ISSN 0035-8878



THE ROYAL ENGINEERS JOURNAL

497

INSTITUTION OF RE OFFICE COPY

DO NOT REMOVE

THE ROYAL ENGINEERS JOURNAL

DECEMBER 1978

VOL 92 No. 4

DECEMBER 1978

No. 4

THE COUNCIL OF THE INSTITUTION OF ROYAL ENGINEERS

(Established 1875, Incorporated by Royal Charter, 1923)

Patron-HER MAJESTY THE QUEEN

		Pres	ident										
Major-General J C Woollett, CBE, MC, MA, C Eng, FICE													
		View De						•••					
Maion-General C.P. Campbell, C.	8, MC, 1 195 Mg	MA, C	Eng, M	ICE			***	•••	1975				
chipper contract of Campbell, C	DE, 110	14.2	***	**3	***	••••	***	•••	1977				
Elected Members													
Colonel B A E Maude,	MBE, M	IA.	•••		***		•••		1965				
Colonel K W Dale, TD	, ADC,	FCIBS,	Flost	F, M Co	ons E				1976				
Lieut-Colonel D O Vau	ighan		•••	***	•••			•••	1976				
Lieut-Colonel J B Wilk	s, RE		- 4 -	•••		•••	•••		1976				
Brigadier J A Notley, M	18E	•-•		•••	•••	•••	•••	•••	1976				
	elly, KE	 DE T O	•••	•••			•••		1977				
Cantalo R I Walter D	E(Y), OI	BE, IU	••••	••	***		+	•	1977				
Captain I M Wyster BE	.E	•••	•••	•••		•••			1977				
Colonel W C S Harris	 01. CRE	ERD.	 C End		 MILLE	•••	•••	•••	1978				
Lieut-Colonel R M Hur	ton, MP	IF. RSc	CEna		MILLE	•••	•••	• • •	1978				
			, o eng	وعاجها الوز	CHINE	•••		•••	19/8				
	Ex	Officio	Memb	612									
Brigadier R W M Lister, ADC			•••	,				D	E-in-C				
Colonel K J Marchant	•••	•••						Ă	AG RE				
Brigadier C J Rougier, BA	•••		•••	•••				Comde	RSME				
Major-General FM Sexton, OBE	•••		•••		•••			D MH	Survey				
Colonel HA Stacy-Marks		•••	•••		•••			Regti C	olonel				
Brigadier R W Dowdali	•.		•••		•••		Cot	mol∔lEi	ngr Gp				
Brigadier & Wheatley, OBE, C E	Eng, FIC	e, fiki	E	•••	•••	•••	•••	D Enj	gr Sves				
Brigadier J VV Bridge	•••	•••	•••	***		•••		•••	DPCC				
				_									
	Corre	spondi	ng Men	iber s									
Brigadier J F McDonagh			•	-									
Australian Military Forces					•••				(97 ∡				
Lieut-Colonel K H Mitchell, RN	ZE			••••				***	.,,,,				
Royal New Zealand Engineers		•		•••		1	•••	•••	1977				
Major-General R E Ashton, CD Canadian Forces									1475				
Brigadier S R Bagga		•••		•••	•••	•••	•••		17/5				
Malor A FS Baines, RE		•••	•••	•••	•••		•••		1978				
BAOR Brigadier-General Chen Kussa S				•••		•••	•••		1978				
Maloysian Armed Forces	ong, KM	0 N, A M 	ir, fjK			•••			1978				
Secretary and Editor RE Journal													
Colonel E E Paol Rea C Ene El	CE.			,	-								
	νE	•••	•••	•••	•••		•••	•••	1972				
		• •											

Bankers

Lloyds Bank, Ltd, Cox's and King's Branch, 6 Pall Mall, SW1

ł

THE ROYAL ENGINEERS JOURNAL

Published Quarterly by The Institution of Royal Engineers, Chatham, Kent ME4 4UG. Telephone Medway (0634) 42669

Printed by W & J Mackay Ltd, Lordswood, Chatham, Kent ME5 8TD

Volume 92	DECEMBER 1978	No. 4

Contents

		PAGE
1	Editorial	211
2	THREE DINNER PARTIES. By Colonel W G A Lawrie (with map and	
	photographs)	212
3	THE FIRST PARCEL BOMB. RE Journal June 1874	219
4	AN IMPROVED SUN-DIAL. By Brigadier A Prain (with figures)	220
5	A BRIDGE TOO MUCH? By Licutenant R J Griffiths (with map)	223
6	THE BATTLE OF MESSINES RIDGE - 7 JUNE 1917. A View from the British Rank. By R H Haigh and P W Turner (with map)	227
7	WHAT AN OLD SOLDIER REMEMBERS! By Major A G Marsdon	239
8	DAI MORGAN'S EDUCATION. By Brigadier Sir Mark Henniker	240
9	THE SCHOOL OF MILITARY ENGINEERING IN INDIA (ROORKEE) 1943-45. By Major R R Mester	241
10	SILVER JUBILEE OF THE MALAYSIAN ENGINEERS. By Brigadier R W Dowdall (with photographs)	245
11	THE MYSTERY PORT, RICHBOROUGH, SANDWICH 1914-18. By Brigadier Sir Bruce G White	249
12	MY LAST WAR. By Lieut-Colonel G W A Napier	251
13	THE ENGINEER AND RAILWAY STAFF CORPS. By Major G Horne	252
14	"WE ARE PATHANS". By P A E	255
15	THE IRRAWADDY CROSSING PAINTING. By Major I G LI Phillips (with photograph and map)	258
16	NIGHTMARES IN MOVEMENTS. Brigadier C E F Turner	262
17	Memoirs: Lieut-General Sir Philip Neame Major General H C W Eking Colonel A J Cruickshank Brigadier Sir Clinton G Lewis Major H E Attenborough	267 268 269 270 271
18	CORRESPONDENCE: BRIGADIER B E WHITMAN THE RE CONTACTS OF A SAPPER-MANQUÉ "WHITHER THE CORPS?" A REQUIEM (three letters)	272 273 274
19	BOOK REVIEWS	278
	Authors alone are responsible for the statements made and the opinions expressed in their papers	4,250

Editorial

FEAR

In the last Editorial of this volume of the *RE Journal*, and as we prepare to embark on a more forward looking course, I return to the theme (again!) of articles and letters for publication.

For some time now the major Engineering Institutions have expressed concern at the overall *inability* of engineers to communicate their ideas.

Why do engineers find it so difficult to communicate? It is unreasonable to suppose that the majority of the readers of engineer ideas are stupid. The fault must lie with the engineers themselves although they are essentially logical and usually well educated and intelligent (not necessarily the same). Is it that engineers consider themselves superior to non-engineers and they simply don't care if the non-engineer understands or does not understand? Is it because they are quite happy just to communicate with other engineers? I wish I had more opportunity to make some contribution to the discussion! My problem is that I don't get enough articles or letters to form an opinion!! My problem is not with *inability* but with *unwillingness* to communicate!!! On this I can join in on the discussion.

I believe that FEAR is at the root of this problem.

Quite recently some officers were discussing an article which had been published in the *RE Journal*. The discussion was animated, interesting and much of it was to the point. I asked why none of those present had written a "Letter to the Editor", and so permit a larger audience to join in the discussion. I expected the usual answer—too busy! But not so. There were three answers:

(1) Fear of ridicule;

(2) Fear that they could jeopardize their careers;

(3) Fear that their puny literary efforts would be considered inadequate.

Although not suggesting that those present were a representative cross section of Members of the Institution there was no doubt that the feeling was generally held.

If we are to be more forward looking, Members must be encouraged to express ideas and to do this these factors must be alleviated.

On the first, the fear of ridicule, the Editor can and will warn all authors who submit material likely to attract ridicule of the risk they run.

On the second, the *RE Journal* is an open forum, therein lies its strength. Pseudonyms are permitted, only the Editor knows the names of the authors, if an author wishes to remain anonymous. There is no risk to careers,

On the third, as a self-confessed "split infinitive" practitioner, I would refer authors to *The Complete Plain Words* by Sir Ernest Gower, revised by Sir Bruce Fraser:

"A sensible writer should try to write correctly but he should pay no attention to a more grammarian taboo, which militates against simple, clear and natural writing."

If the fears cannot be removed, if new ideas and new approaches to the solution of problems are not expressed, the chances are that we will remain blinkered, if not blinded, in our efforts to advance Military Science and will be unable to play a full part in assisting the forces of the Crown to carry out their possible future tasks.

"Can the blind lead the blind?

Shall they not both fall into the ditch?"

St Luke 6.39

Three Dinner Parties

COLONEL W G A LAWRIE MA CEng, MICE, FIL

In the light of the shortage of far-flung outposts of Empire the prospects of Extra Regimental Employment appear increasingly attractive and there is often more to them than gin and tonics on the verandah. Particularly in what are known as Developing Countries, where the ultimate power may depend on the loyalty of a few battalions, a junior officer may find himself called upon to make instant decisions which could have far-reaching effects. Before a posting to one such country I enquired in Whitehall about the official policy of HMG, only to be told rather haughtily, "The policy of the British Government is to have no policy." So one is somewhat out on a limb!

I would like to illustrate this with the stories of three dinner parties—what actually happened after them and what *might* have happened.

The first was in the Rajah of Faridkot's Palace in New Delhi on the sultry and fateful night of 14 August 1947, when I found myself alone with the Rajah and Rani and his mother the Dowager Rani. But let me explain how I came to be there.

Up to 1947 about one third of the subcontinent of India was in the hands of the Princes, who were linked to the Crown by treaties and had considerable autonomy within their own territories. Some of the States were as large as European countries and maintained their own armies for internal security and ceremonial duties. Historically the Princes had always been ready to place their troops at the service of the King Emperor in time of need. In return the Government of India provided them with equipment and training facilities and set up the Military Advisor in Chief's (MA in C) Branch to liaise with the Rulers and check the standard of training of their Forces.

I was fortunate enough to be selected as the engineer officer on the MA in C's staff in 1945 and as such it was my duty to visit the six States which provided engineer units for the Order of Battle (Faridkot, Malerkotla, Tehri Garhwal, Sirmoor, Mandi and Suket) and also any other States which asked for advice on such matters as roads (Jaipur), inland waterways (Cochin), flood control (Patiala) or opencast mining (Bikaner). Just reading this list of names brings back bizarre, intriguing and glamorous memories. To visit some of these States was like going through a door and finding oneself back in the Middle Ages. Life went on at its own pace as it had done for centuries. Everything revolved round the Ruler, who, whatever his faults, was often revered by his people with a religious fervour. They loved the pageantry and ceremonial; they knew the Ruler and his family by sight and spoke the same language; they accepted his decisions without question. He could order new hospitals or schools to be built without waiting for committees and estimates and Votes. He could order every bus to be repainted overnight; he could hold public Darbars and decide a dozen civil cases in a morning, charging one anna from each side. It is my personal belief that a benevolent and energetic Ruler in a handy-sized State could well have been a far more suitable form of Government for the people of India than the Democracy which they have got now.

HH of Faridkot was a keen and efficient Ruler and he contributed three splendid Field Companies of Sikhs who did valiant service in Burma. During the run-up to Independence Day in 1947 he found it difficult, like many other Rulers, to come to terms with the situation. They simply could not believe that the British Government would tear up their sacred treaties and throw them to the wolves. I was in Delhi at the time and Faridkot invited me to act as a sort of unofficial ADC and go with him to a series of meetings with Government officials, politicians and Rulers of neighbouring States. He had to decide not only whether he should accede to India or Pakistan but also whether it would help him to join forces with other States and on what terms.

Faridkot is comparable in size to an English county and is situated about fifty miles south of Lahore. It was obvious to everyone that the boundary between India

and Pakistan, which was to be announced at midnight on 14 August would run North and South somewhere between Lahore and Amritsar. When the boundary reached Faridkot it could just as easily turn West, including Faridkot in India or turn East and include it in Pakistan. In this respect Faridkot was in a unique geographical position. Although the Rajah was a high caste Sikh of ancient lineage he had many Mohammedan subjects. Like the rest of the Punjab in those days the Sikh and Mohammedan communities were intermingled as regards land and villages, but in Faridkot they were united in loyalty to their popular Ruler so there was less friction between them than in British India. So from the points of view of geography and population there was no over-riding reason for the State to accede either way.

After World War I extensive desert areas in the south of the Punjab were reached by irrigation canals and became available for new settlements. At the same time the Government of India wished to reward men for loyal service during the War. It so happened that huge areas around Lyallpur and Montgomery were allocated to Sikhs from overpopulated parts of Ludhiana and Jullundur, and the Faridkot family had also purchased large tracts of land which were being successfully farmed. The result of all this was that adjoining Faridkot and to the west of it were many settlements of fertile and well-irrigated land owned and cultivated by Sikhs.

Mohammed Ali Jinnah, who was designated to be Head of State of Pakistan when it was formed, was by no means a fanatical Mohammedan. He was more at home in English than Urdurand had little knowledge of Punjabi or Pushtu, the main languages of the Punjab. He was however an astate politician and hungry for power. When Faridkot called on him in Delhi, Jinnah invited him to accede to Pakistan, which he said would be a non-sectarian State, and if he would do so, promised to make him Head of an autonomous Sikh province within Pakistan comprising Faridkot and all the Sikh-held lands to the west of it.

India was also to be a non-sectarian State, but Faridkot was not on speaking terms with Pandit Nehru. He knew that if he acceded to India the chances were that he would be swallowed up by the large and powerful State of Patiala unless he could amalgamate with a sufficient number of smaller States to form a viable unit. If Faridkot was jealous of Patiala so were all the lesser States jealous of Faridkot and I attended many bitter wrangles between them.

The Rulers had until midnight on 14 August 1947 to decide whether to accede to India or Pakistan. That evening Lord Mountbatten gave a farewell cocktail party at Viceroy's House and as he shook hands with every one of the thousands of guests he displayed his marvellous gift of making each of us feel that he was specially welcome.



Three Dinner Parties (1)

213



Photo 1. Week-end guests at Kapurthala 1946

This very significant meeting took place a few months before Independence. On Kapurthala's left is Lady Peroze Khan Noon whose husband was a leading member of Pakistan's first Government. On his right is Lady Hutton and then the Nawab of Rampur, a Mohammedan Ruler who acceded to India. The two Sikhs in the front row are the Ralers of Faridkot (on the left) and Nabha (on the right). They and Kapurthala were all swallowed up in PEPSU, (Patiala and East Paujab States Union) after Independence.

The Palace of Kapurthala was built in 1901 as a replica of Versailles, the language of the Court was French and at meals every guest had a footman behind his chair wearing a powdered wig and silk knee-breeches, while the State Orchestra played minuets. The Author is in the back row on the left.

Wandering round the beautiful gardens behind Viceroy's House it was hard to realize that the sunset we saw reflected in the ornamental pools was the very last of the Imperial era. There was no party spirit. Everyone was subdued and apprehensive and soon went home.

I had been asked to dinner at Faridkot House, ostensibly to make a fourth at bridge. The meal was superb and served, as usual, off silver plate which had belonged to Charles II. When the servants had gone HH turned to me and said, "I want your honest opinion. You have been with me to all these meetings and have heard all that has been said. I know that you have no axe to grind. Which is it to be, India or Pakistan?" I had been turning over in my mind for days the problem which would confront him, thinking not only of the political consequences but also of the millions of innocent people whose homes and lives were at stake. Realising that at this hour he had nobody else to turn to for advice, I said, "Pakistan, Your Highness." "Good," he said, "that's what I hoped you would say. Now let's have some bridge."

We played till I Ipm. Then he went off to change and came back in full regalia—a vision of turquoise satin with ropes of emeralds and pearls. "Why not come along, Colonel Sahib. It will be quite a party." But I felt it would be out of place since I had no official reason to accompany him and excused myself on the grounds of being improperly dressed.

Instead I wandered out onto the Maidan in front of the Government Buildings and joined an enormous crowd of excited but very friendly Indians. I saw no other British people. We watched the Union Jack come slowly down at midnight and, for

Three Dinner Parties (1b)

THE ROYAL ENGINEERS JOURNAL

the first time, sang the brand new Indian national anthem from cyclostyled sheets which were handed out

Almost At once the Punjab was engulfed in a tidal wave of senseless, hysterical shaughter. I was one of a handful of British officers who had volunteered to remain in India temporarily after 15 August and before I knew what was happenning I found myself flown off to be Brigade Major of the Amritsar Brigade, which formed part of the Boundary Force. This had been stationed in advance along both sides of the probable line of the Frontier to preserve law and order. I soon realized that Faridkof had after all acceded to India. As a direct result

I soon realized that Faridko had after all acceded to India. As a direct result millions of Sikhs in southern Pakistan were attacked and slaughtered or driven across the border into India as homeless, penniless refugees. In retaliation millions of Mohammedans in Faridkot and India were slaughtered or driven off into Pakistan. The Amritsar Brigade had no British troops, seven Indian battalions of untested loyalty—since their Burma veterans had been released and the ranks filled up by raw recruits—and possibly a dozen British officers altogether. With this we tried to control 5000 square miles of frenzied rioting. But that is another story.

Many years later the telephone rang at home. Faridkot, now a successful business tycoon had turned up in London and was giving a party at the Savoy Hotel. Only then did I learn that he had been waylaid that night and forced at gunpoint to change his allegiance.

I wonder what would have happened if I had gone with him to the Viceroy?

The next dinner party was in Amman in June 1958 at the Residence of the British Ambassador. One of the many twists of Middle Eastern politics had brought about a proposal to unite Jordan under King Hussein with Iraq under his cousin King Feisal, who had come to Amman with his entourage to make plans for the Union. They were about to return to Bagdad and the British Ambassador had invited them all to a farewell party.

I was there as the first British Military Attaché in Jordan. As long as anyone could remember Glubb Pasha had been there and no MA had been required, but when he was forced out by external influences in 1956 I had been sent out to try to plug the



Somewhere in the back of the Cadillac which is flying the Royal Standard of the new Union are King Hussein and King Feisal. The officer commanding the Royal Bodyguard (on the white horse) won the George Medal during the war and taught my children to ride.

Three Dinner Parties (2)

215

gap, although I had been forbidden to contact him in any way before going out in case my position with the Jordanians was compromised.

After dinner the guests strolled about the lawns. From the hill top they could see the lights of the town all round them and hear the distant rumble of traffic. The night was warm with a gentle breeze, the sky was dark blue velvet blazing with all the constellations. People found seats and waiters moved around with drinks.

The Ambassador called me over. "Just go and see if those two old men have got all they want." It was so dark that I did not realise who they were till I got close and spoke to them. Then I saw that they were the Prime Ministers of Iraq and Jordan. Smiling at my Arabic greetings they said, "Come and pull up a chair. Let's talk French." These two had been at Aqaba with T E Lawrence in 1917 and had not met informally like this for many years. It was a great privilege to hear Nuri-es-Said and Ibrahim Hashim reminiscing over the events of the last forty years.

At last the story came up to date and I asked how they viewed the present situation. They were cautiously optimistic, especially Nuri Pasha. I told him that I knew Iraq well and its people and congratulated him on all that had been achieved in agricultural development since the War. "But do the people appreciate it?" I asked him; "Listen to the music coming from the coffee shops of Amman. That is Radio Cairo and every ten minutes there is a raucous voice saying "Down with the British and their lackey Hussein". I am sure this goes on in Bagdad too. Why don't you get a Television station with lots of belly dancers. Then every ten minutes you or the King can make a speech telling the people all the good things you are doing for Iraq. Radio Cairo wouldn't get a look in." Nuri said, "Don't worry. I've got the people just like that"—pressing a large thumb on the table.

Within two weeks both the old men had been savagely murdered in Bagdad along with King Feisal and all the Royal family. Our Ambassador had gone to London and King Hussein only escaped a similar fate because I persuaded him to ask for help. Mr Harold Macmillan summoned a Cabinet Meeting late that night and sent in the parachute Brigade from Cyprus, which saved the situation.

But could I not have given Nuri Pasha an even stronger warning and would he then have taken more precautions? A little tighter security would have nipped the revolt in the bud, and the existence of a powerful and wealthy Union of Jordan and Iraq free of external intrigues would have completely altered the balance of power in the Middle East.

Another change of scene takes us to Accra in 1966. This time I was Defence Adviser with the High Commission. Before going out the DMO sent for me and said, "Whatever happens out there don't ask for the Parachute Brigade. Just remember that this time they are not available."

Every few weeks we used to have forty or fifty people to dinner. In Accra every night of the year is stifling hot and inky black, but the two sides of the house rolled right back to catch any breeze there might be. We found it was better to have about ten small tables with four or six people at each. There were usually a few British business men, people from the French, German, Dutch or Belgian Embassies, Russians, Americans, Canadians and Africans from Ghana and a dozen neighbouring countries. Small tables ensure that nobody is left out, but require careful seating plans so that the right people sit together.

I made sure that Charles Barwah was next to me. He was a brilliant young man with an outstanding record at Sandhurst and Camberley, and was already a Major General at thirty nine. Long ago he had forecast that he would be Head of the Ghana Army before he was forty. The trouble was that he was a Mohammedan and intensely proud of it. This placed him in a minority class in the army. The great majority were Christian or heathen, or both! General Arthur Ankrah, for instance, was a staunch sidesman in the Methodist Church and read the Lessons on Sunday, but he also had three wives, which was disconcerting when we were asked to tea and found them all in one room. Although each had her own sofa we were not sure of the order of

THE ROYAL ENGINEERS JOURNAL

shaking hands and did not want to offend against protocol. The General also gave a big party each year when he poured libations of gin and curry down his front steps to propitiate the Gods of his ancestors.

Barwah had decided that the only way for him to get on was to hitch his wagon to a star,—Kwame N'krumah. N'krumah was a man of great personal charm who preferred to be called Osagyefo, "The Redeemer". He had been to stay at Balmoral and one could not help liking him, in spite of his overweening ambition and conceit. In dealing with Pandit Nehru and King Hussein one could understand their attitude to most things, but for some reason we failed to send N'krumah to Harrow, and his education in America had not had the same effect.

He had a thoroughly British-oriented Army, Navy and Air Force with a large Joint Services Training Team and plenty of British equipment, but at the same time he was building up counterpart forces in parallel, with Russian instructors and Russian equipment and giving them better pay and new barracks. Barwah was at the head of this outfit although he was obviously rather ashamed when 1 teased him about the medals he had "won" in Mowcow and Algiers.

I might add in parenthesis that there was an unusual situation in northern Ghana where Russian civil engineers were building a new airfield conveniently sited half way between Moscow and Cuba. It so happened that the Liaison Officers attached to this project from the Ghana Ministry of Defence were both British!

The situation in Ghana was explosive. Shortly before this Mr Harold Wilson had



Photo 3. Black Star Square, Accra 1965

The Parade is drawn up on their National Day under the command of Major General Barwah to await the arrival of the President. Navy and Air Force personnel are also on parade and the Army are in their scarlet tunics (tailored in London). The VIP Stand, behind which are drawn up ships of the Ghana Navy, contains lifts, an air-conditioned bar, dining room and lounge all facing the Atlantic.

In front of the Black Star is a gigantic figure of N'krumah. At night this was lit up and the raised arm appeared to move as if waving a hankerchief. I was sitting next to the Russian Military Attaché who thought the March Past in Slow Time was a thoroughly decadent manoeuvre.

Three Dinner Parties (3)

217

turned up unexpectedly at Accra Airport on his return from an abortive visit to Rhodesia. We all sat around drinking champagne before breakfast in the VIP lounge while N'krumah lodged a protest about Mr Wilson's proposals and shortly afterwards broke off diplomatic relations with Britain. The High Commissioner and his staff left the country but the Ghanaians asked me to stay on as Military Liaison Officer. N'krumah went off to Moscow and would no doubt return with fresh ideas. I felt that I should keep in touch with Barwah and try to see what was in his mind.

That evening the dinner went off very well. Barwah told me fascinating stories about the history of Mohammedan culture in Ghana. Some old records had turned up in a museum in Copenhagen which the Danes had removed when they left Christiansborg Castle in Acera centuries ago. We shared an interest in military history and we planned to go over the route of the British forces in the 2nd Ashanti War of 1895–96, when they marched from Cape Coast to Kumasi. We had been studying Baden-Powell's diary of the campaign in the original with his beautiful and often very funny illustrations. I felt sure that in his heart of hearts Barwah's sympathies lay with the British and I tried to pin him down to a date for our trip to Kumasi. But not hard enough.

