (Clerk of Works (M)) who has been attached to the Squadron from Military Engineering Services (Works) (MES (Wks)) Cyprus.

Operation *Birdbath* is now going to continue until March 1992 and a new team will be running it from early November. Further studies are being done by MWF to assess whether other methods may be more cost effective. Ship to shore is one possibility but for the present, RO plants are providing part of the solution. Excluding equipment and capitation costs and only taking into account the fuel costs to run the generators, we are producing water at £0.44 per tonne. While this presents a very cheap solution and we gained good

training value from setting it up and running it for the first four months, we don't relish the prospect of taking this on as a long-term commitment. Perhaps Cyprus will get some much needed rain this winter.

CONCLUSION

I HAVE tried to encapsulate a very full year into a relatively short article. It has been a very rewarding year for me personally and for the Squadron as a whole; Sappers can do no wrong in Cyprus! Resources, and in particular manpower, have been a continual frustration and although not described in any detail here we have had to rely on borrowing labour to complete every major task. However, there are many compensating factors although I hope I've destroyed some of the myth that we go down to the beach every afternoon. All of the soldiers in 62 Squadron during the last year would almost certainly say "what beach?"



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Was Venus The Star of Bethlehem?

REVEREND J P HALDANE-STEVENSON TD BA MA

The Reverend J P Haldane-Stevenson is an Associate Member of the Institution. He went up to St Catherine's College, Oxford, in 1930 and was later ordained into the Church of England. Throughout and after the 1939-45 war he was an army chaplain but in 1955 resigned and sailed for Australia. In Australia he was rector of a 3000 square mile parish in the West and later moved to Melbourne.

Now retired and living in Canberra, he has continued with his writing.

MALARIA is not scientific, but the study of it is. This brief glance at a transit of Venus two millennia ago looks at an astronomical fact famous today because of an enduring aura of original superstition and subsequent myth. Both the superstition and the myth belong to the ageless quest of Freud's "natural man" to find himself—the forces that govern his life and the dim awareness of his subliminal mind—externalised in the stars, the seasons and the environment. This quest—by a Kalahari tribesman or a Booker-prize novelist—is not scientific; but the study of it is.

The writer records his gratitude to the Director and Staff of Mount Stromlo Observatory, Australian Capital Territory, for calculating the movements of Venus during the reign of Herod the Great.

THE biblical account of the Star of Bethlehem is regarded by most theologians today as legendary [1], and so, in its human detail, it probably is; but it is a fact that early in the reign of Herod the Great, on 14 November 35 BC, there was a transit of Venus that the stellar part of the Bethlehem story describes with startling accuracy. The date is too early for the birth of Christ; but the Gospel that gives us the account was written a century after the event, and some ten years after the razing of Jerusalem by the Romans and the political destruction of Jewry that followed. From that chaos St Matthew appears to have recovered the semi-legend, using it, not as history (and certainly not to date the Nativity), but, as we shall see later, for a quite different purpose.

VENUS is about the same size as the earth, and its distance from the sun is about two-thirds of ours, so it orbits between us and the sun. Its orbit or actual "year" is of 225 days, but as seen from the earth it appears to take 584 days to get back to an observed position *vis-à-vis* the sun. Like the moon, it appears to us to wax and wane: it is full at superior con-

junction (furthest away from us, and directly beyond the sun). At inferior conjunction (directly this side of, but not usually in front of, the sun) it would present a very thin crescent but is in fact invisible in the sun's glare.

Every 130 years or so there are two occasions, about eight years apart, when either at its ascending or descending node, Venus actually passes across the sun at inferior conjunction, taking about seven hours if it is crossing the full disk. This is a "transit".

At these times the planet is not even crescent, but simply a small black object that can be watched (some say) with the naked eye if adequately protected—but the protection would have to be very adequate, and there is no question of star watchers of the Ancient World making this observation, because they had no idea of what was taking place. Venus does not become visible in its own right, shining as a planet, for a fortnight or more after transit.

The waxing and waning of Venus is not, like that of the moon, easy to see, and the ancients were unaware of it. It was first observed by Galileo in 1610, and it confirmed Copernicus' view of the solar system as against the Ptolemaic (earth-centred) belief. The discovery led an Anglican clergyman, Jeremiah Horrocks, to calculate that there must be, from time to time, transits by the planets; and he and a colleague were the first to observe one, on 6 December 1631. The last pair were in 1874 and 1882; the next will be on or about 8 June 2004 and 6 June 2012. They are always shortly before a summer or winter solstice.

But how, it will be asked, is this relevant to star-watching some 17 centuries before the nature of transit was understood? The answer is that the astronomers of the ancient world, tied though they were to an earth-centred view of the universe, were meticulous and knowledgeable *ad hoc* observers of the stars. It is probable that the Wise Men, before starting out for Jerusalem, were aware that Venus (or Lucifer, as they called it) was on what might be jocularly called a collision course

with the sun. They expected it to disappear; records indicated that after an absence it would miraculously re-appear out of nothing; and they were desperately anxious to observe the re-appearance and subsequent movements from the best possible position (which is probably what brought them to Jerusalem).

With the astrological convictions that were inseparable from astronomy in the ancient world (and indeed much later; Kepler was a convinced astrologer), they sensed a major event and wanted to probe its likely nature. They did not, however, understand the planet's disappearance as it approached the sun, so they were not sure when, and therefore in which ascendant of the zodiac, it would re-appear; and on this much depended. To understand their hopes we must look very briefly at the structure of astrology.

The 360° of the zodiac round which the sun appears to travel annually is divided into 12 Signs or divisions of 30° each, bearing the names of the constellations with which they coincided at about the time of Abraham. At that time the first point of Aries — the term for wherever the sun is at the vernal equinox — actually was at the "entrance" of the constellation Aries. It very gradually moves round the zodiac ("the precession of the equinoxes"), and in 24,000 years from Abraham it will be back where it started. By the time of Christ it was at the "entrance" to Pisces — which may explain why the early Christians used the fish, not the cross, for their symbol — and it is now at the "entrance" to the constellation Aquarius. This accounts for the buzz-talk about our entering the Age of Aquarius, a phrase that has no astrological significance, though it does indicate where the sun is in the sky at the spring equinox (the first point of Aries).

The sun, moon and five visible planets were held to influence human life, and in particular their position at the moment of birth (the severing of the cord) was supposed to influence the child's whole life. The effect of each planet (and of the sun and moon) varied according to the Sign in which it happened to be, and also with its angular bearing with the other planets; but each Sign was permanently "ruled" by a planet, even when this "ruler" was elsewhere in the zodiac. The child's inborn inclinations were indicated by the ascendant, that is, the Sign that happened to be coming up over the eastern horizon during the two hours in which the child was born; and the ascendant's "ruler" was said to rule the whole natal chart [2].

Quite a lot of this venerable nonsense can be found in the Bible, though the theologians would have us believe otherwise. The brothers' "stars" that bowed down to Joseph's (Gen 37.9) were their birth Signs, which obscurely re-appear in Jacob's blessing (Gen 49.3-27). The Samson saga is a through-going, and easily identifiable, astrology myth.

This ancient superstition does not seem to have changed much with the discovery that the earth is not the centre of the universe. As far as birth astrology is concerned, the doctrine is that the child's nature is influenced by (a) the motive force of the planets (or sun or moon) as (b) conditioned by the zodiacal Sign in which each happens to be, particularly in (c) the kinds of situation indicated by the 12 Houses. These Houses are notionally pegged (so to speak) on a line round the earth from, and back to, the place of birth. Angles between the planets affect their influence, 120° being the most, 90° the least, favourable. The Signs are related (three each) to the four elements of fire, air, earth and water, and (four each) to the three qualities: cardinal, fixed, mutable.

Thus it follows that, while the appearing of the Star in 35 BC could have been hailed (or feared) as presaging an historic birth, it could have had little supposed bearing on the characteristics of a child born at about that time, because the data for assessing a birth change every two hours.

Astral aberrations were taken very seriously by the ancients, as presaging good or ill; and this of course applied particularly to eclipses of the sun and moon. These were carefully recorded, and Ptolemy made straight historic use of them as dates to punctuate his canon or schedule of the rulers, over a long period, of Babylon, Persia, Alexandria and Rome. Biblical prophecies about the sun being darkened and the moon turned to blood of course refer to eclipses, the "blood" being the dull red of the moon in total eclipse, caused by the faint light refracted past the earth's rim and reflected back from the moon's darkened surface (the other colours of the spectrum being absorbed by our atmosphere).

Today's extraordinary interest in astrology (at its most simplistic level [3]) is probably one result of the drift from organised religion, and it bears little relation to what was, in the ancient world, everyman's understanding of the heavens, when the sun, moon, planets and fixed stars were the only clock, calendar and compass available, and a man would hold his fist or outstretched hand at arm's length to measure 2°, 3° or 27° in the sky as naturally as we glance at our watches [9].

Apart from these essential uses all kinds of interpretations and forecasts were, as we have noticed, drawn from the movements of the stars; but the stars themselves were sacrosanct, the visual expression, the celestial ultimate, of wisdom and truth. When Dante and his guide from Ancient Rome emerged from the Inferno it was not into the clear light of day but, even better,

e quindi uscimo a riveder le stelle [4].

Those who had served their term in Purgatorio were *puro e disposto a salire alle stelle* [5], and in Paradiso he speaks of

l'amor che muove il sole e l'altre stelle [6].

For this reason, whatever the mists of time and word-of-mouth had done to the rest of our story before it reached the Gospel, it was simply not in character — it would have been like a horse running backwards in the Grand National — to invent a fairy story about a star that jumped about and played hide-and-seek contrary to nature; for the stars were the quintessence of nature.

* * * * *

THE story we are discussing appears in, and is relevant to, Matthew's Gospel only. Of the other three, Mark (the earliest) is a terse and highly crafted mosaic with no introduction and, at its original end (16.8), a sudden and rather disturbing close. The fourth Gospel's later chapters indicate knowledge of the Mysteries originally celebrated at Eleusis, near Athens. The Gospel of Luke, by a European writer with a Franciscan bias, starts and ends the actual Life with a kind of acted (not spoken) Greek chorus, by local country folk at the Nativity and sorrowing friends on Good Friday — one thinks of Hardy's Wessex.

Matthew, in total contrast, presents us with a world event destined to change history, and this is emphasised at his beginning and end. At the birth a Star appears. The death is marked by saints rising from their graves, an odd but by no means unique piece of ancient-world mythology — cf. the death of Julius Caesar, when (*Hamlet* I.i.116)

The graves stood tenantless, and the sheeted dead
Did squeak and gibber in the Roman Streets [8].

And when the friends go to the tomb it has been burst open by an earthquake (28.2), which, in the thought-pattern of their world, presents the Risen Christ as an epic figure returned from "harrowing hell": visiting the Underworld and returning unscathed, an achievement reserved for the major

heroes of myth [9a] and fairly clearly foreshadowed by Matthew at 12.29.

Myth is not folklore. Folklore is the bargain basement of the miracle shop, the Mecca of humble people trying to escape (however briefly and harmlessly) from the rigour of reality. Myth is rather the reverse: it is the art that is larger than life, holding the mirror up to nature so that ordinary people can grasp more clearly what is really there. Some myths begin as actual events; the Minotaur was the extortionate commander of a force whose token was a white bull, and the Labyrinth was the palace at Cnossos with so many rooms that one got lost. Some myths explore the unconscious, with deep insight and not always reassuringly. In the story of the Wise Men we have both myth and folklore, somewhat in conflict.

Homer, writing with the fall of Troy as background, relates that Ulysses forced the death-goddess Circe to reveal how he could harrow hell; which he did, returning in triumph to her palace on Aeaëa [10], Island of the Dawn, before journeying on. Matthew, with the fall of Jerusalem in mind, ends similarly with the triumphant Figure meeting his friends at the tomb — palace of the dead — in the dawn before journeying on. Christ's harrowing of hell became a Christian tenet, was accepted into one of the Creeds and became a favourite theme of mediaeval art [13].

The ancient myths were not intended as history, but rather as aids to portray meaning. One can therefore accept the stories of the Wise Men, the rising of the saints and the rending of the rock tomb as pointing to the universal, epic nature of Matthew's Gospel without accepting that they actually happened; but we are still left with the account of a Star that, in its own right, is either literally true or else uncharacteristically, and rather pointlessly, dotty.

* * * * *

THE Temple of Solomon was built on the Temple Mount, where the Dome of the Rock now stands at Jerusalem, and it perpetuated the essential design of the tent of worship that had accompanied the Jews in their desert wanderings, all measurements being doubled. Even so, with a length of 90 feet, it was no cathedral (but this was partly because the congregation at any ancient temple stood outside, the building corresponding to the chancel in our churches). Temples in the ancient world had careful solar or astral orientation, but in Solomon's this was unusual: west-east, so that the equinoxes could

be accurately observed from the sunrise 30 miles away over the Mountains of Moab — at the exact spot (tradition had it) where Moses died; a tradition perhaps slightly adjusted when the Temple was built! Of at least equal interest were the two pillars, which had names, Boaz (strength) and Jachin (establishment or endurance). The writer suggests that their purpose was for observing the sunrise at summer solstice, when the sun is at its strongest, and at winter solstice with the sun steadfast or established in weakness.

At all events, the pillars were far from unique. There was a corresponding pair at the Phoenician chapel of the kings at Tell-Tainat in Syria, which had the exact proportions of the Temple but was one-third smaller. Perhaps more interestingly, Stonehenge had two free-standing stones similarly placed (near the Hele [11] Stone, which marks the summer solstice); one has disappeared, the other, called the Slaughter [11] Stone, is in a fallen position. Solomon's Temple was built nearly 2000 years later.

It was shorn of its first glory five years after his death; wrecked by Nebuchadnezzar; and repaired or rebuilt, possibly on a rather do-it-yourself basis, by Jews returned from the Exile. It was later desecrated by a Greek king, and one of Herod the Great's ambitions was to rebuild it with a magnificence to make it one of the Seven Wonders of the World. The work went on long after his death, and was finished only seven years before it, and the whole of Jerusalem, were razed by the Romans in 70 AD.

Herod's grandiose project had not been started at the time of the transit of Venus that we are discussing, but a century later the legendary memory of it would have given an aura of importance to astronomical viewings made from the site; and we can assume that the site had always been a favourite venue for star watchers because of its altitude (2680 feet above sea level) and the uninterrupted sweep of the eastern sky that it commands, across to the distant Moab skyline. The exact and unusual orientation of the Temple and its pillars (however damaged) would have been of the utmost value for getting celestial bearings, and it was probably often so used.

If the Wise Men of the story came from Transjordan — and there is no reason to suppose that they came further — Jerusalem would be a natural observation point to await the re-appearance of Venus, quite apart from its astrological import; but one must realize that any such abnormality would be as a matter of course regarded by the rich and powerful,

and everyone else who knew of it, as presaging some great event: probably a princely birth, which could be disturbing news for a dynasty as shaky as Herod's.

* * * * *

THE story that we are considering is, particularly in translation, vintage folklore, and in folklore we are bordering on Santa Claus country with reindeer, chimneys and (as here) things that, once the Christmas cards have been taken off the mantelpiece, don't have much residual meaning; but, in fairness, the translation is less than helpful. The Greek word rendered East in fact means rising, usually in the sense of sunrise, or sunrise things or places; but it could also mean ascendant (see above). The first time it occurs here it is plural, and presumably means sunrise (or eastern) parts, as we speak of foreign parts; but what are we to make of the second occurrence? Seeing a star in the East is like buying a ticket to Birmingham: anyone can do it, and it hardly makes history!

Rather, it seems to mean that they had foreseen — calculated, seen in the sense that one puzzles over and at last "sees" a theorem in geometry — that after its mysterious disappearance in the evening (the reason for which the Magi did not at all understand) the Star was likely to re-appear in the dawn; and one may be sure that the legends of harrowing hell, descending into the unseen Underworld — which were part of the mental currency of their day and age — were not far from their minds. But it was all rather hit-or-miss, depending on old records, and they would feel no certainty about their forecasting.

The key to the story seems to lie in the exceeding great joy with which they saw the Star, which was natural, for it meant that they had got their sums right; but it also meant that they had not been seeing it all the time, as the carols and Christmas cards would have us believe. This appearing out of nothing, this triumphant dawn return — like that of Ulysses from the Underworld — was known from records to happen, but so occasionally as to be regarded as a major phenomenon presaging some great event. Two millennia later people were still thinking the same way; when *Titanic* went down many thought of the appearance of Halley's comet two years earlier as having been an omen of that disaster.

In default of this explanation it is difficult to see what (a) seeing the Star "in the East", followed later by (b) exceeding great joy at seeing it, can mean. There is otherwise no logical sequence.

There follows what seems like a piece of drollery: the Star leads the Magi South to Bethlehem and there remains (it seems) suspended in space as a sort of aerial landmark. This is of course optical as well as astronomical nonsense.

When the 7th Gurkhas were surrounded on the slopes of Monte Cassino after their dusk attack on the Ides of March 1944, the British artillery on the days following fired green smoke airburst shells to explode overhead and guide the US planes from Foggia to pinpoint their red parachutes bearing food, water and ammunition — to no avail: from the far bank of the Rapido one watched drop after drop float down into the German lines, because the airbursts were 50 metres above ground and the gunners and the aircraft saw them from different angles [12].

The Star, however miraculous, would have been considerably higher.