Three days later came the coup against N'krumah in which Barwah was tragically shot dead by an over-zealous subaltern. I managed to rescue Baden-Powell's diary from beside his bed.

The townspeople of Acera pulled down all the statues of N'krumah, renamed the N'krumah Highway, the N'krumah Downway, and marched round the town shouting "We want the British" and "Gold Coast come back." But there was little bloodshed. I watched from behind a tree while two brigades of the Ghana army attacked Flagstaff House and killed N'krumah's personal bodyguard, which consisted of twelve Russians, and came to the conclusion that we really could manage without the Parachute Brigade this time.

Arthur Ankrah was brought in as Head of State and gave the Russians and Red Chinese twenty-four hours to leave the country. The Russians went meekly and we waved goodbye to the Military Attaché and his wife in a long line of black Volgas on the way to the airport. In the case of the Chinese it was very difficult for the Ghanaian police. They began by rounding up everyone with a yellow face and almond eyes including indignant Japanese and innocent Chinamen from Hong Kong and Taiwan.

N'krumah never came back to Ghana and died in exile in Conakry. But the people of Accra were terrified that he might return, and to keep them happy Ankrah asked me to get him a lot of black machines which the public could see going round and round on top of Government buildings. Under the protection of this powerful British *Radar-juju* things soon settled down and the British High Commissioner came back.

The thing I most regret is that Barwah perished without achieving anything, since he was, in my view, head and shoulders above his contemporaries in intelligence, determination and integrity.

What would have happened had Barwah survived the coup? Who knows?

The conclusion that might be drawn from these little episodes, is that a thorough grounding in Current Affairs is more important in the training of officers than parochial matters like Establishments and Military Law.

* * * *

The First Parcel Bomb?

This short article was published in the RE Journal June 1874. There was no follow-up.

A NEW TORPEDO

To those of our readers who are curious in new forms of torpedoes, the following account of an infernal machine, given by the Melbourne correspondent of the *Standard* in the issue of the 15th April, may be interesting.

"A fatal occurrence of a startling and novel character has happened during the month. On the morning of the 9th instant, about ten o'clock, Mr Maxwell Reynolds and his partner, Mr English, entered their office, 35, Queenstreet. Near the office door was a small deal box, like a fig box, addressed to Mr Reynolds. He took this with him into the office, and removed the string round it. The lid was then found to be fastened with a French or wire nail, admitting of its being turned round. On sliding the lid so as to see the contents of the box, an explosion took place of so violent a nature as to shatter the walls of the abdomen of Mr Reynolds, who died in a few hours, and to inflict serious injury to the head and face of Mr English, who has fortunately recovered from them. The deal box was shivered to little bits, and, together with its contents, blown through the windows into the street. The inquest on the body has been adjourned three times, and is not yet over. On the last day Mr English gave his evidence, and stated that his partner had not turned the lid of the box more than an inch and a half when the explositon occurred. There was barely time to see a small, flat-sided, dark-blue bottle, about an inch in diameter. No force was used in turning the lid, for it turned easily on the smooth round nail as on a pivot. There was, therefore, no great amount of friction, and no concussion in the ordinary sense. The question now is, what was the precise agent of explosion in this case? It has been generally accepted here that the material was nitro-glycerine. Our chemists know of no other fulminate that would answer to the requirements of this particular case. On the assumption that the fulminate was nitro-glycerine, the important question arises as to the intention of the person who placed it in the position where it was found addressed to Mr Reynolds? Was the nature of nitro-glycerine unknown to this person, or had he, or she, a guilty knowledge of the certainty of an explosion when the substance should be submitted to the conditions involved in opening the box containing it? Not only has the matter an important criminal aspect, but it presents several very remarkable scientific aspects—one of an especially serious social nature. Is it possible for a chemist to make an explosive compound of such a character as to explode either at a time required or when subjected to such conditions as those presented in this instance? Could such effects as those produced here be calculated on with certainty? If so there will be a horrible addition to the means for committing murder. But at present it may be doubted whether chemists can determine these effects with anything like precision or nicety. It seems more than probable that though the box containing the fulminate was addresses to Mr Reynolds with the intent to take his life, yet that the time of the explosion, or the slight amount of manipulation required to bring it about, could hardly have been foreseen, for if the person who deposited the box by the office door had had a full knowledge of the properties of the material enclosed in it, it was a marvellously hazardous thing to have made the material, to have kept it in his possession for ever so short a time, to have placed it in the box, to have conveyed it to the place, and to have finally set it down where it was found. The risk incurred in all these proceedings almost precludes the supposition that the person concerned knew precisely what he was about, though he probably had some general knowledge of the fulminate he was dealing with. The matter, however, is too large and complex to speculate upon here. It may be briefly added that the firm of Reynolds and English dealt in dynamite and lithofracteur, which are largely used for blasting purposes in gold mining, and that the evidence taken at the inquest points to the implication of a clerk in the office, though nothing has transpired to connect him directly with the affair."

An Improved Sun-Dial

BRIGADIER A PRAIN, CBE, BSc

IN a recent article in the *Journal*, Mark Henniker described his mechanism for getting more use out of that unruly Element of Nature, the wind. It may be of interest to read about my own device for regulating that other fickle element, the sun.

The sun is fickle in more ways than being sparing of its appearance in this part of the world. It is notoriously a very erratic day-to-day time-keeper, since, generally for only four days in the year does it appear to circle the earth in exactly twenty-four hours. So the simple sun-dial, which is merely a crude device for observing the sun's apparent motion, can never be an accurate time-keeper. It must always suffer from the daily time error of the sun's time-keeping, called the "Equation of Time", (E of T). Thus, before a sun-dial can give the exact Greenwich time this E of T correction must be applied. This of course means that one has to know what this correction is, and also make the necessary arithmetical adjustments.

I have over the years evolved a design of sun-dial which mechanically carries out the required correction so that a reading of the sun-dial at once gives the correct Greenwich time.

Referring to the drawing, (Figures 1 and 2) "A" is the base plate on which is marked "B", the meridian line with its calendar, and "C", the two correction curves; "D" is the hour dial which carries an integral pointer "E"; "F" is a gnomon which is rigidly fixed to the pivot "G", round which the dial rotates through a small angle.

Admittedly in these days of radio time signals and cheap watches my device is only



Figures 1 and 2. An improved sun-dial, plan and section. 220 a toy, but for odd reasons there is still a demand for sun-dials, and in case someone wants to make one for himself I have added some notes about the design and construction. In the sure hope that readers will be as well acquainted with the vagaries of Time as were the YOs I instructed in the early thirties I have felt it unnecessary to include any theoretical details, but as the unique features of the dial are the Calendar and Correction Curves, a word here on their function may help to make clear their construction and use.

The Calendar and Correction Curves are merely a conveniently available and graphical way of showing the value of the Correction to be made to the ordinary sun-dial readings at any day of the year. In other words, by setting the pointer "E" to the appropriate place on the Calendar, this has the effect of placing the hour dial in such a position in relation to the fixed gnomon, that the dial reads correct GMT.

DESIGN AND CONSTRUCTION

(a) The angle between the front edge of the gnomon and the plane of the dial is equal to the latitude of the location.

(b) From the Nautical Almanac or Whitaker, tabulate the E of T for every first, tenth and twentieth day of each month. Call this Table A.

(c) Calculate the difference in time due to differences in longitude between Greenwich and the position of the dial (L minutes). With due regard to sign, add L to each entry in the Table A to give Table B.

(d) If a = angular distance on the ecliptic of time t

 $a^{1} =$ angular distance on dial for time t measured from the meridian

E =latitude of the dial site

Then $\tan a^1 = \sin E \tan a$

(c) Using this formula, calculate the position in all quadrants of the dial for hour, half-hour, quarter-hour graduations from say 5 am to 8 pm.

(f) The following operations are best carried out on the drawing board separately, and the desired results transferred in due course to the base plate of the dial. No doubt there are other ways of arriving at the same result. Figure 3 illustrates the procedure

(1) On the drawing board draw a line OC to represent the dial meridian line. The length of this line is 4R where R is the radius of the dial. (This arbitrary length has been chosen merely for more accurate subsequent plotting.)

(2) On this line OC mark off the distance OA = R, followed by the distance AB = the length of the meridian line on the dial. (As a matter of constructional convenience and design appearance, this length should equal the radius (R) of the hour dial.)

(3) Divide the length AB into the twelve one monthly intervals and label them J, F, M,D, with (for convenience) D nearest the hour dial. Further subdivide the monthly intervals to show every tenth and twentieth day.

(4) At C erect two short ordinates CE and CF.

(5) Referring to the formula for finding the spacing of the hour graduations, from the data previously derived, select the angular distance on the dial for the time interval between 6 and 6.30; call this p.

(6) From a table of Functions of the Angles, convert the angular distance p to an arc distance at radius 4R

(7) Step off this distance on the two short ordinates CE and CF. Divide these distances into thirty equal intervals of time at 6 pm. (Again with due regard to sign).

(8) By means of a straight-edge, transfer all the time intervals in Table B from their distances measured on CE or CF to their correct position in the calendar. Figure 3 shows the example as at 20 April.

(9) Join these points up to give the correction curve for 6 pm.

(10) Repeat all the above procedure for the twelve noon period to obtain the correction curve for 12 noon, ie, for the time interval 11.30-12 noon.

(11) Finally transfer the curves and calendar from the drawing board to the base plate. I make no suggestion as to how the various data will be recorded permanently on the base plate of the dial.

(12) Since the distance between the two correction curves is always six hours it



Figure 3. Construction of Calendar and Correction Curves

is an easy matter to estimate the exact setting of the pointer for any hour of the day, and since the curves are smooth there is no difficulty in interpolating the correct day position on the calendar.

(g) There are one or two points to notice regarding the actual construction, For the material I have found the following suitable:-

Base plate, stainless steel.

Hour dial, brass

Pivot, bronze.

Gnomon, stainless steel.

(h) In general the gnomon width can be anything reasonable, bearing in mind that the hour graduation on the dial must radiate from the shadow edge of the gnomon. In practice there is a slight complication near the noon area of the dial and I suggest a gnomon of width of no more than 1.5 millimetres. The foot of the front edge of the gnomon should originate on the plane of the dial at the exact centre of rotation of the dial. The diameter of the pivot should be enough to give a good foundation for the gnomon.

(i) The pointer edge should be bevelled off for easy reading of the curves.

(j) In assembling the various parts there must be exact alignment of the twelve noon line, the gnomon, and the meridian line on the base plate.

(k) To set up the dial originally, and in the absence of an exact azimuth, all that is required is a watch set to Greenwich time. For convenience choose the instant of 12 noon Greenwich. Having set the pointer to the day of the year and the approximate time of day and keeping this fixed, rotate the base plate till the dial reads 12 noon at 12 noon. It is essential that the dial be level in all directions.

Readers will no doubt spot the approximations that have been made, but they do not invalidate the final accuracy and object which is to read GMT *direct* to the nearest minute.

A Bridge Too Much?

LIEUTENANT R J GRIFFITHS RE

THE Author commanded 1 Tp 3 Fd Sqn RE in Belize from August 1977 to February 1978. His Tp was based in Airport Camp, the main base in Belize, as the operational troop supporting the Force.

"A request has been made by Mr Hugh Clifford, Agricultural Advisor to the Belize Government, for the Army to explore an economic alternative to a proposed ferry across the Belize River, north of Belmopan.

"The ferry is to serve the area on the north side of the river which has been carmarked for agricultural development under the Belize River Valley Scheme and, additionally, will provide one of the last links in the proposed routeway between Belmopan and Orange Walk. Mr Clifford believes that the ferry, while being of low cost, is inadequate and wants to see a bridge there for roughly the same cost. He believes this to be quite possible employing second-hand or surplus Bailey equipment which may be purchased from the British Government.

"Go out, find a suitable site and submit to Mr Cliffords' department a design for a bridge based on the Bailey equipment."

Thus spoke my OC and I left his office that morning full of apprehension. I mourned the fact that most of my precious YO notes were sitting back on my desk at Tidworth ("The fools guide to Bridge Design"). Also I had a number of jobs going at that time which warranted much attention. Principally, they were the MT Car Park and the Braithwaite Tower; of small significance to the reader perhaps, but anyone who has built anything in the vicinity of a major headquarters will shudder with me at

A BRIDGE TOO MUCH?

the thought of the "expert" interest it will attract. This was especially the case with the latter project which unfortunately broke the skyline! Transport was another problem. It was near fifty miles to the area in question from my troop base at Airport Camp and it would take some time to complete the



A Bridge Too Much

reconnaissance. Vehicles suffered greatly from the climate and poor road conditions. Riding along an average Belize highway was much akin to a Cresta Run descent in a 40-gallon drum.

Eventually, however, I managed to get out there to meet Mr Clifford and gain further details on the task itself and the proposed development. He talked at great length of a scheme that would turn many thousands of acres of jungle into lush "beef" pastures and of the delays that had occurred in executing the plans. The development would begin with the construction of access which meant that a crossing of the Belize River would have to be made and he was very much against the proposal of a ferry. It was likely to be out of action during the frequent floods and above all he felt that the proposal lacked sufficient commitment to a project that would require considerable foreign interest and investment.

The alternative, of course, was to be my bridge but he emphasised from the beginning that it had to be within the price of the ferry. This was in the region of $\pounds 100,000$. Unless I achieved this he stood little chance of persuading anyone to adopt this mode of crossing.

Having accepted these limitations, and feeling something like a conspirator, I set about a plan. The area in which the bridge had to be built was defined by virtue of the fact that it had to serve the alignment of the proposed Northern Highway between the new capital, Belmopan, and the town of Orange Walk. Lengthy detours would be costly and unattractive. The bridge also had to serve the already planned communication complex in the development itself.

I was left with a tract of river some ten miles long. This I studied on foot, by boat and from the air. The river at that time was a lazy, turgid brown waterway meandering through thick secondary jungle. The absence of those fine giant hardwoods, custodians of the forest floor, had left a dirty chaotic mess of undergrowth struggling for a place in the sunlight. There were many small knolls and ridges of fragmented limestone, which lifted the floor clear of sodden swamplands betrayed, as one flew overhead, by the flashes of sunlight from the surface through the mantle of tree tops.

The Western Highway, running from Belize City on the coast via Belmopan, through to Flores in Guatemala roughly followed the course of the river on the south side. In places it came as close as the river bank itself and then could be as much as five miles distant. There were a number of secondary routes from the main road to the river bank built originally to carry hardcore from small quarries to the Capital. They had long fallen into disuse.

From various local sources and data previously gathered by the authors of the Belize River Valley Report I established the flood levels to which the river was capable of rising. Under normal dry season conditions its width was approximately 200 feet but a rise in level of forty feet (literally overnight) and a corresponding increase in width to twice the normal was not unusual. I was therefore dealing with a gap of 400 feet plus and planning to span the river at least fifty feet above its normal dry season level. Piers would obviously be required so I concentrated on locating a site that offered at least one suitable foundation for the construction of a pier at mid-span.

After two days searching, at the end of a disused track, I found just such a site. This one above all offered all the advantages of the area. It was within a mile of the highway and accessible via an old quarry road in reasonable condition. It was on the bend of a river where the deposits on the inside curve had formed dry access to the very centre of the gap—a feasible platform from which piles could be sunk and a major pier constructed. On the outer edge of the curve was a solid rockface some sixty feet in height. Here then was where the river had cut through a relative "hard" area and bedrock could not be far below its surface. The road descended to the inside of the curve from a height of fifty feet above the water level down a gradual, quite trafficable slope. Some 200 yards back along it was a disused quarry. The gap overall appeared to be some 500 feet at a height of fifty feet above water level. The actual width of the river was some 120 feet.

The site was also very close to the original alignment of the proposed Northern Highway and indeed was based on the same geological formation that would lift the road above the swampy uncertain lowlands. It was also within 1000 yards of the proposed ferry site and would thus easily link up with the main arterial road for the development area.

I was convinced that this was the site and returned some days later prepared to complete a detailed profile of the gap. This was by no means an easy task. A line-of-sight had to be painstakingly cut through the thick jungle and in the course of events we were frequently surprised by some of the most unpleasant fauna typical of that area. Reptiles abounded as well as spiders and particularly vindictive insects. Word soon travelled round that the "Army was up to something down by the river" and we attracted considerable local interest which varied from that shown by a curious persistent spider monkey to one or two Government officials. The latter appeared to be enthusiastic about the idea and I was at great pains to "sell" them the project actually on site with much arm waving, pointing to the sky and graphic descriptions. The spider monkey, incidentally, mooched off.

The profile revealed that the gap was indeed about 500 feet and the next stage was to design a bridge to span it. Concurrently I had signalled Engineer Support Group (ESG) at Woolwich for a quote on Extra-Widened Bailey Bridge (EWBB) in Triple/Single (TS) configuration and had a reply to the effect that such surplus stock would cost about £14,300 per 100 foot of span. This figure did not of course include shipment. Additional costs to be borne were the improvement of access and the construction of embankments, short side spans and piers. In consultation with the Belize Public Works Department over local costs of labour and materials, it was decided that the design should include some 210 feet of TS EWBB with a concrete pier of some 50 feet height based on concrete piles at mid-span. The remainder of the gap was to be crossed by standard concrete spans of some thirty feet length on concrete piers. At either end the gap was to be narrowed somewhat by embankments.

If the reader at this point should be perturbed by the apparent lack of technical data on the bridge, I should perhaps explain that the senior civilian engineers, both of whom were British, became increasingly interested in the project and adopted the idea of a Bailey Bridge but saw it only as a temporary measure and intended to design sidespans to fit a future, larger, more permanent fixture. The detailed design of that aspect I therefore handed over to them.

In the interest of cutting costs still further, I did go as far as to submit a design for simply supported timber sidespans on concrete piers and, these were duly recorded.

We found, incredibly, that a bridge of such length could actually be designed within the limits of the £100,000 figure and for a little more, a fixture could be built that could be more permanent and lasting,

Sadly I have had to leave Belize before the end of the story. Hugh Clifford is still stamping up and down the "corridors of power" berating officialdom and bureaucracy but at least he carries a feasible plan and enthusiastic support from the technical people in the Public Works Department. I called the site "Bob's Bend", rather unwisely in retrospect for I can just imagine in years to come telling some young officer about the bend named after me and him thinking "Who's he trying to kid". On the other hand your average Mayan Indian has a lot of trouble with "Griffiths".

As a troop commander whose sum engineering experience amounts to a YO Course and a few minor tasks in Belize itself. I felt at the end of my part in the story that a lot of what engineering itself is about is commonsense and an essential "feel" for what one is trying to achieve. If, at this point, my highly qualified readers are shaking their heads in a superior knowing fashion then trouble yourselves no more, for I am back to minefields on Salisbury Plain!

The Battle of Messines Ridge-7 June 1917 A View from the British Ranks

R H HAIGH, MA B Sc (Econ) and P W TURNER, B Sc (Econ)

For this second Occasional Paper from the Department of Political Studies, Sheffield City Polytechnic we are again indebted to Mr Haigh. Head of Department of Political Studies, to Mr Turner, Senior Lecturer, College of St Marks and St Johns, Plymouth and to Sheffield City Polytechnic.

As is customary with these Occasional Papers copies of all comments, criticisms and contributions on the subject will be forwarded to the authors who will be given the opportunity to reply if they so wish.

Editor's Note: All Military Engineers know of Messines Ridge but basically they know of it from the Sapper point of view. Volume V of *The History of the Corps of Royal Engineers* in describing the event states:

"The Messines Ridge offensive was launched on 7 June 1917, to the accompaniment of the discharge of mines containing nearly a million pounds of high explosive on a front of ten miles. This is the greatest, and at the same time, most successful mining operation ever carried out in warfare."

"The battle of Messines affords the sole instance in modern warfare of the explosion of heavy mines playing an outstanding part in the prosecution of an assault on a strongly defended position over a wide front."

This paper presents the offensive from a different point of view, that of an infantry soldier stretcher bearer in the 7th London Regiment.

INTRODUCTION

THE extracts which form the major component of the following paper are taken from the war diary of Frank Dunham¹ which is a journal in the direct tradition of those of Rifleman Harris, Private Wheeler and Sergeant Pearman, being a simple yet vivid day by day account of warfare as seen by the "other ranks".

Its importance lies in the fact that it attempts to correct the accumulative image created by so many essentially upper middle-class accounts of the Great War in which the ordinary soldier is seen as a victim helplessly caught up in a situation which he neither chose nor could control. This image does have an inner reality, but like so many half-truths it has been so generally accepted that the more complex reality has been obscured. Frank Dunham's journal implicitly rejects this rather condescending view of the ordinary. His was a generation of whom the majority volunteered for active service, motivated partly by a desire for adventure, partly by a host of other many and varied reasons, but beneath this lay a Victorian sense of duty and an unsophisticated patriotism.

They were not heroes; they were often afraid; sometimes they ran away and they made no bones about seeking a "posh" job should it come their way. Sir John Falstaff probably best reflected their mood when he said before battle: "I would it were bed-time Hal, and all well", but they stayed and did not disgrace themselves in the actions that followed.

By the time of the Battle of Messines Ridge on 7 June 1917 Frank Dunham had been in the British Army for some fourteen months, having enlisted on 10 April 1916. Gone was the innocence of the "New Armies", shattered irrevocably by the horrors of the Battle of the Somme in 1916. In its place was a new realism on the part of the "rankers" that the war could well be a long one and the pattern of attrition was firmly established.

In looking at the Battle of Messines Ridge, we have not attempted to redress the views posited by Mr Dunham because we are presenting an individual ranker's view of the battle, "warts and all". We would accept the summation of Captain Sir Basil

Liddell Hart in his seminal study of World War One when he described this particular battle in the following terms:-

"On June 7th, 1917, took place a battle which on the morrow was hailed as a brilliant military achievement, and which today, unlike so many historically tarnished 'masterpieces' of 1914–1918, stands out in even higher relief. For we appreciate now that the capture of Messines Ridge by General Plumer's Second Army was almost the only true siege-warfare attack made throughout a siege war. It was also one of the few attacks until late in 1918 in which the methods employed by the command completely fitted the facts of the situation."²

This then, was the battle in which Frank Dunham, a Stretcher Bearer, received his first real baptism of fire.

16 May 1917

THE BUILD-UP

Our whole Battalion was billeted in and around the village of Zudausques, in any farm buildings available. For once in a while, we SBs³ were not together as a section, but each four were billeted near their respective companies. We in "A" Company had a small stable to ourselves, and after a short time managed to make it look presentable, while we got armfuls of clean straw from a stack close by for sleeping purposes.

Every morning all billets were examined by the Orderly Officer, and if they were not clean and tidy, then the occupants were "for it". We SBs had a fine lazy time here; we did no parades with the Company men for several days and spent many hours reading, writing and sleeping in a meadow next to our billet. It was indeed a pleasant change to get into a civilian occupied district again, where favours were easily obtained and at night one could rest in peace knowing that the shell area was miles away.

We had several games of football here, I playing for the HQ team and all the officers were doing their best to encourage sport. In many relays, the Battalion managed to get baths at the village brewery by borrowing several tubs and using hot water from the boilers. The weather proved very kind, and really, putting forthcoming events out of one's mind, it was an ideal holiday. Half-day and evening passes were issued for St Omer, a good-sized town about four miles away, and it was quite a change to see some life and indulge in the luxury of an egg and chip feed. I visited St Omer on three occasions, on the first visit having my photo taken, which turned out quite well.

We soon came to know more of the big stunt that we were in for and for some days the Company men practised an attack over ploughed fields, the supposed German trenches being marked out with tapes, which turned out to be an exact replica. The last few times we had to accompany our companies, just to get the hang of things, and it actually proved interesting work.

We learned that our Battalion was to attack from the front, which we had recently been holding and that our Company was to capture the furthest objective, namely the White Chateau—a big stronghold. This was also marked out with tapes, as was the supposed canal on our left, and we got these positions so firmly in our minds that we knew what landmarks to expect during the actual attack. 26th May 1917

The Aid Post was situated in an empty house and acting on the RMO, Dr Hodkinson's suggestion that he would like to give the section a feed, we cleaned out one of the bedrooms, installed some borrowed trestles, tables and forms and the event came off on the evening of 26 May. We did not forget to pass a vote of thanks to our MO, whom we had learned to admire and respect. 29 May 1917

On the day previous to our moving forward again, the CO, Lieut Colonel C J S Green, arranged for a photographer from St Omer to visit us, to take various company and section groups. It was realized that some of us present would certainly

"go west" very shortly, and all thought that it would be nice to have a photograph of one's many army friends. The Stretcher Bearer and Sanitary Sections⁴ had a joint photograph taken with the MO. Of the thirty-one fellows on our group, only six (myself included) came through the war unscathed, eight being killed, eight prisoners of war and the remainder wounded, two of whom lost a leg. Working on the law of averages I was extremely fortunate.⁵

30 May 1917

All good things come to an end and we bade farewell to our peaceful billets and were on the move at 7am marching towards St Omer. All were in good spirits and were naturally in the pink of condition after our rest and really the Battalion looked every bit ready for the fray.

En route we came upon General Plumer, who was in charge of the forthcoming Messines Ridge attack, standing just off the roadside to take our salute, and a few days later our CO read out to us a message he had received from the General, complimenting us on our good bearing. Probably every battalion received the selfsame message; nevertheless, these little "pats on the back" were good tonics for the "Tommy".⁶

At St Omer we entrained into our usual first-class compartments, ie cattle trucks, but fortunately the train made a fairly quick run through to Poperinghe, where we alighted and marched into some meadows just outside the town. Everywhere in this area seemed to be alive with troops, transport, guns etc, and it was indeed a change of scenery for us. We sat on our packs, resting on the grass, wondering what was to become of us, when up came our transport wagons and unloaded many bell tents, which were soon issued out and in a very short space of time a camp had sprung up. The weather held very fine and thus we spent a comfortable four days under canvas.

We still had no idea of the day on which we were going to attack, but the final preparations went on apace. To prevent disorganization during the attack, all troops were served out with distinguishing marks; our division adopted the card sign, diamond, heart, club and spade, one of these signs for each battalion in a brigade, thus on each sleeve we had sewn a yellow diamond. The MO was left to make his own arrangements for the care of the wounded and decided that two SBs should go "over the top" with their respective companies and the remaining SBs with the sanitary men should be formed into squads of four and work from the Aid Post clearing the battlefield. "Toby" Martin and myself were selected to go over with our Company (A) and from what the old SBs had told me, this was supposed to be the most dangerous job and really all of us hoped we should not be picked out for this. However, now that I knew what was before me, the only thing to do was to put on a brave front.

Toby and I received orders that we were to follow just to the rear of our Company and bandage up any wounded that we came across, making them comfortable, after which they would later be carried to the Aid Post by the detailed squads. Usually, we had one bag of dressings between two of us, but on this occasion we had one each, and even these did not prove sufficient, for when the attack occurred we had both run out of dressings before the first day of the attack was over.

2 June 1917

During a Battalion parade Colonel Green spoke to us regarding the attack and said how he hoped we should uphold the traditions of the regiment; in my small circle, all the chaps appeared keen to do their level best, although no one seemed to have that "dare-devil VC" spirit. The next day we moved forward to Dickebusch, actually riding in GS wagons, a little bit of "sugar" before the storm. Here we were distributed amongst the various cellars that every dwelling possessed, and ordered to put our greatcoats and belongings into our packs, which in turn had to be dumped in the main street, to be collected and stored by our transport. The only equipment that we SBs now carried was a waterbottle, haversack containing washing and shaving kit and our bag of dressings.

Directly it was dusk, the roads became alive with continuous streams of transport

limbers, wagons, pack mules carrying ammunition, whilst all the time our guns were hard at it, in fact, I had never heard anything like it and it gave us great confidence to think that we were superior in artillery and ammunition.

5 June 1917

After two nights' rest in these cellars, we bid adicu to our friends in the transport section and by evening we were on the move towards the line. It was very slow work because of the traffic on the road and tracks. It reflected great credit on the guides that we did not have a single casualty getting into the trenches, although Fritz⁷ was shelling spasmodically all the time. Our way generally lay across country and the Battalion was centred around Spoil Bank support position. We were crowded into any tunnel or dugout that offered any semblance of shelter.

Toby and I were put with a crowd of others in a large dugout that had previously housed the Brigade Canteen, but they had cleared out all the stock to make room for troops. We were still ignorant of the day of the attack, because in discussing it with us, our officers referred to it as "Z" day. However, we felt sure that it could not be far off, judging from the many signs about us. We all spent a very uncomfortable night in this dugout, as we were lying partly on each other, the only benefit from this being warmth.

6 June 1917

We had received orders to keep under cover as much as possible, in case enemy acroplancs should spot the assembly of so many troops, which would give the game away. Although at this time we had dozens of planes up, it was always possible for a Fritz plane to dodge over our lines for a short time and then hurry back on the approach of one of ours.

In the afternoon, we learned that the attack was to take place on the following morning, and were ordered to be ready to move at 10pm—now that it was so near, all were slightly excited. After taking our positions in single file with our Company, we moved up the communication trench at 10.30pm. We were almost thunderstruck at the changes that had taken place during the four weeks that we had been away from it. New dugouts, gunpits and ammunition dumps were everywhere, all in readiness for the artillery to move their guns forward as soon as we had advanced. These had all been camouflaged, so that Fritz should not know of their existence, and in fact, many of them were made in daylight, the men working under the camouflage.

Just before reaching the front line our Company was led into a shallow trench that had recently been dug as a "jump off" trench, as the front line could not accommodate all the attacking troops. This trench was so crammed that a few of us had to shelter in some shell holes close by.

"Zero", the hour of attack, was now given out as 3.10am and we were to take our signal from a string of mines that would go up at this hour, all along the front.

THE ATTACK

7 June 1917

This period of waiting was very trying; no one seemed inclined to talk, but the officers kept passing along the top of the trench, with a cheery word here and there. Our guns were still hard at it, and Fritz's retaliation was very light, and until about 2.45am we had nothing near us at all. At this hour, a few rifle grenades dropped into the trench, and resulted in five slight casualties. Toby and I hurriedly dressed their wounds, as they were all anxious to reach the shelter of a dressing station before the fun started, and I believe those of us left behind envied them.

Just before 3 o'clock, orderlies brought up containers of hot cocoa for us, which "wetted where it went", nevertheless it was better than nothing. Following this, the officers came along with "beaucoup rum" which they served out in stiff tots to those who wished for any and thus the troops were in good vein, and ready for anything. Toby and I refused the rum, as we thought it best to remain quite sober and have all our wits about us.

Our "B" and "D" Companies were now in the front line-their duty was to



capture the German first and second lines and in readiness for this had sent out parties into "No Man's Land" cutting lanes through our barbed wire, so that it should not delay the attack—the German wire had already been smashed about by our shell fire. Naturally, from our starting positions, my "A" Company would be in rear of "B" and "D" Companies, and after they had taken their objectives, we should have to pass through them, and continue to progress until we had captured the White Chateau.

About five minutes before "zero" hour it suddenly became almost quiet, and we imagined our artillery gunners adjusting the sights on their guns; getting them ranged on to the exact pre-arranged spots. Toby and I were just shaking hands, and wishing each other good luck, when we heard a mighty rumble and roar, and to our left and right we could see flames and smoke shooting into the air. They were weird sights, and I was glad to think that I was not in the midst of them, like many Jerries must have been.

These explosions we saw were the mines at Hill 60 and Railway Cutting on our left, and one at St Eloi on our right, and there were several others further along out of our vision. Our boys had helped in the mining of the former two, although unaware of the time when they would be utilized.⁸

When the mines exploded, simultaneously our guns opened up, and I had never heard such an infernal row in my life—the air unceasingly reverberated with our gun reports, and it was impossible to hear one another speak. All these impressions entered the mind in a flash, for hardly before I realized what I was doing. I found myself elimbing out of our trench, across the top a little way, jumping over our old front line trench into what was "No Man's Land".

It was still pitch black, and all I could see now were shell bursts in the distance and numerous German Very light SOS signals going up. Before I had gone ten yards I found myself separated from Toby, but as it was essential that we should be together, I quickly found him close by cursing some wire that had tripped him up, and we went on hand in hand, rather like school-children in the midst of battle, until it became lighter.

Now that the attack was in full swing, I felt proud to think that I was in it and confidence was easily gained, for I had not seen a single enemy shell or heard any rifle fire so far. This, my first trip into "No Man's Land", made me think how fortunate I had been never to have been on patrol along it, during trench warfare. It was one mass of shell holes, the lip of each forming part of the lip of the next one and it was jolly hard work walking across them. A few of the shell holes had water in them, but for the most part all appeared to be churned-up dust and the place was an absolute wilderness.

All our troops walked casually towards their objectives in this attack, as they followed a creeping barrage of shells put down by our gunners, which moved forward at intervals. It would have been impossible for the infantry to run because of the nature of the ground, and also they all had extra loads, some carrying spare ammunition, others shovels etc. I saw several of them fall over, and thought at first they had been hit, but soon they were on their feet again. What had happened was that they had tripped over some barbed wire. As we neared Jerry's front line there were bits of wire all over the place; our guns had done their work well blowing his line of wire to bits, and frequently I had to release a strand that had hooked onto my trousers or puttees.

Just here I saw some Jerry prisoners in the charge of some "D" Company lads close by a concrete dugout. I discovered that Toby and I were now on the position of Fritz's front line, but we could see no signs of a trench, it having been flattened by our guns. All the small dugouts were bashed in and even some of the large concrete ones were badly damaged. These "D" Company lads told us that Jerry had not fired a shot at them, but were all sheltering in their concrete dugouts from our shell fire, and immediately our boys reached them, came out with their hands up. These prisoners looked very scared and fatigued, and we learned afterwards that owing to our heavy shelling, they had received very few rations and had served longer than usual in the front line as relief troops could not reach them.

Toby and I continued on and now noticed some light shells bursting close by; these were fired from a German whizz-bang gun at short range; the noise of their arrival was rather unnerving but they did little damage. We came across a few chaps slightly wounded, but all had either dressed their wounds themselves with their field dressings, or had been bandaged by the "B" and "D" Company SBs in front of us. A few more prisoners put in an appearance wending their way back to our lines—no one was in charge of them, but they seemed glad to get away from the shelling and kept going. One of our chaps had wisely suggested that to stop the need for escorts to prisoners, all the prisoners' brace buttons on their trousers should be removed and they would then need both their hands to keep their trousers up and consequently would be harmless.

Another line of khaki figures put in an appearance digging away, and we found out that they were endeavouring to clear out what had previously been Jerry's second line, but was now practically level. The capture of this trench had proved almost as simple as that of the front line and so far we had seen few casualties.

I could see now our Company's objective, the White Chateau, ahead and it appeared to be a most formidable fortress. Formerly it had been three storeys high, built of stone with steel girder supports, but continual shelling had reduced it to one large heap of broken masonry resting on the cellars, which Fritz had supported inside. We had previously been told that it garrisoned a company of infantry troops, so I rather expected our lads would have a warm reception before they captured the place.

Hostile shelling now became more severe, and large "coal boxes" dropped with unpleasant regularity all around us—I suddenly felt a sharp little sting on one of my fingers and looking saw that it was bleeding. Wiping the blood away I discovered that a small piece of shrapnel had made the cut, fortunately nothing to worry about. Just in front of us, we saw some of our Company in a large shell hole and on reaching them learned that they were waiting for more of their pals to join them, so that they could attack the Chateau. Apparently many of our Company lost their direction when going over in the dark, and went too much to their left, thus coming on to the canal bank, and from there had to get back to their correct position. These factors made our Company late in attacking their objective.⁹

Shells were flying all over the place. Toby and I were kept very busy and as no one was under cover, the casualty list began to grow. Those chaps who could get along after we had bandaged them up did so, for it was no joke to lie out in the open under the heavy fire. I felt sorry for those severely wounded, as we could only make them easy in a shell hole, and leave them until the stretcher squads reached them; in the meantime, perhaps another shell might do them further harm. One poor chap had a smashed leg, and to dress his wounds satisfactorily we really needed a splint, but as were not carrying these, we had to look round for a substitute and eventually found a a piece of wood in an old trench, which served its purpose well. I then came on to our Company Officer, Captain "Nellic" Wallis, lying in a shell hole with a shrapnel we were not carrying these, we had to look round for a substitute and eventually found dressing, and I soon made a proper job of it. Of course, the stretcher squads were very busy all the time, but naturally they cleared the cases which they first came to and those who had advanced the furthest were thus the last to be evacuated. I suggested to "Nellic" that it would be better for him if he struggled back to the Aid Post on his own, before the leg became stiff, because not having any bones broken. his wound was not very serious, but he said he could not possibly manage to get along by himself, thus we left him. Looking back shortly afterwards, I noticed several shells dropping close by where he lay and wondered how he was getting on. After the stunt, I learned that he eventually walked back as the shelling became hotter.

While Toby and I had been attending these wounded, our Company had made an unsuccessful attempt to capture the Chateau. Apparently the enemy had machineguns situated just behind the ruins and these opened fire immediately the troops attempted to close in on the Chateau, resulting in a few more wounded, and unfortunately Corporal Short was killed by a bullet through the stomach.

Just at this time the 6th London troops appeared on the scene. According to schedule, we should have had the Chateau in our hands by this time and cleared all dugouts in the area, so that the 6th London could pass through us and in turn capture Jerry's third trench system about 400 yards further on. Leading one of the platoons was Captain "Gussy" Collins, who had been my Company Officer with the 25th Londons in England. He was renowned for his monocle, which he was still wearing, as he strolled along with a light cane, as though doing training in England. As Captain "Gussy" came level with our Company, he shouted, "Haven't you captured this bally place yet?" meaning the Chateau, and receiving the negative reply, he halted his platoon and went forward, accompanied only by his platoon Sergeant, to see exactly how things were.

It seems strange that these two walked straight towards the Chateau and reached the front of the ruins without having a shot fired at them, but after its capture we found that Fritz had no entrances facing us and consequently could only defend it from the rear, by having machine-guns in the open and firing round the two extremities of the Chateau and thus our troops positioned in front were not under fire. It was fascinating to watch this pair as they commenced to climb up the ruins, wondering what the end of it all would be. No sconer did they show their heads over the top, when over came some stick hand grenades from Fritz, each making a resounding explosion amidst the broken masonry. Both the Captain and his Sergeant fell back down the ruins, apparently either killed or severely wounded; but no, they scrambled to their feet and rejoined their platoon close by us none the worse for their experience.

One of our aeroplanes, flying very low, now appeared overhead and by means of several "toot toots" on a hooter, the observer signalled to us that he wanted to know

our present position. Practically every rifleman had been issued with a flare for this purpose and on lighting these they showed a rough line of our position. Almost at once, our artillery reopened fire on the Chateau; the aeroplane observer had signalled to them, of course, and many direct hits were obtained; meanwhile, Lieutenant Preston, one of our platoon officers, was gathering together all the "A" Company troops he could collect, in readiness for another rush on the Chateau immediately our shelling on it ceased. Just as these were assembled, a tank put in an appearance slightly to the right of us and kept going until it was in position to fire its guns at the rear of the Chateau, presumably at the German machine-gunners there, for on going forward again, our lads were able to surround the Chateau very quickly and after the exchange of a few bombs with some Jerries in the rear entrances, Jerry put his hands up and the place was ours. This tank soon afterwards was hit by a shell, and rendered useless; the crew, being uninjured, got out and walked back to their commander.

The first task of our boys was to empty the Chateau of its occupants and there appeared to be a never-ending stream of them as they filed out singly—all told we got seventy-five prisoners from this place, including six who were severely wounded and were resting on stretchers inside. All the former were marched back under escort and seemed glad to be getting out of it—we learned from them that they had received a gruelling time from our shell fire of the past few days and had been obliged to keep in the Chateau for safety.

After clearing the Chateau, our boys had orders to dig a trench about fifty yards beyond it and take shelter there; meanwhile the 6th Londons were advancing further on. By this time (I lost all count of time, but should think it about 7.30am) the sun was shining strongly and the churned-up earth seemed to be getting very hot; all our Company boys digging looked very warm. For the time being, we seemed to be out of the battle, as there was no shell fire near us and things seemed strangely quiet.

Away ahead we could hear signs of battle, and wondered how the 6th Londons were getting on—a little later came a message from them to say that they had gained all their objectives, and were preparing to receive the expected enemy counterattack. I might add that the scarcity of enemy shell fire in the early part of the day is explained by the fact that most of their gun positions were known to our artillery observers and were knocked out at the commencement of the attack, whilst the enemy, noting our quick advance, removed the undamaged guns further back to prevent their capture.

Toby and I having made sure that all the wounded in our vicinity had been dressed, turned back to the Chateau, being most anxious to have a look inside. All along the rear were dead Germans, presumably those who had held up our Company for some time, while close by stood two of their heavy machine-guns apparently intact; it was really not a very pleasant sight. We found that there were only two entrances to these cellars, both near each other at one end and these were so small that we had to crouch to get inside, but once inside, we had to descend several stone steps and found ourselves in a large room about sixteen feet high. The ceiling was of concrete, and supported by several large wooden beams in the centre and of course, the foundations well supported the sides, so with this amount of stuff on the top outside, we could now understand how its garrison were safe from shell fire. Fritz had certainly made the place comfortable, for half the room contained wooden beds and there were also about six small rooms leading off, even more comfortably furnished, presumably officers' rooms. Toby and I had a good look round everywhere and besides the wounded Germans, previously mentioned, there were two who had died from their wounds. It was interesting to see German cooking utensils etc, and also their food, black bread and sausage, lying about and here were sufficient souvenirs to satisfy a battalion of troops. I took a Jerry soft hat and drinking cup and put them in my haversack; I would not take anything weighty, such as a revolver or dagger, for I knew that I should always have to carry them about with me until I went on leave and this did not appear likely for months yet.

Lieutenant RN Eve, the now senior officer in our Company, had already estab-

lished "A" Company HQ here, so Toby and I decided that it woud be a good place for us, as it was quite close to our boys in the trench in case of any casualties. We just ran out to tell the boys where to find us if necessary and then returned and refreshed ourselves with some chocolate and water—the former I had bought some days previous and kept by me. Our people were soon busy clearing the Chateau up inside and signallers were at work fixing telephone wires and from these we learnt that all Battalion HQ were shortly moving forward to this place, so we looked like being crowded—Toby and I both had visions of being told to clear out and go with our Company and the prospect of a night in an open trench was not very pleasant; fortunately for us this did not materialize.

It was about 9.30am when my pal, Digby Planck, walked into the Chateau with a wound in the side of his head—he was a rifleman in my Company and had been digging in the trench when Fritz commenced to shell them with a whizz-bang gun and he had caught a piece of shrapnel. It proved to be nothing very serious and after I had dressed it for him he went back to the Aid Post on his own, glad to be getting out of it.

Toby and I now went outside again and went amongst the wounded who were still lying about, doing anything that we could for them-there were still no signs of our stretcher squads and apparently they were still busy with the earlier casualties. Enemy shelling in our area was gradually increasing and it seemed rough luck on these poor chaps to have to remain in it. However, they were sticking it without a murmur. I suggested to Toby that if only we could find something to carry them on, we could get some of them into the Chateau under cover-we had no stretcher with us, as our job had been to dress the cases. Eventually we thought of a door from inside the Chateau, and, forcing one down, we took this outside and persuaded two officers' servants to come with us for we could not have carried it loaded by ourselves. It was not long before we had the first case under shelter. It was very tiring work, for the door proved an awkward improvised stretcher, tilting violently as we lurched over the cratered ground and the poor chaps had a job to keep on it. It was, no doubt, an uncomfortable journey for them, but they stuck it well and did not complain as they knew that we were doing the best we could for them under the circumstances. I think we had three cases inside when our squads put in an appearance and they carried on the good work with their stretchers.

Battalion HQ and the Aid Post had now fixed up here and the place was packed-RAMC Orderlies were constantly coming and going carrying the stretcher cases back to the motor ambulances. The atmosphere seemed full of bustle and excitement.

Early in the afternoon Fritz launched a counter-attack against the 6th Londons ahead, at the same time shelling all round heavily—we then learned what a box barrage¹⁰ was, for "runners" said that they could not get out of the Chateau, and this proved to be true. Fritz was shelling all round us in a square and it was impossible to get through this line of shells. It was a trying time, while all this was on; we could hear the shell bursts and wondered how our Company lads were fairing in the open trench close by, as we knew that they had no dugouts to shelter in. It was also before our minds too that should Fritz drive the 6th Londons out of their captured trenches, our Battalion would have to move forward and assist to recapture them, but the 6th Londons did very well and kept Fritz off, inflicting many casualties. Of course, our guns were of great help in these counterattacks, and on the SOS signal going up from our front line, would open fire immediately and sometimes disperse the enemy before they reached our trenches. When the shelling was easier, Toby and I went outside, and found further casualties had resulted in our Company. We were busy with these for some time and felt thankful that we had the Chateau to shelter in.

Towards evening, rumours started going around that Fritz had mined the Chateau, to be used in the event of it being captured. There was much speculation as to whether we should be blown "sky high" but nothing came of them. As it became dusk, I went outside again to see how things were going, and found our Company boys still busy deepening their trench, whilst working parties from the other companics were busy digging a new trench to the Chatcau, so that it could be reached with more safety during shelling. Other working parties were busy carrying up rations and ammunition and everyone seemed anxious to get their jobs finished before Fritz opened again with heavy shelling. As it was, at 8 o'clock he made another counter-attack and shelled us heavily, but did not gain any ground.

Toby and I spent a fairly comfortable night on wooden beds in the Chateau and our Company having no further casualties, we were not disturbed. 8 June 1917

The morning opened quietly but during the day Fritz gave us several heavy artillery "strafes", and Toby and I were kept fairly busy getting our wounded into the Chateau and dressing their wounds—often shells dropped uncomfortably close to us, and I, for one, had the "wind up" at times, but somehow we dodged them all.

During the evening, the disposition of all troops was changed. Our "D" and "C" Companies, who had so far had few casualtics, moved forward and relieved the 6th Londons in the new front line which was in a small wood. Our Company ("A") moved back a little way, to the old German second line trench, now named by us "Oak Reserve"; Toby and I accompanied them. Our "D" Company had been here previously and had done much good in improving the trench and making some of the German dugouts habitable again. Toby and I found a small damaged dugout that we could just get into and made ourselves as comfortable as possible. The top of this was concrete, two feet thick, but our shelling had knocked this top to one side, so that part of the dugout was left uncovered; this we covered with our ground-sheets. 9 June 1917

I had a look round at several other German dugouts and found them all to be much stouter built than ours, and most of them were lined inside with wood so that it was a simple job to keep them clean. Apart from tunnels, I had not seen one of our dugouts that would have withstood a direct shell hit, but most of these Jerry dugouts had been hit and were still standing. It has been said that the German soldier (practically secure from danger in his dugout) is a poor fighter when in the open under shell fire,¹¹ but at any rate, these well-built dugouts must have assisted to keep their casualties low in ordinary trench warfare. 10 June 1917

For three days we had been in this position and Toby and I had hardly anything to do, as our position was shelled very little, Fritz concentrating most of his efforts on the Chateau area. The Company men rested by day and did working and carrying parties by night—the Aid Post being ahead of us, Toby and I were not requested to accompany these parties. I wrote several letters during these days, saying how so far I had come through the attack safely and it speaks well for our transport to mention that from 8 June onwards we received our post and parcels nightly, as well as the daily rations.

Our "D" Company had a very rough time holding the new front line and held off two counter-attacks. Apart from the latter, Fritz continually shelled their position, and there being no communciation trench, all casualties had to wait until nightfall before they could be evacuated to the rear.

11 June 1917

AFTER THE BATTLE

The whole Battalion moved a little further back, concentrating in and around "OGI." This "OGI" (Old German I) was the old German front line and was known as such to us immediately after its capture—similarly his support line was named OGII. There were not many dugouts in this trench and most of our chaps slept in the open trench and did not take much harm, as everywhere was dry and the weather warm. Toby and I were here joined by our co-bearers, "Buffo" and Phillips, and between us we found a small dug-out which would only accommodate two, consequently each pair spent half a night in it.