What happens after a winter transit of Venus is that it again becomes visible for some days before the solstice, and can therefore be observed dipping southward (almost imperceptibly) till on 22/23 December it “stands” — as does the sun — before beginning its northward drift till midsummer. In folklore a solstice invariably gets twisted to mean the sun (or whatever) halted its daily rising and setting in a miraculous way.

So what the story now seems to indicate is that the Magi worked out that the Evening Star was going to disappear as it moved directly at the sun; that it did so, and they journeyed to Jerusalem to get the best possible view of its re-appearance as the Morning Star; and when this duly happened it was edging southward. That is to say, in so far as they were following it, they were being led to the South (for of course they would pay no attention to the daily east-west rotation) and Bethlehem is due south of Jerusalem.

At the solstice the Star certainly halted; but how could it have “stood over” the place, etc? Surely the word is used in the sense that people talk of being born “under” Aries, Pisces or whatever, meaning “under the influence of”. St Matthew is telling us that the young Child lay under the influence of the Star, and this gave epic meaning to his story then, however alien it may be to our thinking now.

* * * * *

IN 44 BC Julius Caesar had been assassinated, and in the following years a prince called Herod enlisted, with more success than integrity, the patronage of

first Cassius, then Marc Antony, then Augustus. On the death of his father (who was poisoned) Herod, though only partly Jewish, became titular King of the Jews in 43 BC, and a transit of Venus that year — a phenomenon unknown for well over a century — was doubtless (and correctly) taken to mark the dawn of a spectacular reign. The eight-year pairing of transit was not understood, and when the one that we are considering occurred eight years later (in 35 BC), the implication was that another prince's rise was presaged: not a welcome thought for Herod.

This second transit took place on 14 November, so that by the solstice (22/23 December) Venus would have just about reached the sign of Scorpio. That is to say, on the day it stood — to which the story seems to attach importance — it would have risen (well before dawn) in Scorpio, which would thus have been the influential ascendant — and both that sign and its ruler, Mars, relate to war. We can be absolutely sure that the omen did not pass unnoticed, and that it was woven into the blood-stained tapestry of Herod's reign, with its eventual crescendo of murder that was to be the dark background of Christ's Nativity.

Early in his reign — about the actual time of the second transit — Herod had executed his wife Mariamne (descended from the famous Judas Maccabaeus) and her mother, and her cousin the High Priest. A generation later (three years before his death, in the year often regarded as that of Christ's birth) he murdered two of his sons, with another shortly before he died, when he also had two lawyers burnt alive. Emperor Augustus commented (the words are a pun in Greek), “I would rather be one of Herod's sows than one of his sons”.

Matthew wrote some 80 years after the actual birth of Christ, by which time the Star had become a legend. It had first been seen as a warning that Herod's blood-spattered mastery of Jerusalem would have its nemesis. When, after an orgy of murders, he died shortly after Christ's birth his lavish funeral [15] at Herodium (near Bethlehem) was seen as fulfilling half the prophecy: the long-awaited sunset of tyranny. The other half, the coming of a righteous Prince, was understood — as the meaning of history so often is — only in the perspective of hindsight.

We rarely see pattern in contemporary events, but Matthew, looking back from the sudden emptiness of a Zionism with no Zion — for Jerusalem was totally destroyed in 70 AD — saw pattern clearly, and he saw it in a world context: the sunset of Herod

and the dawn of Christ, the legend of a Massacre of Innocents symbolizing the savagery of a whole Stalinesque reign. The Holy Family's (also perhaps legendary) flight into Egypt — for Jews, the home of slavery — and return to freedom presages Christ's descent into the Underworld and triumphant return.

Throughout, the Star's pattern of disappearance in the sunset and reappearance in the sunrise is seen as interpreting history. Some of this interpretation is apocalyptic; that is to say, it explains by compressing into immediate and vivid drama the sometimes scattered landscape of actual events.

So while Luke starts with a pastoral symphony, Matthew starts with an apocalypse [14]: he

encapsulates essentials from a whole century of history in his story of the Star, its meaning highlighted by the cataclysm that at the time of Christ's birth lay far ahead, but at the time of writing was all too recent in everyone's mind.

When one thinks of a visit to Jerusalem now — its bogus sites, gullible tourists, modern kitsch and ancient hatreds — it seems a pity that the Star is the one part of the Nativity story that informed opinion unites in dismissing as legend; because it is the one part that science, peering through the shifting mists of folkloric word-of-mouth, is in essentials able to confirm. It is, like the Birth itself, unarguably history.

NOTES

1. The best-known attempt to explain the Star as a natural phenomenon was that of Kepler, who calculated that in 6 BC there was a rare conjunction of Mars, Jupiter and Saturn in the sign of Taurus. As well as being one of history's major astronomers Kepler was a convinced astrologer and saw this portent, appearing in one of the earth signs (see below) while the sun was in Capricorn (also an earth sign) as of special relevance to a Saviour "come to earth from heaven" — see his *De Jesu Christi Servatoris Nostri Vero Anno Natalitio* (Prague 1606). The conjunction was of short duration, and did not conform to the movements attributed by St Matthew.
2. Cf. *Et surgentia sidera dicent*. — Virgil, *Aeneid* vi 850.
3. Out of curiosity some years ago I applied for the post of astrologer (for which I am quite unqualified) advertised by a mass-circulation weekly. The quality of product purveyed can be judged by the remuneration offered: less than the cost would have been of getting my weekly splurge typed before sending it in.
4. And thence we came out to see the stars again.
5. Pure and ready to mount to the stars.
6. The love that moves the sun and the other stars.
8. It was always linked with disaster; cf. the raising of Samuel's ghost on the eve of Saul's defeat at Gilboa (1 Sam 28.11-19).
9. At arm's length the clenched fist of a European male subtends a fairly reliable 3° (between the first and second knuckles) and 2° (between second and third). The outstretched hand is less reliable, but gives a rough two-hour indicator of the sun's (or moon's) movement.
- 9a. Heroes said to have harrowed hell include Theseus, Hercules, Dionysus, Orpheus (Greece); Bel and Marduk (Babylonia); Aeneas (Italy); Cuchulain, Arthur, Amathaon ap Don, Gwydion and Ogier le Danois (Celtic).
The dying words *My God, my God, why hast thou forsaken me?* attributed by Mark and Matthew to the Saviour are in striking contrast to the six utterances from the Cross quoted by Luke and John, and indicate traditional descent to the Underworld — cf. Dante's *Lasciate ogni speranza voi ch'entrate!* [Abandon all hope, you who enter] — *Inferno* iii.1.
Pilate's wife's dream obtrudes (from a scriptural angle) rather surprisingly on Matthew's narrative, belonging as it does to the world of Graeco-Roman epic; Julius Caesar's and Brutus' wives thus dreamt on the eve of the Ides of March. Similarly in Matthew and Mark the Centurion's words on Christ's death mean in the Greek, "Truly this man was a son of a god".
10. Possibly Losinj, a small island south of Fiume.
11. Names are fanciful. Stonehenge is aligned quite differently from Solomon's Temple.
12. See the author's *Beyond the Bridge* (1973), p97.
13. From the Freudian angle the Star's "return" in the dawn after the weeks of invisibility is the significant part of the story.
14. In the true, not Hollywood, sense of the word.
15. An angry reaction probably originated the legend of the Innocents: Rachel from her tomb nearby was said to be weeping for so many of her children murdered during the tyrant's reign.

Memoirs

COLONEL WILLIAM HAYLES BOND

*Born 5 August 1904 died, 25 November 1990,
aged 86*



As the train passed through the Shop Willie Bond was commissioned in 1924 and posted to Longmoor for railway training. In later years he was often to return there, serving as Chief Instructor from 1946 to 1948 and, following two years in Egypt as SOI (Transportation) in Garrison Headquarters Middle East Land Forces, as CO of 16 Railway Training Regiment. It was during his first tour of duty in 1924 that the Transportation Supplementary Reserve had been created and now after a quarter of a century he was again in close contact with its members many of whom included senior civilian officials of the railway companies in Britain. Apart from administering their annual camp at Longmoor Willie used to enjoy meeting the reservist officers at the Annual Royal Engineer Transportation Dinner which he regularly attended right up to his death. His final military appointment, in 1953, was as Commander of 1 Railway Group RE, a

largely civilian organisation responsible for all UK military rail served installations. He retired in 1957. By this time the Supplementary Reserve had been re-organised to become the Army Emergency Reserve.

Though so closely associated with Longmoor and its military railway he was no railway fanatic but devoted his time to improving military efficiency and smartness. Amongst his interests was rifle shooting and he used to supervise personally and encourage his regimental teams on the local ranges. Doubtless his expertise in rifle shooting dated from his pre-World War Two years on the North West Frontier of India where he served as an officer of "God's Own" ie King George the Fifth's Own Bengal Sappers and Miners where incidentally he became keen on regimental polo. His experience in that wild and rugged countryside would have served him well when in October 1940 he took his Indian unit, 8 Army Troops Company, of the Bengal Sappers & Miners to North East Africa, as part of the Sudan Expeditionary Force there to fight the Italians in Eritrea and Abyssinia. The force was made up of units of the 5th Indian Division reinforced by some from the 4th Indian Division.