12 June 1917

In the evening the Battalion was relieved and we marched out to a new home, Alberta Camp, just outside Reninghelst. On the way out, we were surprised to see new roads had been made and working parties were still busy on them enabling the transport limbers to get to our old front line before unloading. 13 June 1917

We had today entirely to ourselves. No parades etc, and hardly anyone in the camp stirred before noon, as it was the first night's unbroken rest for over a week. We SBs were as usual all together in one hut and all were eager to hear each other's experiences. Our section had been very fortunate in having only two slight casualties.

My Company's casualties proved to be nine killed and sixty nine wounded, whilst the Battalion strength was reduced by 360. 14 June 1917

We went to another camp close by, named Chippewa, for baths and clean changes of underclothes, for which I was very thankful. Our packs, containing greatcoats etc, were also returned to us and a large stack of unclaimed packs again brought home to us our casualty list.

CONCLUSION

Thus Frank Dunham ended his first serious encounter of the Great War. Perhaps in retrospect he was fortunate to have been involved with such a successful enterprise as Messines Ridge. His later experiences were to redress this rather a-typical experience of Great War battles.

REFERENCES AND NOTES

¹ Originally published as *The Long Carry*, *The War Diary of Stretcher Bearer Frank Dunham 1916–18*, edited by R H Haigh and P W Turner. Pergamon Press 1970.

² B H Liddell Hart, *History of the First World War*, Cassell & Co. 1970 Edition Page 417.

³ As Mr Dunham makes frequent references to the RAMC, sometimes citing the usual bewildering jumbles of initials that the Army uses to identify functional units, Dr R W Scott OBE late Lieut Colonel, RAMC, has written for us a brief account of the basic medical arrangements made by the Army in the Great War.

At the infantry battalion there were no RAMC except the Regimental Medical Officer (RMO). The Battalion stretcher bearers were in theory the bandsmen, given some training for the purpose. After casualties among stretcher bearers had occurred, infantrymen other than bandsmen might well have been used. They did not wear the Red Cross brassard but had one labelled "SB." They were responsible for bringing casualties from the forward position back to the RMO at the Regimental Aid Post (RAP), which was usually near Battalion headquarters.

The Battalion sanitary men would be infantrymen who had attended a brief training course. There were other more highly trained sanitary men in the RAMC in Field Hygiene Sections for areas behind the lines. The forward RAMC unit was the field ambulance—capable of setting up two advanced dressing stations (ADS) about two miles behind the lines and one main dressing station (MDS) about five miles behind the lines.

RAMC stretcher bearers from the ADS would come forward and clear casualties from the RAP to ADS. Some urgent resuscitation could take place there, but as soon as possible the casualties would be brought back to the MDS usually by horsed or motor ambulance cars belonging to the field ambulance. The MDS was cleared usually by motor ambulance cars sent forward from a motor ambulance convoy (MAC) which was under the command of Corps Headquarters. They would take the cases to a Casualty Clearing Station (CCS) perhaps twenty miles back, the first place where any real surgery could be done or where the very ill men could be kept under reasonable conditions for a day or two.

237

From there the cases went back to general hospital at Base, probably by ambulance train. When casualties were very heavy, the above arrangement was sometimes supplemented by Walking Wounded Collecting Posts (WWCP) probably set up by a field ambulance about the level of the ADS and from this men would probably be taken back by lorry.

⁴ Sanitary men. There were two for every Company in the Battalion, and they were mainly concerned with digging and emptying latrines. During static warfare in the trenches, short saps were cut into the parados, and in these were placed large metal latrine buckets, which the Sanitary men would empty nightly by lifting out the bucket on to the top and burying the contents. Shell holes were handy for this purpose with a little soil thrown on top. If shelling was heavy, they would wait until things quietened down.

This job could not be done in daylight for then the Sanitary men would have been under observation by the enemy. In camps just behind the line they would be responsible for night buckets placed outside the doorway of each hut and emptied in the morning. They would also dig deep slit holes in the camp perimeter, and when the unit moved on would have to see that the contents were well covered with soil, and everything being left tidy and clean.

Sometimes these latrines were surrounded by hessian nailed to poles, but in many instances were open to the elements, and all and sundry could be seen when performing their toilet.

When well back from the line, on rest or training and the men were billeted in barns, sheds or houses, the Sanitary men would dig latrines in a convenient spot, hedge or a meadow etc and at the last moment before they moved on they would be responsible for the complete filling in of these latrines.

The Sanitary Corporal would visit all the latrines before the men moved on, to ensure that the job had been properly completed. It was a crime to leave any place dirty and any unit that did so would soon get a bad name.

Each Company had a cooker and cooks and these always made a great deal of rubbish, (bully beef tins, milk tins, cartons etc) and the Sanitary men's job was to take all this stuff to a convenient spot and bury it.

A good unit could always be noticed by the cleanliness of its cookhouses and latrines. Thus a Sanitary man's job was not arduous, but often unpleasant—it had its compensations, for they were usually on good terms with the cooks and could generally get extra rations.

When in action the Stretcher Bearers could always call upon the Sanitary men for assistance in carrying casualties back to the Aid Post, if such assistance was needed, and they were always prepared to help with any wounded.

In every position the Battalion found itself, separate latrines had always to be prepared for the Officers, and hessian surrounds had to be carried by the transport for place to place.

⁵ This rather blasé analysis does much to counter the casual tone adopted by the author concerning his duties and in describing his day-to-day existence. He reveals the horrifying fact that in his not untypical unit the medical section sustained 80% casualties, substantially greater than the average 33% suffered by the British forces in general. It is worth noting that the most-decorated other rank of the Great War, Lance-Corporal Coltman, VC, DCM and Bar, MM and Bar, was a Stretcher Bearer, and two of the three double VCs awarded were both won by RAMC Medical Officers.

⁶ It should be noted that in a war in which both the humanity and military competence of General Officers has been subject to a great deal of criticism (both justified and unjustified), Plumer's reputation stands out as a shining example of competence and integrity. This little exercise in morale-building was symptomatic of his concern for the well-being of his men and the subsequent Messines Ridge attack was equally representative of his capacity for meticulous planning and preparation.

⁷ Fritz: Diminutive of Friedrich. German soldiers, singly or collectively.

⁸ "The key factor in the success (of the battle) was the simultaneous explosion of nineteen great mines, containing 600 tons of explosives and involving the tunnelling of 8000 yards of gallery since January, in the face of active counter-mining by the enemy . . . justification came at 3.10am on June 7th when (Hill 60) went up along with eighteen others—only one out of twenty had been blown up by the Germans." Liddell Hart op cit page 418.

⁹ The problem of maintaining communications was a perpetual nightmare for the Great War soldier. In the absence of portable ground radio equipment, field cables had to be used and nothing, from enclosing them in sheaths of armoured wire to burying them six feet deep in concrete-filled trenches, could render them invulner-able to shell fire.

In any case, hastily laid forward communications could not be protected in this way and once the wires were broken, until the repair could be made, contact had to be maintained by visual signals or more usually by runner. The former method invariably proved impractical in the conditions imposed by trench warfare and the latter was often extremely hazardous and frequently impossible.

¹⁰ Box Barrage: a concentration of heavy artillery surrounding a small area; used especially for raids.

¹¹ This sounds rather like a staff-inspired rationalization of British neglect of the art of field fortification. The German army performed remarkably well in conditions of open warfare during Ludendorff's March 1918 "Push". (See AG Macdonell's *England Their England* for a wry and amusing account of this seeming inadequacy.)

What an Old Soldier Remembers!

MAJOR A G MARSDEN

"Own Troops"—5 Corps Troops RE "Enemy"—a Casualty Clearing Station

IN a minor "engagement" in which I was involved in the spring of 1943, the enemy were in occupation of the monastery of Thibar, a few miles south of the main road running west from Tunis. In a picturesque setting at the bottom of a steep pass, Thibar was certainly no Cassino. The sanitation of the monastery, in so far as it concerns this anecdote, consisted of a row of closets connected by a common drain to a septie tank.

The opening shot of the engagement was fired one morning during the "rush hour". Eyewitnesses said that there was a flash of flame, the closets all shot open, and the occupants burst forth, suffering minor burns in embarrassing parts of their anatomy.

As the nearest Sappers, we were ordered to "Do Something About It".

We advanced the theory that the enemy had been putting disinfectants down the drains, thereby upsetting the bacterial action (bacteriolysis!), resulting in a build-up of explosive gases. Then maybe a lighted cigarette . . .!

The enemy were most indignant. Certainly they had done no such thing. What's more, they produced their Standing Orders to prove it. Among other things, these contained the gem, "*Paper*. Only the correct Army Form will be used".

We wondered whether these Orders had been drawn up before or after battle commenced, refrained from asking whom they thought they were kidding, patched up the damage, told enemy to be more careful in future, and kept our fingers crossed that the result would be satisfactory.

It was! Indeed, it exceeded our wildest expectations!! Some weeks later there was a tremendous bang, and the top of the septic tank, together with a good proportion of the contents, shot some thirty feet in the air.

But by then we had moved on, and it was now someone else's worry,

Dai Morgan's Education

BRIGADIER SIR MARK HENNIKER BT, CBE, DSO, MC, DL

Note: This tale was told to me in a pub in a village in South Wales by Lieut-Colonel J M Guyon (RE retd); but there seems to be so much truth in it that, with his permission, I have embellished it slightly and present it here as a *Cautionary Tale*.

(A South-Wales accent should be applied where appropriate).

On the last day of term the Head Master sent for Dai Morgan and addressed him as follows:

"Dai Morgan", he said. "You have been an absolutely useless schoolboy. You have played truant continually; you have never done a stroke of work; you have always been in trouble; and now you are leaving School after all these years, and you can neither read nor write nor even sign your name. You are a disgrace to the School; and all you are fit for is to be an attendant in a Public Lavatory."

The Head Master paused to let all this sink in. He then went on: "But", he said, "you happen to be in luck. Last night in the *Echo* there was an advertisement for such an appointment in the largest Public Lavatory in Cardiff. I cut it out and you had better take it along now and apply to the Health Department in the City Hall. Good-bye, and Good Luck."

Dai took the advertisement and went to City Hall where he was taken to the Supervisor in the Health Department. It so happened that the advertisement had been repeated several times without success, and filling the appointment was becoming urgent; so, after asking a few perfunctory questions, the Supervisor decided to offer Dai the job. "Mr Morgan," he said. "You are just the sort of young man I'm looking for. You may start tomorrow; but as a mere formality I must ask you to fill in this proforma and sign it." Alas! Dai Morgan could neither read nor write nor even sign his name; so he blushed to the roots of his hair, and said that he had changed his mind and didn't want the job after all. He left the City Hall in great gloom.

As he shambled homewards, wondering what his parents would say, he noticed in a derelict shop in a back street a broken, rusty pram with a wheel missing. He pulled this out through the battered door and dragged it on its three wheels along the pavement towards the Docks. Presently he came to an open pair of gates with a notice board stating that here was the Scrap-yard of "Mr Jones, Authorised Scrap Metal Merchant". There he entered. "Mr Jones," he asked. "What will you give me for this old pram?"

All scrap iron was grist to Mr Jones's mill and he offered Dai Morgan half a crown (this was some time ago) and said he'd always buy any scrap that Dai cared to bring along, so long as it was not stolen. Dai, therefore, started collecting scrap iron from here and there and sold it to Mr Jones. Soon he had amassed a whole box full of bank notes, which he kept under his bed at home, till someone told him he ought to put it in the Bank in the Docks.

Neither Dai nor his parents had ever been inside a Bank, and Dai entered the magnificent portals with some trepidation. But a kind hearted cashier asked if there was anything he could do for him and Dai said he had some money to put in the Bank. When the cashier saw the sort of money Dai had in the box he thought he'd better consult the Manager, who told Dai to come into the office. There, behind closed doors, Dai told the Manager the whole story—about his being unable to read or write and how he had earned quite a bit of money with the scrap metal, and how he now wanted to bank it for safe custody. The Bank Manager was quite accustomed to illiterate scamen and others from the Docks, and he took an interest in Dai Morgan. He showed him how to make a hieroglyph to serve as signature, and how to get the counter-cashier to fill in any cheque or pay-in slip required; and he told Dai not to be afraid of asking for advice on business affairs from someone in the Bank.

From then on, Dai worked hard and lived frugally till, with the Bank's help, he applied for and obtained a proper Licence as an Authorised Scrap Dealer. He then had a yard of his own and sold scrap iron to the Steel Works in South Wales. He would go on buying scrap iron from small-time collectors till he had a pyramid of the stuff as large as a small house and then sell to the best bidder.

One day, a few years ago, a Representative from the Krupp Steel Works in the Ruhr came to South Wales in search of scrap iron and saw Dai Morgan's pyramid of scrap. He asked Dai if he would do a deal, and Dai said "May-be; come to the Bank tomorrow and I'll see what we can do, like".

Accordingly, they met next morning in the Bank Manager's office; and, with the help of the Manager, a formal contract was signed with all the rigmarole for getting the money in sterling currency against "F O B Documents". Very large sums were involved and Dai felt he had done a fair day's business. The Krupp's Representative departed, and the Bank Manager asked Dai to remain a minute for a few formalities.

When the German had gone, the Manager closed the office door and got a bottle of Scotch and two glasses out of a cupboard and laid them on the table. "Mr Morgan", he said. "You have done a very successful piece of business there; and if you keep on like that it won't be many years before you are one of the richest men in Cardiff. But, Mr Morgan", he concluded; "just think where you *might* have been if only you could read and write and sign your name . . ."

"Don't tell me, Mr Manager," replied Dai, "I know where I should have been: an Attendant in the largest Public Lavatory in Cardiff".

CURTAIN

The School of Military Engineering in India (Roorkee) 1943–45

MAJOR (Retd) R R MESTER CEng, MIMun E, FIHE, MIQ

IN November 1951 the School of Military Engineering (SME) was renamed the College of Military Engineering (CME). It had moved to Kirkee from Roorkee during 1947–48 and with the publication in October 1968 of its Silver Jubilee Celebration brochure, there was ample record of growth and development at Poona. As the first SORE II G from 24 September 1943 until 11 July 1945 I well remember the infant SME during its earliest days and the following simplified account of the origins of a great institution is substantially based upon personal reminiscence and research, tracing the development of the training function in parallel with the organisation.

1943

Prior to the outbreak of the Second World War, no School of Military Engineering as such existed in India. With the increasing importance of that country as a base of operations, the need for such a School became more and more obvious and finally, after many vicissitudes, a School of Military Engineering in India was authorised in Roorkee with effect from 24 September 1943. From the outset the taking over of an existing technical college had been considered essential and it was felt that the Thomason College of Civil Engineering. Roorkee was the most suitable for the purpose. Through the loyal and willing co-operation of the United Provinces Government a portion of the already famous Thomason College, with its long tradition of close connection with the Corps of Royal Engineers, was placed at the disposal of the military authorities and it was around this nucleus that the School of Military Engineering in India was built, with staff and students coming under the control of the Commandant SME.

The task was not to be a light one and already in early September the Director of Engineer Personnel at GHQ had shown an anxiety to know when the first courses for

THE SCHOOL OF MILITARY ENGINEERING IN INDIA (ROORKEE) 242

Sub Divisional Officers, Military Engineer Services (SDO MES) could be started and had intimated that very strenuous efforts to get "something going" on or about 1 November 1943 should be made. At this time the final statement of case for the establishment of the SME had barely been submitted to the Standing Establishments Committee and the one officer "on the ground" to whom this request was made (Lieut Colonel G Lacey CIE IE) was still fully engaged in detailed engineer appreciation of one sort and another. Shortly joined by the Assistant Commandant and Officer i/c Training (Colonel A H G Napier OBE), and with the promulgation of a definite establishment for the SME on 24 September 1943, it became possible to implement that establishment-in terms of staff, stores and equipment-to create in the first instance a military unit able to function as a separate and self supporting entity, capable of demanding, receiving and holding its stores and impedimenta of battle, of administering both staff and students to be, and thus in short capable of accepting the programme of courses laid down and so discharging its instructional responsibilities in the shortest possible time. In actual fact a considerable amount of new accommodation was required and the execution of the project necessary to house the SME itself went on side by side with the build up of its organization and acceptances of courses.

The original object of the SME had been defined as meeting the training needs of personnel both of the Corps of Indian Engineers and of the MES but by the end of August this had been enlarged and by the beginning of September further developed, until by October, the training programme consisted of twenty-seven courses catering for engineer personnel of all categories in addition to specialized courses for All Arms. A number of establishments would be relieved of training responsibilities concentrating in future upon the facilities progressively allotted to the new SME with the Commandant also assuming control of the training, by Thomason College civilian staff, of civil engineering students for the United Provinces Public Works Department and of student UOTC training.

With an increase in officer staff, the Commandant, Brigadier C G Martin VC, CBE, DSO, who had arrived from the United Kingdom on 9 October, was able to hold a critical planning conference on 25 October outlining SME policies and indicating how best our aims were to be attained with maximum speed and efficiency, thereby securing for all future development a sound foundation. The general object of the SME was clearly and simply defined "as to help win the war by training for war all classes of students catered for", it being accepted that courses would be liable to alteration under changing conditions. Accordingly the provisional establishment provided for a small HQ, two training wings and an administrative element. HQ was located in the main Thomason College building, the two training wings being designated respectively Military and Technical with the former consisting of the Military Duties School located in Thomason College, about half a mile from Wing HQ, and the Field Engineering and Bridging School out-station at Dhanauri, the establishment of the SME at Roorkee having made it essential to acquire a site for field engineering and bridging suited to intensive training in watermanship, pontooning, wet and dry bridging, fieldworks, defences and demolitions.

A suitable locality was found at Dhanauri on the Ganges Canal at the crossing of the Ratmau Rao approximately seven miles from Roorkee. Plans were accordingly prepared by SME staff for the development of this site and the necessary land was acquired by the War Department from the United Provinces Government Irrigation Branch. It was virgin land so that it was here that the build up of the SME, with the execution of necessary accommodation works and the training of personnel which all went on side by side, was most challenging and marked. Technical Training Wing with HQ in the Thomason College Main Building consisted of the Construction School located in part new and part existing accommodation in Roorkee, the E & M School based in the existing Thomason College workshops and extending into new accommodation, and the Survey, Drawing and Clerks School based on the Thomason College in the main building. The administrative element, in addition to two officers in HQ, consisted of the SME Depot Battalion created of battalion HQ and five companies—"A", "B", "C" and "E" which were primarily military whilst "D" company was in effect the staff and students of Thomason College. Initially the battalion was located in recently constructed butted accommodation to the north of Thomason College about half a mile from SME HQ and which had been occupied until late October by the Madras Civil Pioneer Unit, but ultimately "C" Company moved to Dhanauri. The life of the SME during 1943 was thus one of intense activity witnessing a concerted effort in the build up of the School, as staff, equipment and stores continued to arrive and facilities developed. Transport posed a difficulty but on 4 November we received our first vehicle—WD No Z4569860, a Morris 15cwt air compressor truck!

By the year end one course had been completed and three were in progress. Draft IAO had been prepared for early publication in 1944 introducing the SME to the India Command and summarizing the thirty-four different types of course planned for 1944/45. The year end brought welcome Christmas and New Year cards from the Commandant and Officers of SME Ripon.

1944

Re-organization continued throughout the year with certain of the Schools of Instruction strengthened to meet increasing responsibility. The Field Engineering and Bridging School at Dhanauri in particular was pushed ahead with vigour.

Development problems were resolved in part by the use of civilian labour, by a field company detachment and by the allotment of 889 Indian Bridging Section (Bailey Bridge) 1E in order to provide personnel and equipment for maintaining, holding and erecting for training purposes the bridging equipment now being allocated on a representative basis. Subsequently 889 Ind Br Sec (a unit of the Royal Bombay Sappers and Miners) was disbanded and incorporated within the SME with effect from 21 February 1945. A mechanical equipment demonstration party provided by No 6 (Mech Eqpt) Gp IE was also located at Dhanauri where the first course started on 31 January. Meantime the E & M School had divided very necessarily into E & M School and Workshops whilst the Survey, Drawing and Clerks School had become the MES Staff School following a more logical division of subject matter taught and of the variety of personnel under instruction.

With the Assistant Commandant (Colonel Napier) compiling innumerable training schemes-Sapper, Sapper One, Sapper Two and the like, the Commandant continued to pay frequent visits to GHQ Delhi and, from the close and unceasing liaison thus effected, many difficulties were resolved with despatch and the ever increasing demands for training stores and equipment arranged. By April a revised programme of twenty-nine courses was promulgated and a first edition of the SME Pamphlet prepared and issued on a wide distribution to engineer and non-engineer formations, Dated 1 April this summarized the objects of the School and detailed all relevant information even to the much used telephone number Roorkee 37. The old programme was allowed to work out towards the end of June and after a brief interval free from courses, a new programme started with a refreshed staff on Thursday 27 July. The measure of outside assistance which other establishments had freely given to the SME in the running of its many courses had been invaluable and happily continued so in the future.

At the end of March a most important training development was foreshadowed by the pending despatch to SME of a Bailey Suspension Bridge and it was decided moreover that the first such bridge to be erected in India would be the one consigned to SME with all subsequent training carried out at Dhanauri. A site was chosen across the sandy torrent of the Ratmau Rao and a trial 400ft span successfully erected with the aid of a detachment supplied by Commandant No 4 (Engineer Battalion) Gp IE, Sialkot which remained at Dhanauri with change in personnel for further essential demonstrations.

Another milestone was to be achieved in stores training by the establishment of an Engineer Stores Depot (ESD) at Roorkee, rail served from the East Indian Railway,
combining the dual function of an ESD receiving, holding and issuing engineer stores and a training school for engineer officers and personnel.

Within the SME itself the infantry staff from Saugor now comprised the Infantry Pioneer School and formed a part of the Field Engineering and Bridging School at Dhanauri under the control of OC Military Training Wing whose HQ moved thereto from Roorkee on 26 October.

Anticipating the Second Edition of the SME Pamphlet (published by Luckdist Press) with effect from 13 November, additional courses were listed of which the Pre-Staff College Course for Engineer Officers resulted in a much closer liaison with Staff College Quetta. In all some thirty-three various types of course were included but the first Bailey Suspension Bridging Course merits note as it catered for officers and NCOs from US Armed Forces, officers, BNCOs and INCOs from Fourteenth Army. A single span of 450ft was satisfactorily completed and tested. It was in connection with this training that the School workshops produced certain parts including erection davits and trolleys for operational use in South East Asia Command (SEAC). By 15 November the first year of endeavour had seen the acceptance of ninety-five course serials with some 2341 vacancies filled inclusive of British, Indian, American, African and Chinese personnel.

The year end had seen many changes both in staff and scene with messes, quarters, hard standings, lecture rooms and vegetable gardens transforming Dhanauri. A cinema had been built and served equally in both a training and an amenities role, whilst on 9 July at 2145 hours the Commandant had given a broadcast talk from New Delhi on "The Engineers of the Army in India" in the series "Engineers at War".

1945

During the past fifteen months the SME had made a large number of alterations and additions to the Thomason College Workshops and improvements to the existing shops with the installation of much modern equipment. A pooling of resources both of equipment and instructors and the bringing of the workshops under a single control was considered advantageous and it was subsequently agreed, with certain reservation, that control of the Thomason College workshops and laboratories would be assumed by the SME with effect from 1 March. The transfer was indeed timely as the commitments of the E & M School and the Workshops were increasing still further with the training of transportation personnel in the use and maintenance of the No 4 Pumping Set, REME/IEME personnel in air conditioning, cold storage and refrigeration, subsequently expanded to provide for RIASC personnel.

The terms of reference of SME included the carrying out of experimental and research work in military engineering matters and this was not entirely rectified until May with the placing under command of the Experimental Section (KGVO Bengal Sappers and Miners) and as an SORE II X had been added to establishment, this officer was available as the Commandant's staff officer controlling the experimental work carried out by the section, the functions of which (within the SME establishment) were to organize and execute all experimental work on engineer equipment and methods initiated by E-in-C GHQ India. Previously, on 8 March, the School had said good-bye to its first Commandant, Brigadier C G Martin VC, CBE, DSO, ADC, on his departure to take up new duties as CE North Western Army. Staff members had gathered together a few days previously in the SME Officers Club Mess to pay tribute to one whose untiring efforts and vigorous leadership had indeed ensured the successful creation of the wartime school and a solid base for future growth.

Brigadier Martin was succeeded by Brigadier H Williams who came as no stranger. He was to spend VE Day in Germany with Colonel P A Clauson MBE as officiating Commandant. On the subject of the Victory in Europe Celebrations, a detachment from SME participated in the New Delhi Parades on 14 May whilst a local programme of celebrations was arranged in Roorkee and the Mathra Das Park.

We had by now welcomed many visitors but, on 4 June, the fourth Bailey Suspension Bridge course brought us the first complete unit destined for training—536 Indian Ropeways Platoon. We had also despatched a training team to Southern Army for supervising certain bridge training scheduled, whilst, with the cessation of hostilities in Europe, attention had been given to training incoming formations and units for service in Far Eastern theatres of operation

Indeed we took justifiable pride in messages of engineer appreciation received by E-in-C India from such eminent personages as Lieut General Sir Oliver Leese and Lieut General Sir William Slim.

On 3 July Colonel P A Clauson MBE left for duties elsewhere and once again the School lacked an Assistant Commandant. However the time for my reversion to home establishment was now imminent and so with future problems and proposals undisclosed, this account of the early wartime growth of the SME in India must of necessity conclude.

Silver Jubilee of the Malaysian Engineers

BRIGADIER R W DOWDALL

THE Malaysian Engineers had their Silver Jubilee this year and guests at the celebrations were Colonel RFN Anderson, a previous Chief Engineer, and myself. We were both accompanied by our wives. During the visit I delivered a message from the Chief Royal Engineer and presented, on behalf of the Officers of the Corps, a Coalport Plate bearing the Corps Cypher and mounted on a suitably inscribed stand. In return the Malaysian Engineers presented an inscribed Selangor Pewter Plate to the Corps and copies of a Jubilee Booklet which have been placed in the Corps Library.

Links with the Royal Engineers have existed from as far back as 1887 when the first Malaysians joined as submarine miners. The first unit of Malaysian Engineers was formed, however, on 22 April 1953 and titled 76th Federal Field Squadron, Federation Engineers. With a sister squadron, 75th Malayan Field Squadron RE, they were engaged in support of operations against the Communist terrorists and construction of roads in the States of Johore, Pahang, Perak and, occasionally, Kedah.

With Independence, in 1957, some 200 of the personnel of 75th Malayan Field Squadron were transferred to the new Malaysian Army to form 2 Engineer Squadron, though 75 Malayan Field Squadron continued to exist in the Royal Engineers. The 76th Federal Field Squadron was re-designated 1st Field Squadron and both were under command of the first Chief Engineer, Lieut-Colonel R A Blakeway. During this time the squadrons were employed on construction of jungle forts and in support of counter-terrorist operations, then mainly in Perak and Kedah as the Communists were slowly pushed back towards the border with Thailand. The emphasis gradually swung towards work on development projects, with the joint aims of giving access to remote areas for "hearts and minds" purposes as well as in support of military operations. Best known of these was the Kedah Roads project, some fifty-five miles of road through primary or secondary jungle, which was constructed jointly with RE and Gurkha engineer units. This was completed in 1959 after two years' work.

The first engineer units in the Territorial Army were formed in 1962 as 21st and 22nd Engineer Squadrons and plans were made for further squadrons and Specialist Teams to follow.

The birth of Malaysia in 1963 brought a change of title from Federation Engineers to Malaysian Engineers and considerable expansion followed as a result of the Indonesian Confrontation. The last unit from the Royal Engineers, 75th Malayan Field Squadron, was transferred on Malaysian Independence Day 16 September 1963 and became 3rd Engineer Squadron. Towards the end of 1963 the Training Detachment at Kluang was expanded into 10 Engineer Training Squadron,



Photo 1. Brigadier Dowdall making the presentation to Brig-General Chen Kwee Fong on behalf of the Officers of the Corps of Royal Engineers.

where it continued to work very closely with the Gurkha Engineers Training Centre and share the facilities there. In 1965 15 Engineer Park Squadron was formed with the task of holding resources and providing plant and plant spares for what was now a very well equipped force of four regular field squadrons. This has since expanded to seven squadrons commanded by three divisional HQ MEs supported by the Engineer Park Squadron which is now nearly 500 strong. Training, both basic and trade, had of course expanded to meet the needs of the enlarged force and reduce dependence on overseas courses. In 1970, therefore, 10 Training Squadron became a Regiment, coping with virtually the full range of courses including training YOs.

Of particular interest to Royal Engineer officers will be developments since the run down of secondment in 1968. The Government continued to turn to the Malaysian Engineers and involvement in major projects and civil emergencies

Silver Jubilee of the Malaysian Engineers

THE ROYAL ENGINEERS JOURNAL

247

continued. Noteworthy was replacement of the Temerloh bridge in Pahang, first built after the floods of 1961, which was washed away, yet again, in 1969 cutting off the East Codst. Another major project was the construction of a large training camp near Kajang to accommodate some 3,000 unemployed youths. This was required urgently in the aftermath of the troubles in May 1969 and was completed in under forty-five days involving three engineer squadrons and supporting elements. During the last seven years work has continued on road development projects, civic action projects (such as building an Outward Bound School at Mersing in 1974) and the inevitable flood emergencies although on a slightly reduced scale as the involvement in military operations has grown. In Sarawak these have continued much as they were in the late sixties but in peninsular Malaysia the engineers have been increasingly involved in support of operations against the communist terrorists whose operations have expanded from their base on the border with Thailand. The Malaysian Engineers have constructed or improved numerous forward operational camps and, as a largely new departure, have been heavily involved in the neutralization of booby traps and sabotage devices. The communists have developed considerable expertise in the use of improvised devices which are being used not only in the jungle but sometimes in urban areas. Clearance, a responsibility of the Engineers in Malaysia, has thus become a major task and during this period there have been some twelve deaths or serious injuries.

The Territorial Field and Specialist units have expanded considerably since they were formed in the sixties. The Commander, Regiment of Engineers (L of C) now commands four Territorial Engineer Squadrons and four Specialist Regiments; the latter, covering port operating, power, railways and water, are on a reduced training commitment similar to our own Sponsored Units TAVR. Parts of the Territorial force have been mobilized during Confrontation, for. flood relief and during the troubles in May 1969 when over two hundred volunteers played an important part in getting Port Swettenham, power stations and the railways back to normal.

That is a very brief history of the Malaysian Engineers (or, to use their new title, the Regiment of Engineers) and it has only been possible to list a few of the achievements which have contributed to a very successful twenty-five years and to



Silver Jubilee of the Malaysian Engineers (2)



Photo 3. The Chief Royal Engineer, Lieut-General Sir David J Willison, KCB, OBE, MC, receiving the presentation from the Regiment of Engineers.

the high esteem accorded to the Engineers in the Malaysian Armed Forces. There was much to celebrate—a Regiment which had successfully undertaken a large and rapid expansion, played a major part in the original Emergency. Confrontation and in the still continuing anti-terrorist operations, and had made a most significant contribution to national development projects and disaster relief. It is perhaps these challenges that have contributed to the success and the calibre of the Officer Corps attracted to the Regiment of Engineers, which is running stronger than ever under the Chief Engineer, Brig-General Chen Kwee Fong. Outside the Regiment, the Malaysian Engineers have the distinction of providing one of the three Divisional Commanders in Major General Dato Selvarajah and the Commandant of the Royal Military College, Colonel Murad bin Haji Jaafar.

The celebrations which extended over a period of some two weeks included parades and family sports at all the squadron locations in West and East Malaysia and the climax was a parade and ball held in Kuala Lumpur on 6 May. The parade was held at Sungei Besi Cantonment and was most impressive with detachments from each squadron parading in combat kit. The inspecting officer was the Colonel-in-Chief, HH The Sultan of Perak, who at the end of the parade mase presentations to some ten officers and soldiers who had been wounded in recent operations. In the evening there was a magnificent dinner and ball in the Regent Hotel in Kuala Lumpur. During an excellent speech the Chief Engineer made a most generous reference to the contribution made by the seconded sappers which was warmly applauded. He said:

"The Regiment has been able to progress successfully over the last twenty-five years mainly due to the good grounding and solid foundation that was acquired and built during the early years. So here I would like to express a very special thanks to the officers and servicemen of the Corps of Royal Engineers who have served in the Regiment of Engineers. We were fortunate to have had an excellent group of officers and servicemen from our sister Corps to serve with us in the carly days. Their dedication and sincerity will always be remembered by the Regiment."

Silver Jubilee of the Malaysian Engineers (3)

The Mystery Port Richborough, Sandwich 1914–18

BRIGADIER SIR BRUCE G WHITE KBE, FCGI, FICE, FI Mech E, FIEE, M Cons E

The Author has been a Member of the Institution for many years and is the senior partner of the internationally known Consulting Engineers, Sir Bruce White, Wolfe Barry and Partners. He served with the Corps in both World Wars. He was, as Director of Ports and Inland Water Transport at the War Office during the last war, responsible for the Mulberry Harbours.

UNLIKE the 1939 War, requiring recapture by the invasion of the Continent of Europe, in the 1914–18 War the Continent was available to us. It was therefore possible to establish a base in the UK from which various services in the Continent were supplied. In this connection the Cabinet gave directions that a base was to be formed by Major General Collard as a matter of urgency.

After investigation it was found that a base having sea access could be formed most suitably alongside Richborough Castle, which is close to Sandwich in Kent. The area selected was served by the river Stour which had a muddy estuary. Work on the base was commenced in 1915/16. As no accommodation was available the large force of Royal Engineers required for the construction was accommodated in large barges which had been brought over from the Continent and moored in the upper reaches of the Stour. The accommodation provided in the barges was so unsatisfactory that it attracted the attention of Parliament with the result that special speed had to be applied to the building of a large camp which was necessary for accommodating the personnel employed.

It was necessary to make provisions in the base for all of the services required. These, amongst others, consisted of a train ferry service which was operated by three vessels built for the purpose and suitable for taking on loads carried on railway rolling stock consisting of locomotives, wagons of all types and heavy rail mounted guns. These train ferries were the first to be introduced into this country. For operation of this service terminals were built at the base and also at a number of French ports. These terminals were concrete and steel structures of considerable size.

The river Stour with its muddy estuary did not give the desired depth for the train ferries, tugs and barges used. It was therefore necessary to assemble what, at that time, was a very large dredging fleet consisting of thirteen vessels which was utilised for the purpose of creating the necessary depths and also for maintaining such depths as the river was subject to heavy siltation.

At that time the road vehicle had not obtained its supremacy over the railway which is the case at present. All movement therefore through the base from all parts of the UK had to be by rail and for this purpose vast sidings were prepared on ground requiring a certain amount of reclamation obtained from the dredging operation. As the railway played such an important part, the sidings were constructed by Royal Engineers under Officers experienced in railway construction including Colonel Robertson who in civil life held the position of Chief Engineer of the East Indian Railway.

Whilst the train ferries dealt with the carriage of heavy materials, the majority of supplies were transported by barges loaded at Richborough and towed across the Channel and into the French ports and, wherever possible, up the rivers to the front line positions. As such barges did not exist in quantity there was introduced in the base a large shipyard providing for twenty-one berths upon which the parts of steel barges made by shipbuilders throughout the UK were assembled, riveted and launched. Thousands of barges were built and utilized on the traffic to the Continent. The formation of the shipyard and its operation was the responsibility of Major Hambling who had a considerable shipbuilding background.

On the Continent the French railways were greatly extended by the forces and in addition decauville railways of narrow gauge were largely employed for services of the forward depots. For the operation of these a large number of petrol driven tractors were employed and as repairs of these could not be carried out conveniently on the Continent, it was arranged that all tractors requiring attention were shipped back to Richborough, via the train ferries, and reconditioned in a large workshop which was built in the base.

The largest establishment built in the base was that of the workshops which were designed so as to cater for all repairs to locomotives, tugs and all other plant and, in addition, were also equipped to produce certain items utilized in the base or for the use of the forces overseas. The workshops consisted of machine shops, woodworking shops and foundries both for iron and brass and covered all requirements both for the base and overseas. They were operated for twenty-fours hours a day seven days a week.

In view of the great demand for permanent way material, such as switches and crossings both on the Continent and also in laying the sidings at Richborough, and the inability of supplies by firms who specialized in this particular work, it was decided to build and equip a workshop suitable for the production of switches and crossings and other railway material required. This responsibility was given to an Officer who was in normal times employed by Messrs Edgar Allan in Sheffield, specialists in this type of work. The production from this workshop was most satisfactory and greatly exceeded the production from firms which normally carried out this work. This was probably accounted for by the fact that apart from the excellence of the equipment the workshop was operated "hour-in hour-out, day-in day-out, week-in week-out."

A point of interest is that whilst I was responsible for the layout and design of the works and other equipment, the workshops were in the charge of Officers who were specialists in their particular class of work. So far as labour was concerned this was provided entirely by Royal Engineers all of whom were skilled in their particular work and who in their early days of the war were wounded in France and on recovery were made available for "home duty" only. This had its advantages especially in the shipyard which was manned exclusively by shipyard workers from the British shipyards and who, having been wounded, wished to get their own back.

The mechanical section was in the charge of Colonel Holmes, to whom I was Major Second-in-Command, and consisted of a unit of 8,000 to 9,000 Royal Engineers engaged in the workshops, shipyards, train ferries and tugs, dredging plant and working on shifts of eight hours a day. The administration of these forces rested on me, as Second-in-Command, and called for special consideration, the most important of which was that of catering. In connection with this, provision was made by the building of three main dining halls each of which was equipped with army type cooking facilities and capable of seating 1,500 at a time.

Owing to the difficulty which arose in providing hot meals throughout twentyfour hours, the attention of Parliament was drawn with the result that the Chief of Eastern Command paid a visit to inspect the arrangements in force. During that visit I was asked for my suggestion regarding a remedy; I replied that in my experience such matters called for the attention of an expert. This point was taken and resulted in Mr Gluckstein of Lyons being asked to make an inspection with a view to agreeing to his appointment of Messing Officer. Following the inspection he agreed to take over the work with the rank of Major provided that those engaged in the catering service should be found other work and further that the antiquated cooking equipment should be replaced by that in keeping with modern practice. His proposal was accepted and he became the first Messing Officer for the British Army.

Following his appointment, Major Gluckstein informed me that if I was able to advise him of the quantity of hot meals required throughout the twenty-four hour period, and also regarding the number of those affected by this, he would then make suitable provision. I told him that in all twenty-three hot meals were required at various times throughout the twenty-four hours and would be in relation to the various tradesmen coming off shifts. The result was that the catering at Richborough was equal to that at any of the Lyons hotels or restaurants. A matter of interest is that in those days the daily ration was one pound weight of meat per man per day which Major Gluckstein considered to be far greater than his needs for catering purposes and consequently underdrew the ration.

Throughout its existence there is no doubt that the effort put in construction and operation of the "Mystery Port" greatly contributed to the success of the military efforts on the Continent. As a matter of interest during the latter stage of the war when the Germans made a comeback, orders throughout the Continent were to evacuate all bases and concentrate on the Channel Ports. It was thus, on going down to the base one morning after this order had been given, that I experienced a most unforgettable sight—all sidings in the base were occupied by French wagons on which had been loaded machine tools, including the concrete bases upon which they had been mounted, and all manner of equipment which had been evacuated from the Continent by the three train ferries which were kept in continuous operation throughout the twenty-four hours.

My Last War

LIEUT COLONEL G W A NAPIER RE, MA

THE Engineer Briefing on the last day of Exercise Summer Sales 1978 given by the Author on the occasion of his last Exercise with Corps HQ. Sanitized in the interests of security by the deletion of classified stanzas!

> Sappers for Commander, Sir, I hope my words will cause no stir. Of nine long wars this is my last Since coming here these four years past. My chinagraph in colour green Is blunter than it's ever been In all these years your MGBs Have been there ready 'neath the trees. Your AVREs, hunger never sated Have fired, dozed and fascine-ated Your mines and bangs, it can be said Have always with success been laid. From distant Rear to IGB Your routes are clear it seems to me. Your M2 rigs are, I can say Sir Daunted not by mighty Weser. The Leine, 'twixt its meadowed banks Falls quickly to your bridging tanks. Sappers strive through fire and ruin Despite the exigencies of Bruin This is, I think you must agree, A tale of skill and chivalree And though the limelight we would steal Thank God it's never been for real. From Sappers, Sir, that is the lot Have you any questions got?

The Engineer and Railway Staff Corps

MAJOR G HORNE RE (Rtd), C Eng, FICE

In the "Territorial and Army Volunteer Reserve" pages of the *RE List* there will be found, at the end and just after the Quartermasters, names of the officers of a unique unit known as The Engineer and Railway Staff Corps. I say "unique" because it contains only Majors to Colonels and although a "Staff Corps" none of its members are *psc*. On the other hand the "Engineer and Railway" aspect of its title is most apt for not only are its officers, as will be seen from *The List*, technically very well qualified, but also they all feature at the top of other lists pertaining to civil engineering and civil transportation.

But how many other officers of the Corps, and in particular the serving regulars, know anything about the history of this unique unit, have ever wondered what it is or what it does and, in some cases, even know of its existence? Officialdom itself fails at times in this last respect for a telephone call concerning this Engineer and Railway Staff Corps that was recently made to a senior officer in the Ministry of Defence elicited the query—"What is it?"

To that officer this article is dedicated.

IN 1860 Charles Manby, then Honorary Secretary of the Institution of Civil Engineers and later to be its first paid secretary, proposed the formation of a "Volunteer Engineer Staff Corps for the arrangement of the transport of troops and stores, the construction of defensive works and the destruction of other works, in the case of invasion". This proposal bore fruit five years later when, in January 1865, The Engineer and Railway Volunteer Staff Corps, Royal Engineers, was formed—"for the purpose of directing the application of skilled labour and of railway transport to the purpose of national defence and for preparing, in time of peace, a system on which such duties should be conducted".

During the first twenty years of its existence this Volunteer Corps carried out several detailed studies on the assembly of the armed forces in case of invasion; "paper" exercises no doubt given a spur by the "real" and excellent Prussian examples of the use of the growing network of railways for rapid mobilization. It was, however, eventually to become an advisory body on much wider aspects of engineering and today, constituted under The Auxiliary Forces Act of 1953 as the Engineer and Railway Staff Corps, RE, (TAVR) and with much valuable work to its credit, its function is to provide a body of skilled engineers and transportation experts to advise the Ministry of Defence on such engineering and transportation matters as may be put before it. As in the past it consists of eminent civil engineers both consultants and contractors, and members or officers of statutory or other transport undertakings, such as British Rail and Port Authorities; and the Ministry can obtain the personal opinion of such individual officers of the Corps on specific problems without in any way committing the firm or organization to which they belong.

The present establishment of this Corps is ten Colonels, twenty Lieutenant-Colonels and thirty Majors, or such other numbers as the Army Board of the Defence Council may from time to time determine; while a diversity of engineering knowledge is ensured by the Rule that states that it shall consist of—"Officers who are Chartered Engineers with particular experience in an aspect of engineering on which the Corps may be asked to advise, or such Members or Officers of transport undertakings or Directors or other employees of Contracting firms as have professional engineering qualifications and experience or have experience and are engaged on the management and operation of transport".

The Corps basically chooses its own new members, and proposes its own promotions and nominates its Officer Commanding, all of course subject to formal approval by the Military Secretary after agreement by the Engineer-in-Chief. Only two cases of suggested new members being turned down can be found—one very recently when a particularly young man was proposed but not accepted by the E-in-C who thought such an appointment would lower the standing of the Corps, the other was many years ago before the present age rules, when Mr Molesworth, of text book fame, was proposed for membership but was turned down by the Military Secretary who thought it was not right to offer even such an eminent engineer his first commission in the Army at the age of eighty-five!

Briefly these present age rules are that members must retire at sixty-five or when they leave the organization or firm with which they were at the time of appointment, an appointment that is unlikely to take place for anyone below the age of forty. On retirement members have the option of being transferred to the "Retired List" or to the "Supernumerary to Establishment List" when they continue to pay the annual subscription. The Acting Adjutant ("Acting" because he is not a regular and who is in fact akin to an "Honorary Secretary") is in this latter category. This brings us to another feature of this unique unit in that members not only receive no pay or allowances, but pay an entrance fee when appointed and thereafter an annual subscription. Surely the cheapest unit in the British Army and one to delight the Treasury for its only cost to the taxpayer is the Capitation Grant of £600 per year! Incidentally, this Grant was increased to its present level only about three years ago, the first increase since 1887!!

Other unique features are that no uniform is worn (though there was a ceremonial one pre-war for which officers had to bear the full cost²) and no camps or parades are attended, which of course makes members ineligible either for the ERD or the TD.

The usefulness of this Engineer and Railway Staff Corps must of course in the main depend on the regular Sapper and RCT Officers, and the extent to which they want or seek advice, for members cannot give help unless they are made aware of the problems that exist. However, within the tenure of office of the last two or three Engineers-in-Chief and with the support of the current and former Directors of Engineer Services two steps have been taken which hopefully will make greater use of the expertise available.

Firstly, instead of a somewhat rigid membership of 50 per cent British Railways and 50 per cent of others, with like being replaced by like, the aim is now to have five or six members as experts in different engineering disciplines. These disciplines are added to or amended from time to time as a result of discussions with the E-in-C and/or the Director of Engineer Services. At the present time the aim is to have experts available to cover the following disciplines:—

> Roads and Bridges Docks and Harbours Airport Design Water and Sewerage Geology and Soil Mechanics Electrical Generation and Distribution Railways—Civil Engineering Railways—Electrical and Mechanical Engineering Petrol and Oil Distribution and Pipe Lines Management in Transportation Engineering Services

Secondly a list is published annually giving members' names, addresses, present employment, telephone number, details of experience, former military experience and experience in overseas territories. This list is circulated to a number of Sapper and RCT officers who at any time can contact direct any member of the Engineer and Railway Staff Corps with their particular problem. If the regular officer is uncertain which member of the Corps is best able to advise on the particular problem then he should contact The Acting Adjutant who will endeavour to find the most suitable member to deal with the problem.

As to sort of problems referred to members, some of the more recent ones were:-

(i) Suggest a suitable form of construction for protective walls around Army posts in Northern Ireland, which can be constructed rapidly by unskilled local labour, can be taken down and re-erected elsewhere, and will withstand gunfire of a stated size and distance. (The "Leggo" concrete blocks at present being used arises from a proposal by some of the members of the Corps.)

(ii) Suggest a method of filling scabs and craters in airfields following a bomb attack, which will allow heavy aircraft to land within a few hours of the attack.

(iii) Check whether the design principles being used for a reinforced concrete chimney were correct.

(iv) What is the most suitable material to use as a filter to a rubble bank in front of reclamation.

(v) What alternative methods are there for demolishing a railway bridge and what is the difference in time.

(vi) How can one overcome draw-down of rubble on a breakwater.

(vii) Check the draft for the Corps manual on Earthmoving and Construction Plant.

(viii) Help in the training of officers in the more advanced aspects of plant management.

(ix) Should the titles "Military Plant Foreman" and "Clerk of Works" be changed so that the titles are not misleading in the civil side of the industry when the soldier is job-hunting after leaving the Corps.

(x) What is the most suitable type of pile to be used for the construction of a jetty to be constructed across a coral reef.

There are no doubt numerous cases, however, when regular serving officers would have liked some help or advice, but either were not aware of the existence of the Staff Corps and the expertise available or did not know how to go about getting the advice. Another stumbling block is of course that many may be hesitant to contact or trouble those who are considered as most eminent engineers in responsible and senior positions. There may be an understandable reluctance to telephone for example the Managing Director of Cementation or Laings, or the senior partner of Freeman Fox & Partners or the Director-General of the Port of London Authority.