Willie directed various engineer operations which included the construction of a floating bridge at Athara and several other bridges further East besides clearing roadblocks and opening up military routes in extremely difficult and mountainous terrain, not unlike that of the Frontier that he knew so well. This time the opposition was better equipped with modern weaponry but lacked the cunning guile and determination of the Pathan tribesman. Willie himself carried out a daring reconnaissance under enemy observation of the demolished precipitous cliff face and road through the Wolchefti Pass that enabled the road to Gondar to be speedily opened again.

He had fond memories of his days with his *javans* and staunchly supported the Officer's Association of the Roorkee based Bengal Sappers and Miners which has a strong British element in the UK.

Though of a quiet and somewhat reticent nature he had great charm and for those who could tap the source of his wisdom an almost endless fund of Kipling-like stories.

RCG, MBA, EAG, JMG, LRHC

LIEUTENANT COLONEL D W R WALKER
MBE MA CIE(S) MIMCIE

*Born 15 July 1910, died 29 January 1991,
aged 80*



Derek Walker was an officer with an ingenious mind whose enthusiasm for new engineering projects and ideas continued unabated through his life. A scholar at Malvern he gained first place in the entrance examination for the Shop in 1928. He was commissioned in 1930 and carried out the usual YO courses at Chatham and Cambridge.

He joined the Bengal Sappers and Miners at Roorkee in April 1934 and was posted to 4 Field Company moving to Rawalpindi at the start of the cold weather. In 1936 he took a large detachment of the company to Gulabad near Charsada to demolish a steel and concrete bridge and the official records note that this had very satisfactory financial results for the Company.

He took part in the Waziristan operations 1936/1937 and was mentioned in dispatches for his work as Field Engineer on the Kam Sham road.

The Company returned to Roorkee in 1938 and he

was appointed to the Training Battalion but also officiated as acting OC of 4 Field Company whilst the Company Commander was on Furlough. During this period he developed the 'Indian Mat Bridge' for which he was made an MBE.

On the outbreak of war 4 Field Company as in 1914 was the first unit to mobilise and Derek took up the position of 2IC when the company moved to Egypt in September 1939 to join 4 Indian Division. The Company's peace time role had been to train the North West Frontier operations with horse and mule transport. Suddenly it was necessary to mechanise for operations in the Desert. There was a furious period teaching drivers on local civilian buses to drive in the environs of Roorkee and an exciting move from the Vehicle Depot in Egypt through the centre of Cairo to the Company's camp near the Pyramids but all ended well and when Derek left the Company in July 1940 he had played a major part in preparing the Company for the first Western Desert campaign of 1940.

In 1943 he attended a Staff College War Course at Quetta. Until then he was employed in the greatly expanded engineer training organisation both at Roorkee and the war time Lahore depots. Afterwards he was attached to the Admiralty inventing, developing and demonstrating floating airstrips.

At the end of the war with Japan he was appointed CRE 26 Indian Division where he was responsible for carrying out an ambitious programme of rehabilitation of the city of Medan in Sumatra before handing over to Dutch forces at the end of 1946. In 1947 he commanded 622 Group RIE in the Punjab Boundary Force and served in Pakistan till 1950.

On return to the UK he was posted to Colchester as CRE and later became OC 6 Training Regiment at Worcester. He retired in 1954.

Derek then took up the position of Managing Director of an Engineering Company and later started his own company developing and patenting flexible shaft and chamfering machines many destined for export. He was always modest about his abilities which were considerable. He was a very loyal member of the Bengal Sappers and travelled considerable distances to attend reunions. Throughout his career in both the Army and Civilian life he had a patient and helpful attitude which made him much loved by those who worked for him and he will be much missed. Our sympathy goes to his wife, daughter and two sons who survive him.

MBA

LIEUT COLONEL S C CAMPBELL TD

*Born 21 April 1938, died 22 June 1991,
aged 53*



LIEUTENANT Colonel Sammy Campbell was a charismatic man of immense energy who achieved much in his short life. He joined the Argyll and Sutherland Highlanders as a National Serviceman aged 19 in 1957. During his eventful service with the Argylls, he saw much active service in Cyprus against the terrorist threat in that theatre. He left the army as a Corporal in late 1959 and immediately joined 102 (Clyde) Engineer Regiment (V) in the West of Glasgow. In 1967 this Regiment was assimilated into 71 Engineer Regiment as 102 (Clyde) Field Squadron and Sammy stayed on first as a Sergeant but soon rising to Staff Sergeant and then Sergeant Major. He was Squadron Sergeant Major for eight years before being commissioned

COLONEL J HAINSWORTH CBE CMG

*Born 14 March 1900, died July 1991,
aged 91*

COLONEL John Hainsworth who had died aged 91, began his varied military career at the age of 19, as an officer in the Expeditionary Force sent to Russia to help the Whites against the Bolsheviks.

His unit disembarked at Murmansk and advanced about 400 miles along the Murmansk-Leningrad railway. The older and more experienced soldiers

unexpectedly in 1977, during a field training exercise, by Brigadier Derek Brownson who was then in command of 71 Engineer Regiment.

Although he held a quartermaster commission Sammy was never employed as such. One might say he was one of the first Late Entry commissions. He was a troop officer and troop commander, and in 1982 was appointed Second in Command of 102 Squadron. In 1985 he took over Headquarters Squadron in the rank of Major and in 1987 returned to 102 as Officer Commanding. Perhaps he will be best remembered for his time as OC 102 Fd Sqn (V). He always led very much from the front, including physical training, despite his age and weak heart. He ran a very 'tight ship' moulding together a most effective and efficient team whose members were encouraged to share his outstanding personal energy and drive. In 1990 he was forced to give up command following his promotion to Lieutenant Colonel and took over the Regimental recruiting organisation.

His military standing was equally matched by his standing in civilian life. He was well known as a businessman of great honour and fair dealing by the local business community of his home town of Greenock, where he ran a medium sized steel fabrication company. The regard in which he was held was clearly apparent in the 350 or so, both military and civilians, who attended his military funeral.

In 1982 Sammy had surgery and knew the potential weakness of his heart. Despite this, and the risks that he fully understood, he continued to work and be involved in the Regiment at a hectic pace. Perhaps his sudden death was predictable, however it was none the less distressing for us all and in particular for his wife Margaret and his two sons. His eldest son Stewart aged 27 takes over his father's business and continues to serve the Regiment as a Volunteer Captain and Second in Command of 102 (Clyde) Field Squadron. PL

found the conditions on the expedition daunting, but young Hainsworth made light of them, showing the stamina which later served him well on the North West Frontier and in Burma.

John Raymond Hainsworth was born in Yorkshire on 14 March 1900 and educated at Taunton and Woolwich before being commissioned into the Royal Engineers.

On his return from Russia in 1921 he spent two years at the School of Military Engineering, Chatham. He was then posted to the North West

Frontier to build roads and forts and served in Lucknow, Peshawar (where he also supervised the construction of a school and a hospital) and Waziristan.

An understanding of local convention was a basic requirement. The tribesmen of the area welcomed the appearance of foreigners — particularly construction teams — as a fine opportunity for live target practice. Hainsworth was assigned a personal escort of 15 armed tribesmen who never left his side, and who were expert at detecting potential enemies on the surrounding hillsides. Aside from the likelihood of being shot, the work entailed all the difficulties and hazards of mountainous terrain, with freezing cold in winter and burning heat in the summer.

Once the roads were built it was hoped to keep them safe for travellers by paying varying sums of money to some of the neighbouring tribes, of whom it was said that they would guard you by day and shoot you by night.

Having brought a number of projects to successful conclusions Hainsworth was appointed Technical Officer in Northern Command, and for three years was responsible for vetting designs and estimates for all the major works in the command area.

In 1933 he was appointed Executive Engineer in the Public Works Department of the NWF Province — a bland title but one which demanded a thorough knowledge of local customs and proclivities, and of such languages as Pushtu, in which Hainsworth was unusually fluent.

In 1939 he was recalled to the Army, for which his first project was the construction of a huge ammunition depot in the area.

This was followed by a system of defences, including anti-tank obstacles — for at that stage of the war Russia was allied to Germany and it seemed there might be some attempt to penetrate the frontier and so threaten India.

His work in the North West Frontier completed, Hainsworth moved to Burma and began work on the famous Lado Road from Assam. His next posting was as Deputy Chief Engineer in the 14th Army, which was preparing to push the Japanese back out of Burma.

He was responsible for arranging the construction of airfields, bases and roads in Assam and other areas vital to the campaign, where he met a difficult set of problems, of which tropical diseases were not the least. He was appointed CBE and twice mentioned in despatches. As the campaign drew to its conclusion Hainsworth was appointed Director of Works in the Engineer-in-Chief's branch at GHQ India.