However, Staff Corps officers do not mind being approached and in fact welcome it. They themselves may well not deal personally with the problem but pass it on to their staff, so it is not just the individual members of the Corps that are on tap, it is their firms or organizations. But without a reasonable flow of requests for information members may begin to wonder what is the purpose of belonging to such a unit. Also of course the Engineer and Railway Staff Corps likes to maintain its long and close link with the Corps of Royal Engineers by such questions as it also does by having a "Sapper" Colonel Commandant as Honorary Colonel, this being at present HE General Sir William Jackson, GBE, KCB, MC* while the present Commanding Officer is Colonel Sir Kirby Laing, JP, MA, FICE, Deputy Chairman of John Laing & Sons Ltd.

There are, however, certain things the Corps does not do as for example when, on the occasion of the Queen's 1977 visit to Minley Manor, the Acting Adjutant had the honour of being presented to the Duke of Edinburgh and was asked if they ran the railways. His reply of "No" producing the comment—"Pity—perhaps you would do better than British Rail".

One last peculiarity is of course the fact that, like the old Corps of Royal Engineers prior to its 1856 amalgamation with the Corps of Royal Sappers and Miners, The Engineer & Railway Staff Corps only contains officers and for this reason its history—written by one of its members, Major C E Townsend, TD, BSc, FICE—is entitled All Rank and No File. Copies of this book can be purchased at £3.15 on application to the Acting Adjutant, Colonel D C Coode, CBE, FCGI, FICE, FRSA, FRGS, c/o Coode and Partners, 20 Station Road, South Norwood, London SE25 SAJ (01-653-1061). Colonel Coode will also be pleased to give any advice on the Staff Corps or to put any serving regular officer with an official technical question in touch with the member best qualified to answer it.

ACKNOWLEDGEMENT

The Author wishes to thank Colonel D C Coode for his help with information and also to acknowledge the use he has made of Major Townsend's book.

¹ One such uniform is on display in the RE Museum at Chatham.

"We are Pathans"

PAE

It was a beastly cold day in Loralai. The snow, which had been falling for the past three days, had now stopped and the cheerful office fire contrasted with the grey skies and the cold and bleak conditions outside. Responsible for the maintenance of thirteen hundred miles of earth and gravel roads I endeavoured to assess conditions on the main roads. The mail lorry from Fort Sandeman had arrived yesterday but late. At any rate this showed that conditions were not too bad and that road gangs were at work. By the same token the main Zhob road from Fort Sandeman to Quetta via Killa Saifullah and Hindubagh should with luck be in a passable condition. The road to the railway at Harnai was open but the road that linked Loralai with the Zhob road at Killa Saifullah was definitely blocked at the *tangi* (defile) at Mile 23. This occurred each year and would continue until a large sum of money had been spent on improvements.

The telephone rang. Would I go over to Brigade Headquarters and see the Brigade Commander? Up to a few months ago the brigade had been an independent brigade area with its own CRE and for almost twelve of the past twenty-four months I had acted as CRE. Now; our masters were in Quetta. Last year Army HQ had selected this very time of year to move two major units by road. Surely, I thought, they are not going to repeat that.

Putting my head into the Brigade Major's office I received a nod. "I don't know why he wants you, but go straight in." Knocking at the door f entered the presence. "Quetta has just sent me a signal. A stupid (that is not the exact word) major tried to come to Loralai yesterday and got stuck at Mile 23. What is the form?" I gave him details as far as I knew. "Can you go down and have a look yourself?" "This afternoon" was my reply, "and I will give you the form tomorrow morning." Both he and I knew the difficulties with this tangi during the snow season and there was no more to be said. At lunch, I turned to my wife. "Would you like a trip to Mile 23? We should be back in time for tea and I will take a shot gun in case we see any pigeon."

At 2.15pm, escorted by my bodyguard, we set out. In the Zhob each GE had his own bodyguard, locally known as a *bādrāggā*. Bangal, my own bådrāggā, was a reliable character who had been the GE's bodyguard for a number of years. Equipped with a rifle and wearing a formidable array of belts and cross belts, into which were threaded numerous rifle cartridges and with the usual Pathān knife in his waist belt, Bangal appeared to be a far more formidable character than he really was. In fact he was an inveterate cinema-goer.

To some extent the road had been cleared although no road gangs were now in evidence. Slowly the wide valley narrowed. Now and again we espied the black tents of local shepherds on small prominences in the snow. As we neared our objective the valley was only four or five hundred yards wide. On one side the hills rose vertically from the road; on the other there was a snow covered plain to more hills some five hundred yards away. On a low rise beneath these hills was a small *kirri* or group of tents, similar to those which we had seen earlier.

Stopping the car at the tangi I inspected the blockage, which consisted of packed snow rising to a height of fifteen to twenty feet between two rock faces, as the road

was in cutting, and which extended for twenty to thirty yards. This was before the days of machinery and I could not picture Pathān road gangs tackling the clearing of the snow with gusto.

Turning the car for home, disaster occurred. The engine refused to start. With fingers, numb from the cold, I searched for the fault. It was in the fuel pump and I had no spare. "We shall have to wait until our absence is noticed and a relief party comes from Loralai," I remarked optimistically.

From behind a rock emerged three Pathāns. Fortunately I was fairly fluent in Pushtu and in the local dialect. They were on the way to the kirri, which we could see across the snow, and were curious to know why we were there. The fact that we could not depart until relief arrived obviously concerned them. Drawing to a short distance away they discussed the situation; then the invitation. Would we enter their tents until relief arrived? Alone, I would have accepted without further ado; but the presence of a woman made matters rather complicated. I glanced towards Bangal, who nodded. My dilemma was obvious to our would-be hosts. Drawing himself up, their leader turned towards me with the words "We are Pathāns."

Proverbs and idioms play a large part in the Pushtu language and in the Higher Examination a whole paper is devoted to this subject. Luckily I could remember the import of such a self-evident statement. By using this particular idiom this Pathan had said that until relief arrived he and his party accepted full responsibility for our safety and comfort. I accepted without hesitation. Indeed, to have refused would have caused serious offence. The prospect of "dossing down" in the car for an unspecified period had been daunting. Now; at any rate we were going to be out of biting wind and in comparative warmth and comfort although conditions might be curious. Tramping down a narrow path through the snow, which was knee-deep, our three hosts preceded us while Bangal brought up the rear.

We were led to the largest tent, which was about twenty-five fect long and about seven feet high. The covering was of a tightly woven thick and coarse cloth, which was attached to semi-circular hoops which in turn rested on a low wall about a couple of feet high. Thin whiffs of blue smoke, which filtered through the top of the tent, indicated that there would be a welcome, albeit smoky, warm interior.

Entering through a low opening at one end of the tent all that could be seen were the glowing embers of a small wood fire and the flickering light of a battered hurricane lamp. As our bodyguard, Bangal appointed himself as master of ceremonies and made clear to our hosts that the "mem sahib" was to be made comfortable.

Passing inside the tent we sat down opposite the fire and were able to lean against the wall. Soon my smarting eyes became used to the smoke and I was able to discern three Pathān women on the other side of the fire, who were making gestures of welcome to my wife. Something was moving in the gloom at the far end of the tent. As my eyes became used to the poor light an almost biblical scene presented itself. Across the tent was a low wall and over it three pairs of eyes from a goat, a cow and a donkey, were watching the proceedings with surprise.

Our hosts now busied themselves in making us comfortable. One arrived with blankets. Gravely inspecting each, Bangal handed one to me. "This is for the mem sahib. It is clean." After the prospect of a cold night in the car the "mem sahib" was past caring whether the blanket was clean or dirty. She was out of the wind and warm. "It is so terribly interesting. I wish that (naming some friends) could see me now."

Two more of our hosts appeared. They had been "brewing up" in another tent. Cups and a kettle were brought. Soon we were sipping piping hot cups of weak, sweet and milky tea. Another exit and reappearance and *chappatties* were handed to us; warm and substantial. But the "pièce de resistance" was still to come. An ancient and blackened frying pan was brought. "Meat", said Bangal. From their small stock of sun-dried and smoked goat flesh, thick rashers had been cut and fried especially for our benefit. It smelt revoltingly; not unlike what I imagined fried rancid bacon would be, but worse. I could well appreciate the sacrifice of their precious store which was being made. The only trouble was that it had to be eaten and there was mutiny in the ranks. My wife flatly declined this "tasty dish". "It will make me sick." To refuse would have caused offence. I had to cat a double portion. Luckily my "innards" were tough and there were no ill effects.

By now it was eight o'clock and I discussed the possibility of a relief party with Bangal. I felt that we were being a burden on the hospitality of our hosts. "Don't worry, sahib", said Bangal, "they are quite prepared to keep us here overnight."

Suddenly from the distance we heard a hail. Surely this must be relief at last. One of our hosts disappeared to return with a complete stranger. Clearly; he was no local. A *mulla* from Afghanistan (the border was only ten miles away) had struggled through thick snow over the hills in order to come to Baluchistan. He spoke a very easy Pushtu so we were soon in conversation. "But, why, mulla sahib, did you come by this arduous route?" I asked. "You could have come much more easily through the Frontier Post at Chaman." This suggestion released a torrent of abuse against the officials at the Frontier post; the bribes that he would have to give and the difficulty of getting a lift. He would have to have had a passport. All passports carried photographs of their owners. He was a true Muslim and followed the teaching of the Prophet to the letter and the Prophet had expressly forbidden the making of any image of man. Who was he, a mulla, to break the teaching of the Prophet? So; he had chosen the physically rough and arduous way through the hills. "Sahib, I always find a kirri for the night." He was a mine of information regarding conditions in Afghanistan and time passed quickly as we conversed.

Despite the thick covering over our heads sounds from outside were easily heard. One of our hosts suddenly raised his head. We listened. Indisputably in the distance there were the sounds of two men talking. The hated word "Sulaiman Khel" was spoken by one of our party. No Sulaiman Khel should be in the area at the time but one never knew. They were a well known tribe of thieves, raiders and bad men generally. I glanced at Bangal. "Sahib, I don't know", he answered to my unspoken query. It was then that I remembered that I had left my shot gun in the car. One of our hosts groped about in the dark and drew out a terrible looking muzzle loader with a thin and curved stock. It would surely blow up with the first shot. I relieved Bangal of his rifle and five rounds as he had his knife. The three women, who had remained at the other side of the fire throughout the long time that we had been in the tent, came over to my wife with reassuring gestures. We were now mobilized.

Our host with the muzzle-loader cautiously emerged from the tent. He looked around and then gave a short shout. Two cries answered back and by the light of the moon we saw two unarmed men approaching. These were no Sulaiman Khel. They were the two drivers of a lorry. It had left Quetta in the afternoon and, not appreciating the fact that snow on either side of the road might mean trouble ahead, had driven their lorry straight into the wall of snow in the tangi. After climbing up to the top of the blockage they had seen lights from our tent. Being uncertain of what might meet them, they had approached with caution. Everybody now relaxed and we returned to the tent. The women, who had been sitting around my wife as protection, returned to their place on the other side of the fire. It had been an interesting and exciting ten minutes.

"I must drain the radiator of the car and retrieve the shot gun," I said to my wife, "Bangal will remain here." Accompanied by one of our hosts, happily not with the muzzle loader, I plodded through the snow back to the car. As I arrived a blaze of lights appeared round the corner of the road. A car sped round the corner and drew up with a screech of brakes and a figure leaped out. It was my bearer, himself a Pathān, who had served in the Indian Cavalry. He was armed with my revolver. "Where is the mem sahib?" he enquired breathlessly. He was remembering the abduction of a British girl in the Kohat area, in which he lived, which took place fifteen years earlier. The fact that I had left my wife in the tent did not meet with his approval, although Bangal was with her, and immediately he made off for the tent. Meanwhile three others of the relief party gathered round with welcome thermos bottles of scalding coffee, sandwiches and, Allah be praised, a tin of cigarettes. I enquired as to who had organized the party. When we had not returned by half past six my bearer had become anxious. After consulting my *khansamah*, a Punjabi who lived close to the border of the NWFP, he decided that something must be done and had eventually cajoled one of my sub-divisional officers to come to our rescue.

In a very short time we were sipping our coffee, smoking blessed cigarettes and thanking our most hospitable hosts. No one could have done more for us. After shaking hands we entered the car and disappeared into the night.

A mere verbal thanks was clearly insufficient and more had to be done. But, first I must make a report. "I knew that you had not returned but reckoned that you would be all right. Nobody told me that your wife was with you. Had I known that, a troop of cavalry would have been sent." I could not say that I rather doubted the practical efficacy of such a cavalcade in the snow.

The Political Agent immediately grasped the situation. "Of course, there must be official recognition. I will call them to the office and thank them as from the Government." Meanwhile; there was my side. The relief lorry, which went for my car, bore a present of *atta* and a goat. Travelling in it was an overseer who was empowered to offer an increase to the very meagre income of the group by jobs in road gangs in their own neighbourhood. These seemed to be an inadequate return for the kindness and care of the three men who so proudly had offered their all for our succour by that simple statement "We are Patháns."

The Irrawaddy Crossing Painting

MAJOR I G LI PHILLIPS, RE

DAVID COBB'S "Irrawaddy Crossing" is our representative painting of the Burma Campaign in the Second World War. How many people know anything about the event and what units were involved? I don't think there are many. As I took part in the operation, probably the last officer still serving to have done so, I feel I should record the story before it is too late.

I wrote a draft about this painting a few years ago but refrained from publishing it without first checking it for accuracy. This article is based on my memory, books, Corps History, and "facts" obtained recently from units' War Diaries held in the Public Record Office. Even though these War Diaries sometimes give conflicting facts they are probably more accurate, and give more information than books and official histories.

The caption below the prints of the Irrawaddy painting reads "The Royal Engineers bridging the Irrawaddy at Myittha at first light on 26th February, 1945, from the original by David Cobb". This title suggests we were building a bridge at Myittha with the picture showing the activity at first light. It wasn't a bridging operation and a bridge was not built; the painting shows our operation on the enemy (south) bank of the river whereas Myittha is a small village near the home (north) bank, possibly just in the top right-hand edge of the painting; the activity shown by Cobb was not the state at first light but at noon or later. Amongst various aids Cobb was given a copy of the 2nd Division Order for the crossing of the Irrawaddy; this outlined what was intended and what progress was expected by first light, but events don't always follow plans! The glow from an castern rising sun, following quickly after first light, was possibly in Cobb's mind when he did his painting. The artist is permitted some licence!

2nd British Division's crossing of the Irrawaddy was one of four main crossings of the river. The Divisional Engineer Units, showing the Brigades with which they were usually grouped, were:

5 Field Company RE (4 Brigade) 208 Field Company RE (5 Brigade) 506 Field Company RE (6 Brigade) 21 Field Park Company RE



"The Royal Engineers bridging the Irrawaddy at Myinha at first light on 26th February 1945" This photograph, in black and white, does not do justice to the painting but technical difficulties prevent any improvement

The painting shows a scene in the middle of the day or afternoon on 26 February, 1945 when part of 1 Platoon 506 Fd Coy RE was making a vehicle ramp in the high enemy river bank. The Bailey rafts were built and operated by 5 Fd Coy RE. 208 and 506 Fd Coys RE operated canvas assault boats (fitted with outboard motors), Folding Boat Equipment Bridge boats (with Petters propulsion units) and Class 9 rafts. Many of the assault boats had been condemned by our Field Park Company over a year before, when still in India, so one can imagine the horrified reaction of the Sappers when they recognised these boats, from the painted marks on them, that had been re-issued to the Division for this operation. The crews from 506 Fd Coy were MT drivers and fitters since they were more likely to make the temperamental outboard motors and propulsion units work; they had had watermanship training on a lake before the operation. Canvas assault boats were also paddled by the Infantry. The Royal Indian Army Service Corps (RIASC) manned the DUKWs (American wheeled amphibious trucks).

The Divisional plan was for the 7th Battalion The Worcestershire Regiment (7 WORC R) to make the main assault from Dawate on to the south bank at B on the map. A diversionary attack was to be made by the 1st Battalion Queens Own Cameron Highlanders (1 CAMERON) from the area of Myittha, on to the south bank of the river at C while the 1st Battalion The Royal Welch Fusiliers (1 RWF) was to mount an assault from near Myinze and capture Ngazun Island.

The south bank of the Irrawaddy was steep but much less so in the area B planned for the main landing and intended Divisional line of communication. I was commanding 1 Platoon 506 Fd Coy (a "Geordie" TA unit) and was tasked to make a ramp up the south bank in the coming operation suitable for wheeled and tracked vehicles as well as for units on foot.

On the night of 6 February my Recce Lance-Sergeant and I crossed the river to see what the enemy bank was like. It was an interesting experience as we were in the hands of the Special Service Company for this venture. To us, rather more conventional soldiers, they seemed like a bunch of very irregular pirates; they were members of the Navy, Army and Air Force. They were not really happy to take us because we were not "one of them". They would not even let us help to paddle their craft

The Irrawaddy Crossing Painting

across the river. My Lance-Sergeant and I were carried as "third men" squashed between two others in two two-man canoes. These two "capital ships" had a flotilla escort of unusual one-man low profile boats about three inches thick. They were like long surf-boards and each was paddled across the river by a single crewman, lying on his stomach, using hand fins. We landed on a small beach at B, checked its firmness and how steeply it shelved into the water and studied the bank for its height and soil type. The Japanese were very close and we could hear some of them talking while others were driving in pickets. Fortunately, we were not spotted that night and we had an uneventful paddle back across the mile wide river, though I fear our footprints may have been noticed in daylight. I did a recee two days later in a light aircraft over the south bank of the river to get a better view of the terrain and to look for possible routes away from our intended bridgehead.

The fore-shore on the south side of the river was firm but the bank at B was steep and would require speedy demolition with explosives followed by pick and shovel effort to enable a bulldozer to get to the top. The bulldozer would then make an acceptable slope for a vehicle ramp. Later I carried out successful trials on the east bank of the Mu river near A to develop a technique, using bechives and explosives, to be followed by digging, to get a Caterpillar D4 to the top of the Irrawaddy's south bank.

On the moonlit night of 24 February 1945, 7 WORC R started the river crossing from Dawate. I was ready with a large section from my platoon to cross in a DUKW loaded with explosives, picks and shovels as soon as the far bank was secured by 7 WORC R. A D4 dozer was to follow later on a raft. Unfortunately, the Japanese spotted this operation almost as soon as it started; their fire was much heavier and more accurate than expected causing many casualties to 7 WORC R, and their supporting platoon from 208 Fd Coy RE, and sank or seriously damaged many of the assault boats. Had the crossing been successful the demolition party might well have blown up the south bank at B by first light on 25 February and the construction of the ramp would have been in hand. Alas, this main crossing had to be abandoned.

The Divisional plan was changed during the night so that the original diversionary crossing by 1 CAMERON, on to the south bank at C, became the main assault. The War Diaries of our three field companies and 1 CAMERON reveal many variations in the times when different events happened. The Camerons embarked two companies and Tac HQ at 2150 on 24 February; the enemy opened fire on them at 2215



causing casualties while the fast current was creating difficulties for the rowers of the assault boats. One of the companies touched down at 2230 and scrambled up the cliff at C to reorganize in the "elephant grass". The other company and Tac HQ also landed, suffering many casualties. They were able only to form a perimeter sixty yards deep, thus making the crossing only partially successful. The 25th was a day of great resistance by the Japanese in their efforts to prevent more reinforcements landing at C to enlarge the bridgehead.

Somewhere between 1000 and 1230 on the 25th another company of the Camerons left the home bank in assault boats (with outboards) and FBE boats with propulsion units. I accompanied this convoy in my DUKW with the explosives and the ramp party. The enemy resisted strongly and the bridgehead at C was not much larger. The Infantry were pinned down on the top of the cliff I was to blow up, while others were trying to land at the bottom. The DUKW load of beehives, prepared charges, picks and shovels and the ramp party was waiting its turn to land. The Infantry had to land first and get clear away from the bottom and top of the cliff. They were unlikely to do this for quite a while. The fast current, enemy fire, and because very few outboard motors in those days were fitted with a clutch made the control of the boats very difficult; some were spinning like tops while others were leaking and those with stalled engines drifted downstream. The Infantry and Sappers sustained some tragic losses. The crews had all had watermanship training recently—but on a lake. Are we any better now? Where do we train? In lakes and pools and slow rivers!

Because I couldn't land and get on with my task I decided it would be folly to remain on the river like a floating duck being shot at. I returned to the home bank and explained why; I was without a radio because the few we had in the Company were being used to support other tasks more dependent on communications. My intention was to go out again after the infantry had extended their bridgehead and vacated that part of the bank I wanted to blow up.

While waiting to return to my task I made a recce of Ngazun Island, where the RWF had landed, to see whether tanks could be ferried over and operated there. The tanks would then be able to fire at the enemy on the south bank at a much shorter range.

The bridgehead at C was reinforced and enlarged during the day. An air strike was brought down on a Japanese position in the afternoon and tanks fired across the river to engage the enemy. Later in the afternoon the forward companies were at the edge of the elephant grass which had hindered them so much before. The remainder of the battalion came over from the home bank and wired in. The Dorsets then started to cross and passed through the bridgehead. There was frequent exchange of fire often at close range.

During the night the demolition and ramp party was alerted to cross the river when the Camerons were in a position to vacate part of the top of the bank for the pending explosion. Our DUKW crossed over unhindered this time. Immediately on landing we unloaded all explosives and hand tools and set to work. Instead of blowing up the steep bank at the intended landing site, at B, we were now confronted, at C, with a more formidable bank, in fact a cliff about twenty-five feet high. The demolition plan was based on setting up rows of bechives in a grid pattern on the top of the bank and where possible down the slope near the top of the cliff. Exactly the same length of detonating cord went from the initiating point (all pre-assembled) to each beehive. This method of making holes for cratering charges was successful in my trials on the Mu river. I don't remember how many rows of bechives we used; the explosion was exhilarating and the bore holes were reasonably satisfactory though not as good as those produced during the trial at the Mu river where the soil was less sandy. We immediately poured a little water down each hole to cool it and rushed to follow this by inserting prefabricated explosive sausages. Every sausage had been made from cut up ground sheets and gas-capes filled with explosive, primers and cordtex coming out of the top. The length of cordtex from each sausage was exactly the same and led to a single initiating point. As soon as the top of the cliff was blown up, apparently at

0100 on the 26th, we set about the continuous and thankless task of wielding picks and shovels to make a slope to the water's edge to receive the D4 dozer. I discovered much later that the method I evolved, including details of the grid pattern for bechives, of blowing up a river bank was subsequently published in a Corps, Indian Army or FARELF publication; I don't remember which.

The explosion was a success and the result was all that I would have wished for on the originally intended bridgehead at B, but here at C the bank was about twice as high with a steep face. The hand digging effort continued non-stop and how I wished we had a second set of bechives and prepared charges to loosen up the high cliff. The occasional shell, mortar bomb or grenade landed in or around our excavation but for some reason no one was injured; in fact the only casualties among the ramp party were sustained by one of my Lance-Sergeants, a London booth boxer who broke his thumb when he landed a right hook on the face of a Sapper who had slinked away for a "kip". The latter's face looked very different! The workers approved of this summary punishment and were, I suspected, mildly satisfied that the non-Geordie Sergeant, recently joined, suffered some pain too!

The first D4 dozer was loaded on a Class 9 raft at 0700 and brought across the river by one of our officers and a working party. They built a trestle and half floating bay at the waters edge below the ramp we were digging. The dozer was landed at 1130 on 26 February and was able to crawl to the top of the cliff and start dozing downhill to reduce the steepness of the slope. The Infantry reinforcements were able to use the ramp, dodging the dozer and the earth it was pushing. The gradient was flat enough to be used as a tank exit when the first tank landed from its raft at 1300. The dozer's next task was to widen the ramp so that alongside the tracked vehicle exit we could lay Sommerfeld Track for wheeled vehicles. Some more of my platoon landed at 1200 bringing with them specially prepared rolls of this track. Threading linking bars down the sides of Sommerfeld Track can be slow and tedious when laid on uneven ground. Because of this I had decided to use steel wire rope (SWR). This had been threaded through the edges of the track before the operation and each roll was rolled up again for the move.

A second D4 landed at 1230 and we now had two working non-stop widening the ramp and making the slope less steep. Finally, the laying of the rolls of the Sommer-feld Track was a relatively speedy task. The rolls were laid out, the SWR ends were anchored with pickets, and the track edges were held down by driving pickets over the SWR. The wheeled vehicle exit was completed at 1730 and the first vehicle was landed from a Class 9 raft. Before the ramp was completed I went inland to recee a site for an airstrip which we built during the night—but that is another story....

Nightmares in Movements

BRIGADIER CEFTURNER CBE, DSO

TWO RAILWAY SYSTEMS AND A CANAL IN BETWEEN

IN 1935/36 I was Staff Captain (Q) at HQ British Troops in Egypt (BTE), with Movements responsibilities. "Movement Control" was an expression never uttered at Camberley in 1931/32 and the subject was practically ignored. There was no visit to the Railway Training Centre, then run by the Corps, a great omission. Colonel Manton, from Longmoor, had come out to Egypt on a short visit leaving behind a small team to put us on the right lines. His "philosophy" included "Q" and "Tn" working as a "Twin". "The Staff formulate demand", he laid down, and, as far as rail moves were concerned, "Transportation organize the train timings". Ronnie Montagu-Jones and I seem to have made that work and, as you will see, "spoke down one telephone with one voice", as the jargon put it, having—it is hoped—"ensured that Consignee could accept". In June 1936 half the staff at BTE were on leave—we had sixty-one days a year in those piping days. My family had gone ahead of me to Cyprus. "Young Ronnie", as SC Tn, came to live in our Gezira flat to keep me company. The scene, of course, is set in the hot weather in Cairo and I will describe it straight from my letter to my wife. I shall only add in brackets any note to make the story clearer.

Palestine was "blowing up", creating another "Emergency" and reinforcements had already been sent there from the Western Desert where Mussolini was no longer a threat.

Monday 8 June 1936-New Grotto House, Shariz Aziz Osman.

"What a week—I think almost the worse ever. But we've survived, learnt a lot, really enjoyed it and, I think, earned the confidence of Frankie Wootten (the ex-cavalry full colonel AQMG—our master). ... Ronnie left on Wednesday for Sollum via Alexandria. Lord Bey and I sat opposite each other to work out the next movement order. (Major Peter Lord was a Sapper, elderly, from our point of view, dag out from retirement. His name should go down to history as he had largely built the docks at Port Sudan, hence the title "Bey", and had had First World War railway experience in Palestine). I kept dashing off for conferences with Frankie and the General Staff. As the morning went on more and more work seemed to loom and I decided to recall Ronnie and send Lord to Palestine for a first hand account of the goings-on there. Our staff there in Movement Control is skeleton and tired. "Railway Protection" against Arab saboteurs occupy much of their time.

"I also summoned Roddy Lawrence (a cavalry subaltern sent out for the Italian Emergency who had developed a flair for Movements) to come up from Alex "with the milk". He spent an hour or so in the office en route for Kantara (where troops etc were ferried across the Suez Canal from the Egyptian to the Palestine Railway system). He is there as "the Movements King" and has averaged three and a half hours sleep a night in the last four! I've done better but have had some disturbances.

"Thursday afternoon and evening were a nightmare. In fact it went on well into the night as "Z" Day for the move of the next contingents was put on for the following afternoon. They were all at a mythical forty-eight hours notice. Ronnie and I, glued to our telephones and sitting opposite each other, were called up every few minutes from the Conference Room with questions such as:— "HQ Palestine want everything in a different order from that arranged—Cheshires from Cairo before York and Lancs at Alex—can you arrange?", and "what notice do you want to lay on so and so?". Thanks to a very strong line taken by Frankie the order of entrainment was not changed. It would have caused confusion unbounded. (I had been warned on my way to Egypt the year before that my job would entail dealing with a foreign railway and unpunctual troopships). The GSO3 excelled himself in the course of the afternoon by putting half the garrison at *four hours* notice to move. He stopped a proper raspberry! The Cheshires, who were up all night packing, will never forgive him. They did not leave till *four days* later.

"That evening, about 8.30pm, the whole move got the GOC's blessing and Zero Day was fixed for Friday. On Friday morning, out riding round Gezira Race Course, Frankie told me it had been put back forty-eight hours! It would not have done much good if *Ihad* been rung up at home at 2.30am when the decision was taken. But I rode back at once to the flat and started telephoning. Movement Control Alex had been up since 3am; Egyptian State Railway loco drivers, carriage cleaners and traffic clerks had been working overtime—shunting trains into position and telegraphing each other the arrangements; Roddy Lawrence was only just installed at Kantara, getting his camp fixed and preparing for the shamozzle there next night. Its quite a business, as you know, getting troops and their stores off the Egyptian State Railway (ESR) trains on the west bank of the Canal, ferrying them across to the other side and embarking them on the Palestine stock awaiting them. How easy it is for the General Staff to say "Zero Day postponed forty-eight hours!" How much more it involves us in Movements letting everyone know and then wondering who one has forgotten to tell. "The days, looking back, were all much the same. Late back for lunch; forty winks after, feeling rather cooked; a game of squash perhaps; office till 9pm; telephoning incessant at meals and all last night. The morning ride a merciful change, though an effort to get up, and mostly "shop" talked riding round with one person or another.

"Very early Sunday morning's joke was as follows:— It was the first real pig of a night as regards heat and I had a camp bed on the verandah. At 4.15 I heard the telephone ring in my sleep and sat bolt upright—wide awake. When I got there it had stopped. I said to myself "shall I ring up BTE in case I'm wanted or shall I be a cad and go back to bed?" or "was it only a dream"? I was a cad. At 5.30am it was the front door bell. Again I found myself sitting bolt upright. This time it went on ringing and it was "Tiny" Wigham (of the Cheshires and Staff Captain Maintenance). He was the BTE duty officer who had been roused at 2.45am by a wireless message from Haifa saying the railway was cut and would we inform the Palestine Railway authorities at Kantara and stop trains at Rafa on the frontier of Egyptian and Palestine territory. There were two trains on the way there and the more important one had an escort of an officer and thirty-seven British soldiers. Tiny had been ringing up round the country. Roddy Lawrence's newly installed telephone was proving invaluable. But the trains had got beyond Rafa and they were out of touch at Kantara.

"Should we send an aeroplane to look for them and give warning? The leading train was following an armoured trolley and proceeding "with caution". The GSO 2 thought not when we rang him at his flat. Much telephoning; Tiny agitated about the trains and the all important stores; I was much more agitated about all the moves due to start in the afternoon from the Delta and the effect of them all again being put off; and—"couldn't we send some troops by sea from Alex to Haifa?" And so on.

"Much telephoning; included a welcome one from Roddy to say that communications had been restored as far as Lydda, the trains were safe and the permanent way undamaged. So all was well, but I went to the office at 8.0am as usual although it was Sunday. There were more moves in the air and Frankie, although open to reason, wanted everything done at once if not quicker. Ronnie had to return to the office after lunch to finish off a complicated movement order. I played squash in his place against a charming Polish artist with an unpronounceable name. It was 104° in the shade.

"I called on the 2nd Field Company at Abbassia, due to go to Jerusalem. Bobby Maclaren, the OC, sad at missing his home leave but glad of the interest. Punch Clauson (Second-in-Command) definitely bored at the idea of having to live in a tent and being uncomfortable at Nablus where he has to take a detachment. Young Gerry Duke very pleased and excited as one would be at that age. Brought him home to supper for him and Ronnie to go to the flickers after. Faint hope!

"9.30pm a call from Roddy. Palestine Railway authorities at Kantara had orders not to take on the goods stock of one of our two troop trains—both on their way at the time from Alex. "But—we had Jackie Leese's wire accepting this particular mixed train!" "No, they would not take it. Had orders to that effect in writing from Haifa". My voice had almost conked out and Ronnie, by my side in the flat, took on the battle. I drafted a masterly wire—Emergency Ops to Movements Haifa (HQ Palestine Railway), repeated Jerusalem (HQ Palforce).

"Then I had a brain wave. If the train was too heavy for the Palestine locomotive, why not ferry over an ESR engine? Grand—and the phone never stopped. Ronnie rang up everyone he could think of to try and get a loco across, with calls coming in, in between (all on the public system), from Kantara and Palestine. Everyone in the ESR hierachy said *they'd* play if we got someone clse's permission. Finally we got to the stage where we had the alternative of ringing up some Pasha or the Egyptian Minister of Communications. This last seemed more a "Residency Question" for Sir Miles Lampson than for us mere junior staff officers—when, fortunately perhaps, Kantara rang up saying under no circumstances would they have an Egyptian engine running on the Palestine line!

"However that did not solve the problem, as by that time the regiment and an

angry colonel had arrived from Alex at the west bank of the Suez Canal, and there seemed every chance of his leaving all his tentage, baggage, ammunition, machine guns and vehicles behind at Kantara. It wasn't till 2.15am, half an hour before the train with passenger stock was due to go, that our telephone rang for the last time that night. Through a mistake in deciphering one of our cables at Haifa, Movements there had got the wrong composition of the train—not realizing it to be "mixed" with un-braked ESR goods trucks. PR had laid on passenger timings. They compromised, taking the tentage and equipment, leaving the transport and an escort behind to follow on the next day's goods train. A "mixed" train would have taken five hours longer. What a life!"

THE MISSING FILE

In the earlier part of 1939 I was in a highly secret War Office team—three of us Sapper majors under a GSO1—in "General Staff (Plans)" or, for short, "GSP". My task included planning "Long Sea Voyages" on Mobilization which, under the AQMG QMG2, I should have to put into effect. Reinforcements for foreign garrisons, with Officers of the three Services and civilian officials on leave in England, were to be despatched to their stations world wide. It was a complicated enough problem both getting them to the Clyde and embarking them in the right ships from a port where no Movements Staff could be assembled until mobilization itself. There would be several convoys, known respectively as "R2, "H" and "N". The code word for the Move was "R2H and N"—initials engraved on my heart! To fix the home rail moves I had excellent liaison with a civilian Traffic Officer at Euston named Screen. He ended the War, which was to come, as a Colonel.

Finishing our deliberations in Whitehall he and I walked across to the "Rag" for lunch. It was not done in those days to take a despatch case into the Coffee Room, so my guest left his case, containing his "end" of the plan, with Campbell, the Head Porter. On our departure behold a long-faced Campbell who insisted on the returned case being opened. It was the wrong one! "I thought it was" sighed the head porter who seldom, in London Clubs, make mistakes. "Major X insisted on taking the one like it and refused to check that it was his". "Where is Major X?" we asked. The porter on duty outside was summoned, who remembered ordering a taxi for the miscreant who wanted to go to Euston. Thereat my LMS friend pricked up his cars and we soon found out that Major X's home was in the Midlands, beyond Rugby. "Then he'll be on either the 2.40 or 2.55—next stop Rugby" said Screen. (I may not have the times precisely accurate after nearly forty years, though the scene is imprinted in my memory!)

It was then, say, 2.20. Our taxi took us as fast as traffic permitted but "the 2.40" had just left. A tall, top-hatted station master accompanied us all the way down "the 2.55", by then filling up with passengers. There was no sign of the military-looking type whose description the Rag had given us.

I returned to GSP, wondering what my colonel would say. He was a one for security and was even known to examine in a looking glass our blotting pads during a lunch interval for incriminating material! I kept quiet, not mentioning my predicament to my fellow room mates—Kit Huxley and the other Sapper G2s—"the Dome" and "Little Willy". Charles Napier and W D A Williams are now, alas, dead. At about 4.0pm Screen rang up. Major X had been spotted at Rugby, unaware of what was in the wrong case now on its way back to London. R2 H and N was safe as, thanks be, Major X lived on the London Midland and Scottish Railway!

WE'LL CANCEL THE SAILING

THEN came the war. Reservists were to re-join their units all over Britain, including Northern Ireland. Regiments for the Field Force were on the move everywhere. The *Athenia* had just been sunk by a "U" boat off the Clyde and security of sea moves all important.

GS Plans had broken up, "The Dome" was handling all moves to France. "Little

Willy" was engrossed in moving military stores. Home internal moves were on my plate in QMG2, where we worked in the sub-basement of the Main War Office Building. It was lunch time and I had taken my turn on solitary duty. (Each QMG2 Section was manned throughout the twenty-four hours). The telephone rang. It was Screen again, from Euston, he by then wholly engaged on military traffic.

"A ghastly thing has happened" he stammered. "We were discussing tonight's cross-Irish Channel moves with our opposite numbers in Belfast, when we heard that the wires had got crossed and our conversation was being relayed over the public address system on Belfast station platform". So what to do?

We had an excellent liaison with the Admiralty on a secret line. I rang up my opposite number at once. "OK" was his reply, "we'll cancel tonight's sailing."

Confusion at Stranraer, with trains on route there from all over the country. It had been a struggle to get pre-war financial approval for a Transit Camp at Southampton even and there were no such facilities at smaller ports. Those going to Larne in the opposite direction had a shorter journey and could be held back. Naturally we had broken the news to everyone we could. "Curses on those asses at the War Office" we could hear them say. "What are they playing at?"

A STRONG-MINDED C-IN-C MED

As AQMG (Mov) at GHQ Cairo, I was told that troops were to be sent from Palestine, the Delta and Western Desert to Greece. Admiral Cunningham, greater perhaps than Nelson and known affectionately as "Uncle Ned" or "ABC", was at sea defeating the Italians at Matapan. But plans had to be made in his absence. Admiral Willis, his Deputy left behind at Alexandria, agreed that Port Said as well as Alex were to be used for embarkation. Transports were directed accordingly to those ports and train arrangements laid on with our old friends the ESR and Palestine Railways.

Now, during the First War "ABC" had seen a troopship sunk with all aboard off Gallipoli on account of insufficient naval escort. He was determined that under his control no soldiers should be drowned. So, on his return from his victory—I forget how few days before the move to Greece was planned—he decided that he had insufficient men-o'-war to cover a convoy from Port Said as well as from his Base at Alex. All troops were to embark from the latter port, regardless of the plans and the time factor to alter them. No one can speak higher than I can about the Egyptian State Railways whose efficient reaction was splendid. I had at this time another ex-civilian Traffic Officer as DADTn-Arthur Payne of the Southern Railway. He had recently worked in the Canal Zone before coming up to GHQ. Such a situation did not worry him.

An even more distinguished Sapper, then my junior, was available to sort out what might well have been a complete dog's breakfast at Alex. So thither I sent John Cowley. I had the complete backing of another superb ex-cavalry DQMG-B O Hutchison, my boss. I believe some of the stores and transport went in wrong ships, but all arrived at Piraeus.

PS: If space permits (*Edit: It does*) I must add a true but little known story about the great "Uncle Ned" which his then "Captain of the Fleet", Tom Brownrigg, told me after the war. After the abortive campaigns in Greece and Crete had failed, "Dunkirks" were the order of the day which must have provided the Movements Staff in those theatres with nightmares galore. General Wavell, as he then was, and C-in-C Middle East, knew how many ships our Fleet had recently lost or had had damaged. He asked Admiral Cunningham to leave some of our troops behind in Crete so that the Navy, with all its more vital commitments, should suffer no more.

"History will never forgive me" said C-in-C Med, "if, so long as I have a ship afloat, a single soldier is left behind to become a prisoner." At the end of that Operation, I understand, there was not a capital ship fit to go to sea.

Memoirs

LIEUT-GENERAL SIR PHILIP NEAME VC KBE CB DSO DL

COLONEL COMMANDANT RE (retd), REFRESENTATIVE COLONEL COMMANDANT 1954 PRESIDENT INSTITUTION OF ROYAL ENGINEERS 1954–57 Born 12 December 1888, died 28 April 1978, aged 89

PHILIP NEAME was educated at Hawtrey's, Cheltenham and the Shop and was commissioned into the Corps on 29 July 1908 when he was nineteen. He was a gallant and very effective soldier and a fine sportsman. His achievements read like those of a fictional hero and cannot be described in full. In this tribute some highlights have been selected to illustrate some of the facets of a remarkable man.

In the field of sport he was a successful point-to-point rider, polo player and skier as well as a gymnast, cox and hockey player (Kent, Corps and Army). He was probably most successful with a rifle and revolver. He was a member of the British Empire Olympic Shooting Team, which won a Gold and a Bronze medal in 1924. He also shot for India at Bisley, was in the Army Rifle Twenty and in the Army Revolver Eight. He was not only successful on the ranges but was even more at home indulging in his great passion, shooting big game.

His military career is well documented and does not require detailed listing. (Not documented, but of interest, when he went to Gibraltar in 1913, his relief in 56 Fd Coy was C G Martin who was also to win the VC.) On 19 December 1914 Lieutenant Neame (he was in fact a Captain but had not been notified) showed conspicuous gallantry when the enemy attacked near Neuve—Chapelle. In spite of heavy rifle fire and bomb-throwing by the enemy he succeeded in holding them back and rescuing all the wounded men whom it was possible to move. For this gallant action he was awarded the VC. He spent four years on the Western Front, in most of the major battles and was only slightly wounded once. In this period he was awarded the DSO, the Chevalier of the Legion of Honour, the French and Belgian Croix-de-Guerre, was mentioned in despatches five times and received a Brevet Majority and later a Brevet Lieut-Colonelcy. It can he fairly written that he had a "good war".

Between the Wars he served as an instructor at Staff College for four years and after a tour as Brigade Major of an Infantry Brigade he asked to be transferred to the Bengal Sappers and Miners. In all he served twelve years in India including a tour as 2IC of a mission in Lhasa. In 1938 he was appointed Commandant RMA Woolwich.

Before the outbreak of WW2 he had been "pencilled in" as Chief of General Staff of the BEF for France but at the outbreak of hostilities the "family tree" was amended and he went to France as Deputy Chief of the General Staff with Operations and Staff Duties under his control. In Feb 1940 he was appointed to command 4th Indian Division in the Middle East until his promotion to Lieut-General and appointment as GOC Palestine, Transjordan and Cyprus at the end of the year.

In 1941 he moved to Cyrenaica as GOC-in-C and Military Governor just before a major reshuffle in the units under command. The seasoned 6th Australian was replaced by the inexperienced 9th Australian Division which had not even completed its preliminary training. Overall there was a shortage of second line transport, artillery and equipment in general. The enemy was the Afrika Corps under Rommel with some 600 AFVs, a 10 to 1 superiority in fighter planes and 17 to 1 in bombers. To cap it all his supply base was some 450 miles behind the front line. When Rommel attacked there was no alternative, there had to be a general withdrawal. General Neame had the misfortune to be taken prisoner in the open desert south of Derna when his car ran into a German patrol.

As a POW, first in Sicily and then in Italy, (one of his "gaolers" was Captain the Duke of Montalto who had also been educated at Cheltenham!) he organised several escape plots. He eventually escaped himself arriving at Termoli on 20 December 1943 having spent five months on the run in Italy. He arrived home on 26 December but in those six days he had had dinner with Winston Churchill in Tunis and had been to Marakesh.

In 1945 he was appointed Lieut-Governor and C-in-C Guernsey which appointment he held for eight years and on retirement he continued to lead a full life of Corps and public service. It gave him enormous pleasure when he was appointed Hon Col of 131 Airborne Regt RE 1948–1958.

He published two books, German Strategy in the Great War (1933) and Playing with Strife (1946), the latter an autobiography largely written in secret whilst a POW and hidden in a monastery when he escaped.

As the senior former President of the Institution of Royal Engineers he accepted the invitation to be a host at the Centenary Dinner in HQ Mess in 1975. He was in tremendous form. He said afterwards, in his dry way, that he had enjoyed it far more than he had anticipated. We certainly enjoyed his company.

It was in 1933 having been mauled and nearly killed by a wounded tiger that he was nursed back to health by Miss Alberta Drew whom he married the following year. To Lady Alberta Neame, their three sons and their daughter we extend our deepest sympathy.

MAJOR GENERAL H C W EKING CB CBE DSO

Born 17 November 1903, died 12 March 1978, aged 74

HAROLD CECIL WILLIAM EKING was educated at Rugby and the Shop and was commissioned into the Royal Engineers in 1924. His career tended to follow the "conventional" pattern of a first class officer. During WW2 he was GSO1 in both 4 and 76 Divisions, CRE 78 Division, Chief Engineer 13 Corps, he Commanded an Engineer Group in Italy and Burma, and was in turn CRE, Brigade Commander and 2IC 10th Indian Division. After a penultimate appointment as Commandant School of Military Engineering he retired from the Active List in 1960 as Chief Engineer BAOR and Northern Army Group.

An account of his achievements in this form cannot reflect the true value of a fine soldier and gentleman. He was a professional in the best sense of the word. In the immediate post-war year at Chatham (GSO1) he was responsible for the training of most of the senior officers serving in the Corps today. He will be remembered by them as a great influence on their careers as well as one of the great "Mess games" players. In those days the permanent staff officers of the SME had a staff team for every game and, as Supplementary Course officers will remember (painfully in many cases!), led by Cecil Eking, were almost unbeatable.

Cecil Eking joined the Divisional Engineers of 78th Infantry Division as CRE in the autumn of 1943 during the preparations for the crossing of the River Sangro. We were a strongly individualistic group of Field Companies, we had been at full stretch for a long time and were tired, and we were mourning the loss of a beloved commander. This was not at all an easy group to take over, and it was an indication of Cecil Eking's capacity that he gained our loyalty and trust and admiration remarkably quickly and completely.

The characteristics that impressed us then were an absolute insistence on the highest standards of professional work and behaviour all round and the care and trouble he took over his officers and men. He had tactical flair of a high order, his decisions commanded respect and he had the good commander's knack of being at the right place at the right time to help a harassed subordinate, to encourage and to sustain. We all learnt greatly from him and realised, in later years, what a profound training influence his war-time example had been to us.

I had the good fortune to serve on his staff when he was Commandant of the SME,

and the same qualities of professional excellence and care for people made his period in command notably successful. He was a great trainer of men and his sense of humour, never far from the surface, and his deep understanding made it a happy as well as a successful time for the SME.

He was a notable athlete and a keen games player who maintained a close and critical interest in Corps sports for many years. Latterly he had lived in rural Dorset with his beloved wife Betty. Visiting them was always a joy because the old, important values were so much in evidence; great warmth and very high personal standards, always illuminated by humour.

WFC

It is difficult to be objective about a great friend, Cecil had been that for thirty five years.

We served near each other in the war in Italy, in the new peace in Austria. Later we stayed with each other, had holidays together and had lunch together almost every month after his retirement. The two things which impressed one about him were his integrity and his sound common sense. His advice was always good and many sought it.

He was a keen judge of a dog, a horse and a pretty woman, above average at all sports, surprisingly active on a tennis court in spite of his size. He was a good mixer as our NATO Allies in Rhine Army will agree, as will two barmen in Paris. After his retirement he was employed as an adviser to the Minter Building Organisation, possibly more for his troubleshooting ability than for his technical knowledge. Some of his comments on the follies and foibles of contemporaries were pungent and a joy to hear. There was never a hint of malice ever.

My wife described him as a gentle giant. His marriage to Betty was a great success and she and his daughter Caroline were a great comfort to him.

CGS

COLONEL A J CRUICKSHANK DSO OBE Born 11 March 1891, died 6 June 1978, aged 87

ALEXANDER JOHN CRUICKSHANK was educated at Rugby, from there he went straight to the "Shop" and on to Chatham joining "Winters Batch" on 1 April 1911. He was commissioned on 23 December 1910. One of his first official parades was the functal of Edward VII. He saw service in the First World War in Persia and Mesopotamia where he won the DSO. After the 1914–18 War he served in India at most of the Regular Stations including the NW Frontier. In 1922 he married Norah Blake Stack and his only daughter, Norcen Mary Alison was born in 1923. At this time he served in Ireland and in the '30s he was CRE Wessex Division of Southern Command at Portsmouth. He retired in 1938 and was appointed Territorial Army Secretary for the County of Sussex.

On the outbreak of hostilities in 1939 he was called up and became a Deputy Chief Engineer in Southern Command with responsibility for defence works.