In 1946 he retired from the Army and was appointed to the post of Superintending Engineer, PWD, NWFP, where vital construction and maintenance had fallen behind schedule because of the demands of the Burma Campaign. Two years later he was promoted to Chief Engineer, which he remained until 1952.

Hainsworth's period of office covered the partition of India, with all its attendant problems. He was appointed CMG in 1953. In his final retirement he settled in Sussex where he devoted himself to gardening, fishing and shooting.

He married, and had a son and a daughter.

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Memoir in Brief

A brief memoir is published below on a distinguished man whose death was notified recently in the national press and who served in the Royal Engineers during World War Two.

DAVID ANDREW MICHAEL PRING ESQ CB MC

was born on 6 December 1922 and died on 15 August 1991 aged 68. He was educated at the King's School, Rochester and Magdalene College Cambridge where he read engineering for one year of the Tripos and English for two. He served in the Corps from 1941-46 taking part with 78th Division in the landings in North Africa and later in the Tunisian, Sicilian and Italian

campaigns. Pring won the MC in Tunisia in 1943. His service ended in 1946 in occupied Austria.

He joined the House of Commons' staff in 1948 and served there in various capacities until 1987 but with particular involvement in the organisation and development of the Commons' Select Committee system. He was appointed CB in 1980. He leaves a wife, son and daughter.

Correspondence

PRE WAR QUETTA, BALUCHISTAN

From Brigadier J R G Finch

Sir, — The photograph with Major Miller's letter in your April issue is, undoubtedly, of some of the mobilisation reserve of equipment kept there against the possibility of an invasion of Afghanistan by the Russians. Its purpose was the building of a road from Chaman, at the foot of the Kojak Pass, to Kandahar. I have a 1934 photograph of an Engineer Exercise Without Troops at the top of the Pass to discuss the related problems. It was run by the CRE Quetta, Lieutenant Colonel K J Martin.

The reserve of transport held in Quetta consisted of World War One Albion lorries with chain drive and solid rubber tyres. They were kept in 'mint' condition but, even so, to build a suitable road would have been almost impossible as the only surfacing material was Somerfeld track. An experimental track was constructed and some of the lorries run round it. The inevitable result was the disintegration of the soil under the tracking.

A few months later the Quetta earthquake diverted attention to more immediate problems. — Yours faithfully, J R G Finch, 7 Newton Hall, Great Dunmow, Essex, CM6 2AS

From Mr James Tolson

Sir, — I confirm having asked your secretary on the telephone today not to publish my letter to Major General Ashton Wade CB OBE MC, with whom I have corresponded concerning his time on the Isonzo and Piave Fronts during the Italian Campaign of 1914-18; as DAG in GHQ India and as GOC 105 LofC Area, Madras, from 1944 (which coincided with my time in CE's Office, HQ Southern Comd, Bangalore).

My contact with General Wade arose from my work in MCERE on archive mapping and related documents from the War of 1914-18 due for deposit by MOD in PRO, which includes material from the Italian Campaign. He recounted his experiences in a recent TV programme and in his book *A Life on the Line* published by DJ Costello (Publishers) Ltd, in 1988 (ISBN 0 7104 3039 6).

A copy of General Wade's reply of 31 July, based on first-hand knowledge and responsibility for material events, which suggests that the plant was assembled for work on the road built westwards from Quetta into Persia (Iran) is printed below. This could indeed be the route via which some of

the itinerant plant I was required to trace found its way from India to the Gulf states during the war? — Yours faithfully, James Tolson, 31 Broadlands Avenue, Shepperton, Middlesex, TW17 9DJ

From Major General Ashton Wade CB OBE MC

Dear Mr Tolson — Thank you for sending me a copy of your letter to the RE Institution re Quetta. Being stationed in Quetta when World War II broke out I remember that there was a proposal to build a decent road (as opposed to the existing track) from Quetta to the Persian (Iran) frontier following roughly the line of the single railway line which then ran from Quetta westwards to Mirjawa.

In 1942 the British 2nd Division (of which I was A/Q) had just landed in India when we were ordered to move to Persia via road. I went up to GHQ Delhi to get full details of the route which started on the proposed Quetta-Persia route, which by then had been completed. Before we could move, the German threat to break through the Caucasus into Persia had been nullified. I can't remember the name of GE Quetta who was employed on building this road. He was later killed in Malaya or Burma.

I think it is more than likely that the concentration of road-making plant at Quetta was for use in building this road. I have little doubt that use was made of this road during the war. I clearly remember that I was given full details of staging posts along it where we were to take on supplies of rations, POL, etc. — Yours sincerely Ashton Wade, *Phoenix Cottage, 6 Church Street, Old Catton, Norwich, NR6 7DS*

From Major R J Francis

Sir, — I am employed by a leading consulting civil engineer, as administrator to a water and sanitation project based in Quetta. On returning home on leave on 23 August, I was intrigued to read Major N S Miller's letter "Pre-War Quetta, Baluchistan".

The collection of steam engines and rollers is indeed prodigious. It was probably brought together in Quetta because there was then nowhere else to keep it, there being no other centre for scores of miles in all directions, certainly not one in a comparable strategic situation. As for the numbers, perhaps they were brought together for the recovery from the 1935 earthquake; or perhaps they were the then normal holding for all purposes in a provincial capital and province.

In any event I shall take the letter and picture back with me next week, and do my best to find out more. If any other readers have interest of any sort in Quetta with which I might help, I should be glad to hear from them. Yours faithfully, R J Francis, 19 Lynch Road, Farnham, Surrey, GU9 8BZ, and, PO Box 255, Quetta, Pakistan

250TH ANNIVERSARY REUNION, SANDHURST

From Colonel M D Adams

Sir, — The August number of the *Journal* drew attention to the fact that it was 250 years since the opening of the Royal Military Academy at Woolwich in April 1741 but unfortunately was too late to alert the great majority to the 250th Anniversary Reunion held at Sandhurst on Tuesday 6 August. I had only visited Sandhurst on one occasion since 1935 so when I was offered the chance by the kindness of the Indian Army Association to obtain tickets I jumped at the opportunity. Unfortunately I never saw a list of those attending and though there was a fair sprinkling of 'Shop' ties in evidence two of the three Sappers I met had obtained their tickets in the same way as I had. There may well of course have been others.

In spite of a slight attempt to rain in the early morning it turned out a wonderful day. The Sovereign's parade at which the Duke of Kent represented Her Majesty was immaculate and in the highest tradition of similar parades at the former Royal Military Academy. The Falklands Band of the Parachute Regiment gave a performance as polished as one would have expected though it seemed a pity that practically none of the music reflected the special occasion.

And so to drinks and luncheon in the gymnasium suitably decorated for the commissioning ball. Up to this point, except for the two former members of the Indian Army whom I sat next to in the parade stand, I had seen no one I knew. To my delight I found there were plenty of Gunners, many of whom I had not seen since 1935 and an excellent turnout of ex-Indian Army Officers to reminisce with and luncheon turned out to be a delightful meal. The fact that I never found the tables reserved for the Indian Army party proved no handicap.

One of the objects in coming had been to see the various memorials to the former Indian Army and I was privileged to be given a guided tour of the Indian Army Memorial Room, the Indian World War II Divisional Boards and the various memorials in the Chapel not forgetting that to the RMA

Woolwich and HEICs Military College at Addiscombe. There must be many former Sappers and Miners who have never seen these memorials. I recommend they take any opportunity to do so.

The Anniversary had been specially marked by the commissioning of a number of special items. The Officers Mess new silver centre-piece by Mr Peter Hicks, consisting of five figures representing Woolwich and Sandhurst cadets through the ages was on view at the Grand Entrance. Mr Nick Sharman had produced special furniture for the Grand Entrance and a Bishop's throne for the chapel and Mr Andrew Festing is painting a full length portrait of Her Majesty the Queen to celebrate the occasion.

Finally tea in a marquee by the lake. Time had passed so quickly that we only reached it just before 5 pm to get the last cups and so a memorable day came to an end. It was a pity so few knew about it. — Yours sincerely, M B Adams, 9 North Walls, Chichester, West Sussex, PO19 1DB

THE SS *KHEDIVE ISMAIL*

From Brigadier M W Biggs CBE

Sir, — Colonel Bill Lawrie's mention of the *Khedive Ismail* in his article *The Gulf Crisis 1941-42* (*Journal* August 1991) recalled to me two encounters I had with this ill-fated vessel.

In June 1940 I sailed in the first convoy down the Red Sea after Italy had entered the War, returning from the Middle East Staff College to Kenya. My wife, although pregnant, donned her FANY uniform to accompany me rather than be evacuated to South Africa with other wives. It was expected that the convoy would be attacked by Italian submarines and aircraft from Massawa and Akyab, so all of us officers on board were roped in to take turns on watch against possible attack, being stationed at various vantage points from which we might shout warnings if we spotted anything suspicious. My station was at the stern, and the *Khedive Ismail* was next astern of us in the convoy. She seemed chronically unable to keep station, and would either drop back almost out of sight or come steaming up far too close for comfort. This was bad enough in daylight, but highly alarming at night, when we were of course all blacked-out, and this great ship would suddenly appear out of the darkness at one's ear-hole, miss our stern by what seemed a few yards before disappearing again. She posed a much greater threat to us than the Italians, who did not attack the convoy, thanks to

the protection given us by the Royal Navy and Royal Air Force.

Later in the War, in March 1943, I was appointed GSO 1 of 11 (East African) Division, then training in Ceylon to go to Burma, and was booked together with my African batman to sail in the next convoy from Mombasa to Colombo, in the *Khediye Ismail*. Fortunately for me, the Divisional Commander, my old boss Major-General Fowkes, was impatient for me to arrive and signalled East African Command Headquarters to send me soonest by air, so I went round by flying-boat via Cairo, whilst my batman went by sea in another ship attached to a unit of the East African Engineers. I hadn't long arrived in Ceylon when the bad news came that the *Khediye Ismail* had been torpedoed and sunk by a Japanese submarine, with the loss of some 600 of the 800 on board, including most of a Field Regiment, East African Artillery. Amongst others lost were a number of nurses and FANYs, and my friend Kenneth Gander-Gower the tennis-player, who was travelling as a war correspondent. There but for the impatience of my GOC...! — Yours sincerely M W Biggs CBE, *Strawyards, 66 High Street, Kimpton, Herts, SG4 8PT*

HOLES IN THE SKIRTING BOARD

From Colonel W M Davidson BSc(Eng) CEng MICE, Colonel Military Engineering

Sir, — I enjoyed reading Major Alan Macklin's "skirting board" article. I found it a refreshing perspective on the greater variety of obstacle courses now open to the chartered engineer aspirant. My concern, and the reason for this letter, is that Alan has not applied the same careful analysis to the traditional Professional Engineer Training (PET) obstacle course in the same way. Whilst the Institution of Civil Engineers (ICE) is given due credit for being flexible in its methods for assessing chartered status, Alan has omitted to look carefully at what the PET course offers. I would like to give your readers an up to date perspective on the PET course to complete the picture Alan has portrayed.

Let me first say that in trying to tiptoe around perceived sensitivities of 'PQEs', Alan has tripped over his own feet! What is the motive of those who wish to become chartered engineers? I would suggest that the motive is similar to that of obtaining your first degree. It is to be able to advertise to the three Services and other Government departments, fellow officers and civilian colleagues, the

knowledge one has gained through study and experience. It might also be useful to future employers! That achievement is also a statement of potential quality of work that an employing officer can expect. When Alan suggests that the non-professionally-trained chartered engineer ... "will never challenge the PET officer's position as an experienced expert" he contradicts that motive. To my mind achievement of chartered engineer status, in whatever discipline, brings with it a statement of the depth of knowledge, understanding and experience in general and/or specialist areas of engineering. That statement also implies a professional responsibility which goes with that knowledge and experience. Anyone wishing to become MICE or MCIBSE must accept those requirements and the responsibility. He or she must satisfy the appropriate Institution that he or she meets those requirements.

But let me return to the professional engineer training sponsored by the Corps. The Corps provides this training to meet its aim of maintaining a sufficient pool of officers confident and experienced in the various engineering disciplines for which it is responsible. The objectives of the "course" run at the RSME are rather neatly paraphrased in a quote from Alan's article on the major obstacles facing the non PET officer aspiring to membership of ICE. He states ... "the primary ones (obstacles) are design experience and the necessary insight to civil engineering contracts and finance".

The courses run at the RSME are not two years of academic slog. They are designed to provide the experience that the student needs both to meet the civil and essential services engineering needs of the Corps and to allow students to achieve chartered status at some stage after the course. RSME run six month postgraduate refresher courses in engineering design and management methods, plus a two week finisher to provide time to present technical papers and to share their experiences. The core 18 months of the professional engineer training is spent with an engineering contractor and an engineering consultant. That period provides the minimum time for the student to obtain site, contractual, financial and design experience at an appropriate level of responsibility. It is a marvellous 18 months tour on construction sites and in design offices in UK, USA or Australia. I would therefore suggest to Alan Macklin that the professional engineer training offered by the Corps is the wide, straight and relatively easy road to becoming a chartered

engineer. The alternative routes described by Alan (and detailed in Colonel Humphrey Spaight's article) offer more difficult and lengthy routes. It is important to remember that the outside experience offered in 18 months of the PET course is because the Corps, and I suspect all of the Institutions concerned, do not believe that the experience gained within the Corps in peacetime is of the right quality or complexity to meet the needs of the Corps in War or the chartered Institution in peace.

Personally I welcome all officers who can satisfy the Engineering Institutions that they possess the knowledge, experience and confidence to be accepted as members. The means of achieving membership will depend upon individual

circumstances. The more chartered members we have within the Corps, the better for the Corps and its ability to fulfil its role across the spectrum of military engineering, with professional confidence.

— Yours sincerely W M Davidson, *Headquarters, Royal School of Military Engineering, Brompton Barracks, Chatham, Kent, ME4 4UG*

PS I hope we will be able to drop the term PQE eventually. In my view all officers in the Corps are "professional engineers" who have "qualified" in military engineering through Sandhurst, the YO course and subsequent experience in units. An officer who has completed a PET course should be designated as a specialist in civil or other engineering, as well as being a military engineer along with the mainstream of the Corps.

August 1991 *Journal* Awards

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

- FI KOL MAKAN AND COMPLETING THE JIGSAW PUZZLE
by Lieut Colonel M G Le G Bridges OBE — £50
- A THEATRE OVERVIEW OF ENGINEER ASPECTS OF THE GULF WAR
by Colonel A A Wilson OBE — £30
- THE LIBERATION OF ADDIS ABABA — FIFTY YEARS ON
by Brigadier M W Biggs CBE — £30
- ONE SAPPER'S WAR
by Major F E Snape — £30
- THE GULF CRISIS 1941-42 by Colonel W G A Lawrie — £20
- HOLES IN THE SKIRTING BOARD
by Major A D Macklin — £20
- POSTAL AND COURIER OPERATIONS IN THE GULF
by Captain J A Field — £20
- SURVEY OPERATIONS
by Brigadier J P Elder — £20
- THE WASTED YEARS
by Mr H W Ashton — Special Award — £75

Reviews

AGAINST THE ODDS

HAROLD MITCHELL

*Published by The Book Guild Ltd, 25 High Street, Lewes, Sussex — Price £11.95
ISBN 0 86332 476 2*

In the final months of World War II against Japan, the 14th Army desperately needed the port of Rangoon before the monsoon broke.

The 6/15th Battalion of The Punjab Regiment (a unit of the 17th Indian Division) was flown in by air and thereafter was in the forefront of the advance. In his foreword, Brigadier M J A Clarke MBE remarked "This is no dry military history. It is a vivid description of events and a tale worth telling of courage and confusion, humour and hardship, and above all of the loyalty of comrades in arms which should never be forgotten."

Against the Odds is primarily an enthralling account of a mixed-race brave infantry battalion and its supporting artillery. Except for reference to the frustrating bridging problems over the River Pegu, there is little of engineer interest; the very considerable difficulties encountered on the Pegu are well described on pages 276/278 in Volume IX of the *Corps History*.

The author Harold Mitchell deserves congratulations for the manner in which his book encapsulates the thankless task of infantry.

DRV

GREAT BATTLES OF THE BRITISH ARMY

As commemorated in the Sandhurst companies
EDITOR-IN-CHIEF: DAVID G CHANDLER

*Arms and Armour Press, Villiers House,
41-47 Strand, London, WC2N 5JE — Price
£19.95
ISBN 1 85409 022 4*

This is a book of potted histories of the 16 battles which have lent their names to the Sandhurst companies. The book has been produced to commemorate the 250th anniversary of the foundation of the Royal Military Academy, Woolwich. True to Sandhurst form a degree of uniformity has been demanded by the Editor-in-Chief, head of the Academy's War Studies Department. Essentially,

the 15 different authors had to fit their accounts into about 3000 words and were rationed to two maps, a general area one in monochrome and a battle map in colour. The only exception was Burma which, not a battle as such, had slightly different rules. This chapter is also an exception having been compiled posthumously from an account of the campaign by Anthony Brett-James. Because of this treatment, anyone reading the book straight through (not that anyone but a reviewer would be tempted so to do—the book is best for dipping into) is inevitably drawn to comparing the authors and their style rather than enjoying the subject matter itself.

The basic problem with a potted history is how a good balance can be achieved between the background contextual material, the account of the battle itself and the "lessons learned", while at the same time not making it too obvious that those necessary steps are being followed, but ending up with a satisfying and readable tale.

In this case the team of authors is highly distinguished and they carry their assignments with due proficiency. They must have yearned for more scope for discussing the personalities and attributes of the various protagonists, the shortage of which in any real depth is the most obvious drawback to the book; or for developing the political and economic backgrounds, less of a problem for, say, Richard Holmes with his nicely balanced account of Normandy than for the unfortunate Michael Orr faced with explaining what on earth we were doing at Dettingen. He achieves this successfully although the battle sounds a bit dull in his version.

Unfortunately the vexed question of maps has not been solved satisfactorily. They look good, stylish and clear to read but too often they are not easy to follow because of, for example, place names mentioned in the text but not on the map or phases of the battle not clearly shown. The ration of one per chapter does not help. The overall effect of the book might have been improved by replacing some of the very generous number of illustrations, attractive though these are, with additional maps. One more quibble. Even Sandhurst's high standards have not been able to avoid the irritating editorial slips which seem to plague any book these days, both actual and misprints and quaint captioning which has managed to identify an FBE bridge as a 'Bailey' and Lord Carver with the Christian name 'John'.

But it is the accounts of the battles that matter and these are fun to read. It would be churlish to

attempt a complete Order of Merit but my Sword of Honour goes to Sir David Fraser's Waterloo which dashes through events at an exciting gallop without omitting any of the essentials and manages a fresh angle on a familiar story; the Queen's Medal, I think, to Richard Holmes' Normandy for all round balance and clarity. The Special-to-Arm prize must go to Sir Martin Farndale's most illuminating Amiens which should be read by all Sappers who harbour doubts about gunnery. The eyewitness authors, Lord Carver on Alamein and Sir John Hackett on Arnhem provide a special touch. Alamein covers both Auchinleck's and Montgomery's battles in a spare and dispassionate account covering the essentials. Arnhem is a very personal view of that affair with an intriguing philosophical assessment on the significance of the battle in human terms rather than the more conventional tactical or logistic discussion.

An Epilogue by Sir William Jackson, who confesses to a belated and rather reluctant sounding acceptance of the desirability of the amalgamation of the Shop with the RMC, rounds off the book itself. Some interesting and useful annexes then cover the story of the Cadet Companies (by Tony Heathcote, Curator of the Sandhurst Collection), the Sandhurst Guns and lists of winners of VCs and GCs, Commandants and winners of the Sword of Honour, Queen's Medal and other awards.

This is a book of reference, colourful and even if there are no great new insights into the stories of the battles thoroughly enjoyable to read and a good handbook for anyone with an interest in the RMA.

GWAN

HONOURABLE CONQUESTS

A J SMITHERS

*Published by Leo Cooper, 190 Shaftesbury Avenue, London, WC2H 8JL — Price £24.99
ISBN 0 85052 725 2*

SUB-TITLED *An account of the enduring work of the Royal Engineers throughout the Empire*, the idea for this book came from Colonel Gerald Napier, at that time the Secretary of the Institution, who has also written the Foreword. In this, he refers to the three strands in our history: the soldier-engineer supporting the Army in the field, the Sapper as an inventor, or at least an innovator, and thirdly the abiding monuments to our work which we have left

around the world. It is the last of these that is the subject of this book.

Jack Smithers, while granting that we justly claim Norman ancestry, ventures to suggest that the Corps has roots that go far deeper. He goes back to that period when Britain was garrisoned by three Roman Legions whose enduring works remain in the shape of arrow-straight roads and Hadrian's Wall. He comments that both the Legions and the Corps seem to have built for eternity. From fortresses and cathedrals through canals and barrages, to museums and concert halls, the Corps has left its mark: seldom has so much been created by so few. To give some idea of how few they were, it is worth reflecting that in 1815 there were only 200 officers and ten companies of Sappers and Miners and, in 1820, the Corps provided nearly half the country's qualified engineers.

The author is enthusiastic about our achievements and has written an enjoyable book, one to be savoured, but at the same time it has left your reviewer somewhat frustrated. The title promises well, but there are too many diversions which, delightful though they are, add little to the story. There are too many *non-sequiturs* and asides and Jack Smithers could have covered so much more if he had not been quite so easily distracted from his story. His editor, or the candid friend he refers to in his acknowledgements, should have been more ruthless — they should also have ensured that the maps were improved.

Having said this, do not let me put you off: there are some wonderful stories in this book. You can read about Pasley's work as father of the Corps we know today; about Colonel By's Rideau Canal and the founding of what is now Ottawa; of Arthur Cotton to whom India erected a statue 40 years after Independence for his enduring irrigation works. Then there is Colonel Scott-Moncrieff, probably remembered chiefly for the magnificent silver-gilt and enamel punch-bowl in the HQ Mess, presented by the Czar himself, but whose enduring work is to be seen on the River Nile, and do not let us forget Colonel Beaumont and his work on the Channel Tunnel in 1882.

While our Corps has perhaps had more than its share of national heroes, it is noticeable that most of our forefathers' enduring work was done by Colonels and took place in what the author picturesquely describes as the 'less manicured parts of the British Empire'. Excellence, no less than ubiquity has always been the Corps' trade-mark.

GLC

SADDAM HUSSEIN

A political biography
 EFRAIM KARSH AND INARI RAUTSI

*Published by Brassey's (UK), Headington Hill
 Hall, Oxford, OX3 0BW — Price £17.95
 ISBN 0080413269*

WITH commendable foresight, Brassey's (UK) offered in April 1991 a biography of Saddam Hussein. To catch the market so skilfully often indicates a hasty gathering of superficial information, but not in this case: the book is a serious study of a man whose malevolence the civilised reader will find hard to stomach.

The two authors are experienced historians of this tragic area of the Middle East; Karsh is a lecturer in the Department of War Studies at King's College, London, and Inari Rautsi is a research fellow in the University of Helsinki, who has special-ised in the history and politics of the Middle East.

The reader may ask: "How could this man be so foolish as to put his country on a collision course with almost the whole world?" Those who have but a superficial knowledge of some areas of the Middle East may be tempted to oversimplify, and view him as a megalomaniac suffering from paranoia. But, if so, how could such a man be permitted by the rest of the world to seize unbridled power in this twentieth century, when political ambitions and national intentions are constantly publicised through the organs of the media and the highly developed intelligence systems of Western nations?

The answer must lie partly in the characteristics of Iraq itself which, since its creation by British power, has continued to be a highly complex and disunited country, where contrasting racial groups have maintained separate identities and frenzied sectarian loyalties. For very many years Iraq has been a highly unstable area marked by fear, betrayal and deceit.

The authors take us through the humble beginnings and troubled childhood of the future President and, from many sources, explain convincingly that, in the permanently beleaguered mind of Saddam Hussein politics is a ceaseless struggle for personal survival, and that the ultimate objective of remaining alive and retaining power justifies any means, however immoral and however brutal. Down the ages in Iraq, successive rulers have seized power, if only temporarily, by manipulating the politics of violence: Saddam Hussein, despite a lack of formal education, showed

himself even at an early age, to be an adept exponent of that system.

The folly of his war against Iran is explained in these words:

'He did not embark on war in pursuit of a grand design, but was pushed into it by his increasing anxiety about the threat to his own personal survival ... an act of last resort.'

Of his decision to attack Kuwait, the authors write: "This dialectical combination of impotence and omnipotence, of a deep economic plight and fears of an Israeli attack, on the one hand, and an undisguised air of self-importance, on the other, sealed the fate of Kuwait. In the permanently threatened mind of the Iraqi leader, where personal interests are nationalized and national affairs personalized, the Kuwaiti indifference to Iraq's desperate needs at a time when it faced an 'imperialist — Zionist plot' amounted to 'stabbing Iraq in the back with a poisoned dagger'. Conversely, full of his newly gained prominence, Hussein felt that he had gone out of his way to plead the Iraqi case and that further begging would only cause him (and, by extension Iraq) public humiliation which he was unwilling to endure."

Nothing that has happened since that fatal decision appears to nullify those conclusions.

If, as one may suppose, major armament deals with Iraq during the last 15 years have been examined by some British Government Committee, one can but wonder what was the input of the intelligence authorities concerning the ambitions of this evil man whose activities, in a world seeking peace, continue to involve the Armed Forces of Britain, to say nothing of the British tax-payer.

This is indeed a cautionary tale.

CLR

**A VISITOR'S GUIDE TO HISTORIC
 HONG KONG**
 SALLY RODWELL

*Published by Odyssey, Hodder & Stoughton
 Imprint, 47 Bedford Square, London — Price
 £9.95
 ISBN 9622172121*

This excellent guide to historic Hong Kong will be published in England in December. It is the first guide of its kind to be produced, and will make an ideal Christmas present for all those who know

Hong Kong, either as veterans of the QGE or as casual visitors. It also offers a great deal to whet the appetites of all Sappers with a professional interest in the past works of the Corps. Sally Rodwell, the daughter of a Sapper officer, starts her guide at the end of the last Ice Age (15,000–8,000 BC), but rapidly brings the reader forward into the history of the territory since its cession to Britain 150 years ago.

Of particular interest to Sapper Officers will be Flagstaff House, which was built by the Royal Engineers and completed in 1846. Until 1932 it was known as Headquarters House, and it is one of the two oldest buildings in Hong Kong. Murray House, designed by Major Aldrich and Lieutenant Collinson, both Royal Engineer officers, will also be of considerable interest to Royal Engineers. It was built by the Corps at the same time as Flagstaff House, used as the Officers' Mess from 1846–1963, then handed over to the Hong Kong Government. During the Japanese occupation it was used as an interrogation centre; the Hong Kong Government housed the Rating and Evaluation Department in the 1960s — and found it necessary to exorcise evil spirits in the 1970s! It was demolished in 1982 to make way for the new Bank of China tower and it is stored in pieces in sheds on the edge of Tai Tam Reservoir. In 1988 the Government decided to re-erect it in Ma Hang village at Stanley where it will be used as an amenity centre for a new low-cost housing estate. This is a tragic departure from the original purpose of this magnificent building, but it appears that there is little that the Corps can do to intervene to preserve this particular part of its heritage.

Stanley Fort was built by the Corps in the 1930s. Work began on the access road in 1934 and by 1937 the new barracks, soldiers' quarters, officers' quarters, school, church, and Brigade Mess were complete. The construction was described in the *RE Journal* at the time by Lieutenant Shearer, who found grim reminders of victims of pirates and malaria during the construction work. Another fort at Devil's Peak, north of the village of Lei Yue Mun in the New Territories was built by 40th Company, Royal Engineers and completed by 1914. The rocky outcrop on which it was constructed was ingeniously incorporated into the design. There is a fascinating description of the installation of the Brennan torpedo at Lyemun, situated in a man-made cavern on the edge of the Lei Yue Mun Strait. It was never fired in battle in Hong Kong, and the only remaining example of

this secret weapon of the 1890s is in our own RE Museum at Chatham. There is an accurate and detailed account of the way it is driven and steered. Originally operated by the Submarine Mining Section of the Royal Engineers, it was handed over to the Royal Navy in 1906.

Anyone considering taking a final look at Hong Kong before 1997 would be unwise to travel anywhere without this invaluable guide to places that may soon become inaccessible to the West.

WJHC

FROM CHURCHILL'S SECRET CIRCLE TO THE BBC

GENERAL SIR CHARLES RICHARDSON

*Published by Brassey's (UK), 50 Fetter Lane,
London EC4A 7AA — Price £29.95
ISBN 008 0376924*

It has been said that our Corps tends to go in for 'national figures' rather than for Field Marshals, though we have certainly had our share of them too. Lieutenant General Sir Ian Jacob comes into the former category, albeit still a relatively unknown figure to the general public, which makes this biography all the more timely. It is dedicated 'to the Corps of Royal Engineers, which fostered him in his early years' and is written by General Sir Charles Richardson, a former Chief Royal Engineer.

Born in Baluchistan, Ian Jacob was the last of 28 members of his family to have served the British Raj, going back nearly 150 years to the forming of Jacob's Horse by John Jacob of Sind. His own father was a distinguished Field Marshal and he followed him into the Army, being commissioned into the Corps in 1918 and joining the Bengal Sappers and Miners two years later. He was soon on the North West Frontier where 3 Field Company was known as 'the Field Marshal's Company' as it contained the sons of no less than three Field Marshals. By 1936 he was a Brigade Major in Egypt but, two years later, he was recalled to London where he joined the Committee of Imperial Defence, closely linked to the Cabinet Secretariat.

For the next seven years, Ian Jacob was at the very centre of world events, becoming a key member of 'Churchill's Secret Circle', alluded to in the first part of the rather cumbersome title of this book. This is by far the most enthralling part and, by quoting liberally from his letters and diaries, General Richardson has given us a fascinating potted history of the war, viewed from the inside. There are all

sorts of revealing glimpses behind the scenes as Ian Jacob was involved in so many of the great events of the war, yet strangely they don't reveal much about the man himself. In fact, one has to get two thirds of the way through the book to know that Churchill 'liked his strong and lucid intellect, his grasp of detail, his air of unruffled and unflinching efficiency...the stoic calm, the absolute self-control, the mistrust of exaggerated and excessive emotion'.

The last part of the book deals, all too briefly, with Ian Jacob's second career, where he became one of the great Director-Generals of the BBC, responsible for maintaining its independence during the period when commercial TV and radio were entering the scene. What he called his 'last testament', a Memorandum on the Past and Future of the BBC is an example of his formidable intellect and penetrating mind. He went on, after retiring

from the BBC, to busy himself in other fields; in business, in County affairs and in Government business of one sort or another. He was never still and, even today at 92 years of age, his formidable intellect is unimpaired.

This is a very good book, fascinating to read, but one has to ask oneself: 'has the author done justice to his subject?' One hoped to find out what Sir Ian Jacob is really like. Did he ever shout or lose his temper (probably not!), what did he do in his spare time (apart from cultivating a love of music), what is his family like? Instead, one is left with an incomplete picture, 'a brilliant soldier and a trusty servant of the State' as the dedication says, but surely much more! Perhaps there will be a revised edition in due course, hopefully in a reasonably priced paper-back instead of the nearly £30 cost of the hard-back version.

GLC



The Shanghai Dragon

This silver centrepiece was commissioned by the military and civilian staff of 56 (MT) Training Squadron RE to mark the 90th anniversary of the formation of the Squadron. The Squadron served in China in 1927-28, and adopted the Dragon symbol from the Shanghai Defence force.

The Shanghai Dragon (p304)

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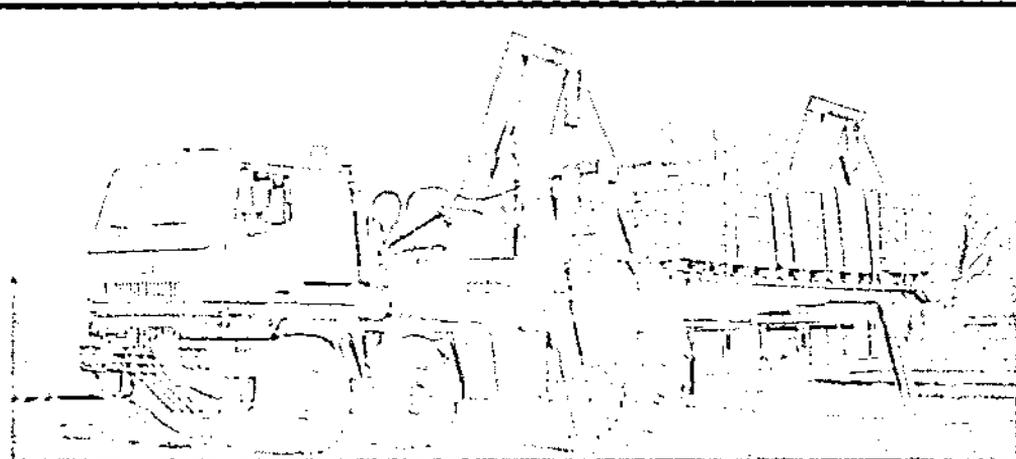
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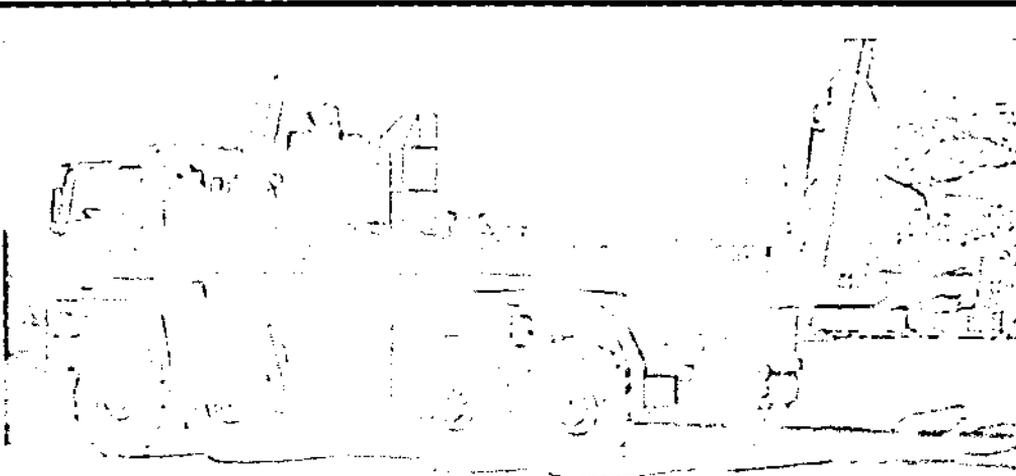
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