After the War he returned to his old job of TA Secretary for Sussex which he held until he retired at 60 in 1951. From then until 1975 he lived with his son-in-law and daughter at Shifnel. At Shifnel he was President of the local British Legion, Treasurer of the Parish Church, Chairman of the Old People's Club and served on the Board of Governors of the local Church School. At about the same time he served on the Shropshire County Committee of the Royal British Legion as a County Vice President. In October 1975 he moved back to Sussex making his home with his nicce at Cheriton Cottage, Plummery Plain where he died, suddenly and very peacefully on 6 June 1978.

MEMOIRS

BRIGADIER SIR CLINTON G LEWIS Kt OBE

Born 25 November 1885, died 16 June 1978, aged 92

CLINTON GRESHAM LEWIS was born in California, the son of J Hardwicke Lewis, of a line of considerable artists and he inherited much of the family artistic flair. He was educated privately at Montreaux, Switzerland, mainly by his uncle, Spencer Musson, to whom he always gave the credit for his subsequent successes, and the Shop, where he was awarded the Sword of Honour. He was commissioned into the Corps in 1904 and joined the Survey of India, then the most coveted employment for a Sapper, some three years later.

His first job was in Travancore in Southern India where he had to survey a blank on the map, marked merely as "high waving mountains covered with impenetrable forests and overrun with wild beasts". During two survey seasons he met only two people whose language he could speak. In 1911 he was in charge of the Survey Detachment with the Miri Mission in north India. For many years surveyors had been trying to ascertain if the easterly flowing Tsanpo in Tibet and the westerly flowing Brahmaputra in Assam were the same river. The survey was arduous in the extreme but it had its rewards in the magnificence of the scenery with views possibly never before seen by man. Around the base of the towering peak Nancha Barwa it was later confirmed that the two rivers were in fact one.

At the outbreak of the 1914–18 War Captain Lewis reverted to military duty in France and in 1915 was wounded. After a brief mid-war spell in India he was posted to Mesopotamia where he served until 1919. During the latter part of this time he did much to improve the methods used in air survey. At the end of the war he carried out a rapid and most valuable triangulation connecting the surveys of Mesopotamia with those of Egypt, Palestine and Syria.

In 1919 he was again on active service in the Afghan War following which he mapped a new section of the Indo-Afghan frontier, a rather risky job with the Afghans on one side and the Pathans on the other.

From October 1923 to January 1925 Major Lewis was in charge of the newly constituted No 18 (Aero-Photo) Party which carried out a most successful pioneer air survey of the Irrawaddy Delta, an area which previously had defied ground survey.

After some two years in the Surveyor General's Office Major Lewis was appointed to the Turco-Iraq Frontier Delimitation Commission where again he was in the forefront of developments of highly successful photographic methods. For his work here (and no doubt for his earlier efforts) he was awarded the OBE in 1928.

For the three years he commanded "A" Company of the Frontier Circle surveying in Dir, Swat, Chitral and the Gilgit Agency. He and his team had to become expert mountaineers as well as surveyors as many of the trig points were above the 18,000 feet line and indeed one was at 19,750 feet. (His early days in Switzerland may have helped!)

From 1931 to 1934 Lieut Colonel Lewis officiated mainly as Director Map Publications and was then promoted Colonel and returned as Director Frontier Circle and Director Geodetic Branch until 1937 when he succeeded as Surveyor General. In September 1937 he was promoted Brigadier and in the same year was awarded the Founders Gold Medal of the Royal Geographical Society. He retired from the post of Surveyor General in August 1941, the year he received his Knighthood.

As Surveyor General he had, as throughout his service, striven for the improvement in quality of the maps of the Survey of India. He had studied exhaustively the problem of map maintenance and it was largely due to his strenuous efforts in this direction that the department was able to face, with some equanimity, the major problem of war mapping. In the words of the President of the Royal Geographical Society, in awarding him the Gold Medal; "He has throughout shown great originality in his methods and has vastly advanced the technique of survey. Like so much first class work it has been carried out quietly and without ostentation or publicity. He has inspired many of those engaged in survey work and has encouraged and advised many explorers".

Without doubt during his service he was one of the last of the official adventurers who, in the early part of the century, made their name, and living, by mapping the then unknown parts of the world.

Retirement from the Active List did not mean retirement from work. From 1942-45 he was employed by the Ordnance Survey and in 1951 he, in collaboration with Colonel J D Campbell (late RE), edited the Oxford Atlas. He was a great map maker and his work on the Atlas made him known to thousands all over the world. He had an amazing eye for detail, a mastery of technique, as well as the inherited artistic ability already referred to. He and Campbell had a real feeling for maps which enabled them to bring both character and life to the end products. Although styled as co-editors it is felt that co-authors would be a better description of their contribution.

At the same time he took an active part in the affairs of the Royal Geographical Society being Hon Secretary 1944–46 and Vice-President 1946–50.

Although it is some thirty six years since Sir Clinton left India, he will still be remembered by many in India and Pakistan for his care and considerations for all ranks of all ethnic origins in his Department.

On a more personal level he had a tremendous rapport with young people and indeed he inspired affection and confidence in all he met. He was unpretentious and disliked publicity. Modesty enabled him to wear his distinction lightly. His last years were enlivened by a series of visits he made regularly to friends and relatives. His tours took in visits, complete with his own tool box to a number of different houses; in all these places he will be remembered, not only for himself but also for the carpentry jobs he undertook and the many things he mended, oiled and generally put to rights.

In 1916 he married Lilian Eyre Wace and is survived by a son (Major General J M H Lewis CBE late RE) and a daughter, five grandchildren and six great grandchildren.

GB, JAFD, WH, JMHL, HWW, JW

MAJOR H E ATTENBOROUGH MBE RE

Born 3 November 1927, died 3 June 1978, aged 50

HAROLD EDWARD ATTENBOROUGH was an outstanding example of the good officer who never achieves high rank but who does so much for the Corps. These three personal tributes make the point.

I am one of the many Sappers who will deeply regret the untimely passing of Harry Attenborough. There can be few of the more senior members of the Corps, who did not know him, and to know him was to like and admire him. He displayed many qualities. Chief among them were his dedication to the Corps, his knowledge, his commonsense and his humour. He consistently used these attributes to our common good. He will be sorely missed by his many friends.

JFMG

I first met Harry Attenborough in 1972 in HQ BAOR. He immediately impressed me with his great enthusiasm to do his job well. It was not long before it was very apparent that he was an ideal officer to have on any engineer staff. He was always cheerful and pleasant, and was never ruffled by problems of any kind. His experience, commonsense outlook and general ability always produced an excellent solution to any problem. When he had finished his tour in BAOR I was more than delighted to have him again on my staff in UK. He continued to be an anchor man on whom one could always rely.

JAN

Harry and I did our Sapper and YO Training together. Although our paths have subsequently diverged for a lot of our service, the friendship forged at Cove and Ripon has always remained. He has been a great friend; his quiet good humour and interest in life in general made him a very convivial companion. He was a man in whom one always had trust, his opinions were always honestly given and yet he was always thoughtful of other peoples feelings. He never demanded anything but gave a tremendous amount to the Army, and in particular, to the Corps. I had the pleasure of serving with him again for part of his last tour in Germany, and despite his natural reserve, his very wide experience and his inventive and enquiring mind was valued by everyone with whom he came in contact. In extending our sympathy to his wife Margaret and his children, Paul and Susan, we are all conscious of the sad loss of a fine man, a true friend, and a loyal and devoted member of the Corps.

CBP

Correspondence

Major G Horne C Eng, FICE 5 Beacon Road Ditchling Sussex BN6 8VL

BRIGADIER B E WHITMAN

Sir,—I should like to add some recollections, as a then young subaltern, to the Memoir on Brigadier Whitman (September 1978 issue).

Peshawar in the Autumn of 1940 certainly did not lack sapper "characters" with "Mike" Gilpin as CRE, his Adjutant Rodney Greenwood and another Canadian, Perley Holmes, the second-in-command of 13 Madras Field Company—a unit recently returned from "peace-time" Burma and engaged, among other things, in spawning the first of its "war-babies", 57 Field Company which had as its OC "Mac" Lillie. Even two of the four new subalterns were old *Koi Hais*, being of the teaplanter breed. Among these Brigadier Whitman, then a Major Commanding 13, more than held his own. It was indeed a mark of his personality that although I was with him in the station for only a few months they have remained happily impressed upon my memory for nigh on forty years, and subsequent post-war meetings at Corps functions were always a pleasure.

By his example he taught me—still "wide eyed" from my recent arrival (*Breakfast* in Bangalore—December 1975)—much about Indian service. He also taught me that "after-dinner" walnuts hurled hard at his bungalow windows generally broke rather than the glass—exceptions to "Whitman's Law" being replaced by the MES on the following morning. Another gem of knowledge gleaned from him was that if one boldly numbered gramophone records and had a suitable list in the ghusal khana, selected musical accompaniment for the evening bath could be organised by a "non-English reading" bearer.

One of my first military tasks was to be entrusted—or perhaps it would be truer to say that Jamadar Karrappunnan was "entrusted", for it was he who tactfully told me what to do—with the running of a week's range course for a mixed detail from both companies. On the second day "Whitboy" came out to see how we were getting on and, although generally satisfied, the butt-party incurred some displeasure by not being brisk enough with their signalling. Thus it was that he stalked off down the range and we, standing clear of the firing point, watched the silent pantomime of him prancing about on top of the earth mantlet as he harangued the hidden markers. There was much of the arm waving and "dramatic acting" that, as I was quickly to learn, was a hallmark of those British officers who served with Madrassis and conversed with them in a glorious mixture of tongues. Then, in true military style, "practice" followed "instruction" and we heard the faint peep of his whistle followed by the brisk appearance of eight black dises on sticks. "Bulls". Another "peep" and the discs smartly disappeared. Peep! Equally smartly there appeared *seven* red and white flags—"misses"—and *one* white disc. . . . Sapper 92 getting it wrong! Whitboy's bellow, heard from where we stood, was quickly drowned by a great roar of laughter from the watching *thambis* as the distant Commander of 13 Company hurled his swagger-stick at the invisible operator of the offending disc. A dise that turned into a flag as if by magic.

Then, some weeks later, there was the affair of the mud-brick wall. This formed part of some minor camp structure and was, as "Whitboy" told the unfortunate local contractor, so badly built that he could push it down with one hand. Unfortunately he could not, neither could he with two hands. Undaunted he called upon several nearby Sappers to help him, but still that wall stood fast. By now the affair had become a challenge and more and more grinning and delighted soldiery were co-opted until with a crash the "offending" wall fell at the feet of the wildly protesting contractor. "There you are, I told you it was badly built" quoth a triumphant Whitboy.

Such light-hearted reminiscences may seem slightly out of place, but these are so often the sort of incidents that are best remembered about those one admired. It does not mean, however, that there are not more serious recollections such as, in Whitboy's case, the cheerful and friendly help he always gave me, the tremendous affection in which he was held by the Madrassi Sappers and how, as our train steamed slowly out of Nowshera Station at the start of the long trip south to the Divisional forming up area, the *thambis* of 57 Company leant out of the carriage windows wildly cheering Whitman *Dorie* as his burly, waving figure faded into the darkness of the frontier night.

Little did we then know of the long captivity or death that lay ahead for him and our comrades of 13 Company, for while we departed to the Middle East they set sail for Singapore.—Yours sincerely, George Horne

> Major J Cottington C Eng, FICE, MI Mun E, F Inst HE, FGS, FI Arb, M Cons E Cottington Phillips and Associates 3 Downes Street Bridport Dorset DT6 3JR

THE ROYAL ENGINEER CONTACTS OF A SAPPER-MANQUÉ

Sir,—Having been accorded the undoubted honour of being named in Sir Harold's article presented by *The RE Journal* for September, I feel it incumbent to "add my bit" as it were.

To have worked under the Author's direction for the eighteen months allocation of No 5 Long Civil Engineering Course was one of the most valuable experiences of my career both as a Sapper and now as a consulting engineer. As an Agent to Mowlem/Soil Mechanics Ltd, an impending visit by the Director inspired enthusiasm (or was it terror?) for the job even more pronounced and effective than that of an "Annual Inspection".

Cost/Profit graphs had to show a reasonable divergence in the right direction but not at the expense of quality of workmanship or departure from Specification. All plant was either working or "marked off" for return to the Depot. I recall a hiatus of too many roller and too few excavator operators and having found a roller driver who was able to operate an excavator "instructed" him to do so. This almost caused a walk-out and certainly a very sharp rocket from the Plant Director followed by a more gentle admonition from the Director in terms of "Military discipline is a fine thing but we aren't at war. Let's get the job done tactfully shall we?"

As to Specification—"8 per cent by weight of cement to soil". The 100 ton cement silo full, 100 tons being spread and 100 tons on the road and nowhere to put it! Solution (not known to the Director), have the MOS Resident Engineer invited to lunch by a neighbouring Agent of another Firm and spread the cement directly from bulk delivery plus graders to equivalent cement/soil ratio depth and mix and compact like fury. Return of RE from protracted lunch, full of bonhomie (or whatever) and of praise for an unusually high output for the day!

Much is presented nowadays by disgruntled, usually junior, engineers in the matter of "status of the engineer". I recommend Sir Harold's article as essential reading for those seeking this so-called status.

"Sapper-Manqué" Sir Harold? I presume to suggest Sapper in fact and in heart .-- Yours faithfully, J Cottington

Lieut-Colonel E G Willmott RE 2 Armd Div Engr Regt BFPO 36

"WHITHER THE CORPS?" . . . A REQUIEM

Sir,—I enjoyed reading Major Seeking's article "Whither The Corps"—A Requiem. As one of the Commanding Officers to whom he referred as being unhappy with the state of YO training, I am spurred to comment on that aspect of his article.

Certainly many of us in 1st British Corps recognise the need for the sort of training enjoyed at the Hameln bridge camps of old. Your readers will be reassured to know that most Regiments here achieve similar training. In 2nd Armoured Division we were fortunate enough to go to Hameln for a traditional camp in 1976 and again in 1978. In common with Regiments of other Arms, the 1977 intensive training was devoted to infantry work in preparation for our tour in Northern Ireland.

Certainly too, unit training of YOs is necessary and is part of a coherent programme which begins at RMA and continues through the RSME course. Again readers will be reassured to know that we have regular meetings with the RSME to ensure continuity of YO training. In addition, with the rest of the Army, we train our YOs for their POS 1 examination. Nevertheless there is still cause for concern and others have joined me in expressing this view. Major Seekings queried whether we could say what YOs needed to know and how they should be given this knowledge. I think that two faults of YO training need particular improvement, namely: their "tactical awareness" and their ability to lead men on a battlefield—whether in BAOR or Belfast.

It may be of interest to your readers to know that in 1978 we devised a special Tactical Cadre Course for YOs and SNCOs, new to BAOR, to give them a basic grounding in "tactical awareness"; it was especially important to do so before three field troops set off for their battlegrounds for training in Canada. We modelled the Cadre Course on a similar one run in 1977 as part of our Northern Ireland training. It was such a success that we intend to run it next year too, lasting over ten days round the clock. The Cadre Course gave YOs and SNCOs the opportunity to site and dig-in defensive positions for a combat team; replenish at night; receive, issue and follow orders for basic patrolling; practice movement in support of armour and maintain vehicles. All was conducted realistically in the field, in slow and quick time. Long night marches across country were undertaken and much cross country movement was with vehicles closed-down. An NBC attack was simulated followed by decontamination. Throughout the course instructors vetted performances, corrected errors and perfected skills. We obtained valuable assistance from 1 RTR to ensure our standards were set at the highest level. The main lessons learned are not new but bear repetition: use of lights, camouflage, track discipline, night navigation, constant radio watch to avoid calling, chatter in defensive positions. Given such instructions, YOs and SNCOs were well able to get on with "real" engineering in the battlefield environment simulated in Canada and on various field training exercises held in BAOR.

So far as leadership of men is concerned, we found it necessary to explain in detail to YOs how to grip a situation. The YOs have a sound theoretical knowledge but little practical know-how. Yet they perform well once they realise that their men can be treated as an extension of their personality. It is that realisation and practical experience at giving short sharp verbal orders to make men move which is needed.

Much is being done at RSME to provide the YO course with the extra material needed to fill the gaps left by the RMA training. I feel, with Major Seekings, that the secret to success lies in practical experience. It is our hope that future courses will contain more instruction in the basic "tactical awareness" to which I have referred above and the opportunity for the YOs to physically lead their contemporaries in conditions which are both physically and mentally demanding.—Yours faithfully, E G Willmott

Major C S Govier (Retd) 7 Orchard Rise Fivehead Taunton Somerset TA3 6PB

WHITHER THE CORPS?

Sir,—While I am aware of my position as a spectator on the touch line of Corps affairs I am moved, by a sense of having once belonged, to give expression to some thoughts which have come to mind after reading the relevant articles in the September issue of the *RE Journal*. I am also encouraged by the E-in-C's invitation to retired officers to voice their thoughts.

In his very interesting address to the AGM the E-in-C was of course speaking without reference to the Government's decision to increase the recruiting targets. He was also speaking on the basis of the Corps' present charter. But, with respect, and as a private citizen, I must question the wisdom of the limitation placed on the Corps' field of interest. Recent history has proven that the Armed Forces have a "Home" role to play. The technical branches have an increasing variety of emergencies with which they may be required to deal. I recall that my first real task after the cessation of hostilities in Germany involved opening up that part of the town of Rheine which had been vacated by the civilian population, in order that we could attempt the rehabilitation of a former Wehrmacht barracks. The technical staff of the local authority who were normally responsible for this work had fled, and had to be rounded up in order that work could go ahead.

My second thought arises from the articles written by Major Seekings and Sir Harold Harding, read in the light of the E-in-C's address. An academic qualification is of little real value unless it is accompanied by wide, relevant experience. Many ex-sappers, on return to civilian life must feel, as I felt, that their technical knowledge is much greater than that of those around them. But because they are not familiar with local detail and personalities they are at considerable and uncomfortable disadvantage. In order that the full potential of members of the Corps may be realised in the national interest, the scope of the Corps activities should be widened to enable them to step straight into certain posts should the necessity arise in an emergency. In the national interest the US Engineer Corps is employed over a wider field than the Royal Engineers, and the arrangement there seems to work satisfactorily. It is realised that a suggestion on these lines would be possible, again in the national interest, to devise some scheme whereby the Corps would acquire the training necessary to enable it to cope with emergencies while not offending trade union interests. I recall that while employed as a DAQMG (Works), at first Command and then District levels, I often saw the need for a mobile artisan works unit capable of being moved around to carry out tasks in areas where suitable civilian labour was not available. Bovington was one such place at one time, and may be still is. The E-in-C has mentioned the financial saving made by the use of sapper labour on specific tasks. I feel sure that even greater beneficial results would be achieved if properly qualified sappers were employed throughout the quartering world.

With regard to the dissatisfaction among service personnel, so widely publicised by the press recently, attention was drawn to the differing circumstances enjoyed by civil servants and military personnel doing similar work. However I gather from RN and RAF personnel with whom I have spoken that the trouble arises from lack of job satisfaction as much as from anything else. Fishery protection vessels were at a disadvantage when employed in Icelandic waters. Members of RAF transport units seem to get little opportunity to do really worthwhile flying trips. Employment of sapper units on infantry patrols must be frustrating for those taking part.

With the above points in mind it may be timely to think that a remedy for many of our problems lies in the reversal of a trend which has gained momentum ever since "spud bashing" was undertaken by civilian staff. Perhaps the time has come for us to think in terms of militarisation of the services instead of civilianisation. To ensure that the armed forces are gainfully employed in peace and emergency we should perhaps widen their fields of interest in peacetime. For the Corps I have in mind the responsibility for, and the manning of, some branches of research having engineering interest, of the development and maintenance of inland waterways, engineering works for RN and RAF as well as the Army. Similar works abroad for developing countries as our contribution to foreign aid could be undertaken. This would call for the selection of the most suitable of the unemployed of this country to be engaged on short terms of service (ie apprenticeship periods of four years) followed by a period of reserve liability. During their service individuals would first learn the rudiments or basic skills of their trade or profession (say one year) and would then be eligible for employment in service units at home or abroad where the practical work would be accompanied by further tuition. I understand that at least one youth training college is already training its students along these lines.-Yours faithfully, C S Govier

> Captain J M Handel B Sc Beckington Abbey Beckington Near Bath Somerset BA3 6ID

"WHITHER THE CORPS?" . . . A REQUIEM

Sir,—As Training Adjutant over the period David Scekings was at the RSME and, like him, a recently retired officer, I feel compelled to comment on his recently published article "Whither the Corps? A Requiem" (*RE Journal* September, 1978).

I do not wish to comment on the historical/philosophical first part of that article except to mention that no serving officer I met at Chatham was ever reticent over passing unconstrained comment about Young Officer (YO) training and the state of the Corps—quite the reverse. I do have difficulty though in seeing a logical connection between that part of the article describing the general difficulties of the Corps and the second part which verges on "YO bashing". It is on the second part of his article I wish to comment.

I must immediately say that I do not know exactly when the article was written, but as David left the RSME four months before the first YOs trained under the scheme formulated by the 1977 review, it is hardly surprising that some factual errors crept into his dismissal of that scheme as "much the same" as before. Since then the Engineer-in-Chief has agreed to an increase in YO training time and the resultant extra training is due to be given to the YOs in December 1978 for the first time.

This lengthened "revised course" has been designed against the background of:

(a) The Job Specification of a RE Troop Commander produced by the RE Training and Development Team as part of the study utilised by the 1977 Review Committee.

(b) Exactly what is taught at Sandhurst (RMAS) on each of the four courses.

(c) The current (and forecast) educational attainments of YOs.

For reasons of time, resources and facilities some areas of training needs had to be sacrificed, but the redesigned course includes a great deal of instruction on leadership (following on from the RMAS course), administration, man management, accounting, military law, equipment maintenance and general Troop Commander "know-how". In addition most YOs are put in the charge of small troops (of soldier students) to gain some, albeit limited, experience of troop commanding during their course. These subjects have been married to the RMAS instruction by close study of those syllabi, closer liaison with Sandhurst Instructors and visits by several RSME Officers including the Commandant. That Sandhurst itself is conducting a validation study on its training perhaps reflects the concern about why these subjects need to be emphasised so much at Special to Arms Schools—the problem is not particular to the Corps. That these subjects are included in the YO course does indicate the design of the course from a "must know" basis.

Additional weeks have also been allocated to Civil, Electrical and Mechanical Engineering subjects, remembering that in 1977 about 80% of the Regular Commission (Reg C) intake and 50% of the Short Service Commission (Young Entry) (SSC (YE)) entry to the Corps held (or were destined for) engineering/science degrees, and so for the majority this phase is supplementary technical training.

In an effort to improve tactical awareness the major YO exercises have been relocated to Stanford and Salisbury Plain Principal Training Areas (PTAs), and a renewed emphasis placed on other field training. However both the geographic location and limited resources of the RSME make further improvements difficult to achieve with a YO troop which operates on exercise in a vacuum. This aspect must remain the priority for continuation YO training at unit level—Chatham cannot do it all.

Whether units can finish-off what the RSME has started in the training of YOs opens a different debate. Having listened to, and entered multitudinous discussions on what should be taught YOs, I wonder how well many activities forced into Regimental Diaries would stand such critical debate. I suggest that the Corps now reviews how to achieve a higher proportion of unit time available for basic sapper and officer training. With participation in full all-arms exercises every year, all ranks including YOs would gain "proper" experience from regimental tours, hence adding the ingredient Chatham cannot provide.

Any more change to the YO course holds the danger of causing a poorer standard of instruction as instructors attempt yet again to change their lesson plans at short notice. A settled period will enable those lessons and aids to be developed properly; it will also allow students and staff to develop a confidence in the course of study; a confidence which I think was uncertain in early 1978.—Yours sincerely, J M Handel

* * * *

Book Reviews

STANIER 8F 2-8-0

(Published by D Bradford Barton Ltd, Truro, Cornwall. Price £4.25) Also obtainable from The Stanier 8F Locomotive Society through their Sales Officer, T G B Donlan Esg. 137 Greenhills Road, Eastwood, Nottingham NG163FT at £4.25

(post free), in which case the retail profit goes to the Society.

FREIGHT locomotives have been largely overshadowed over the years by the glamour of famous express passenger engines. The Stanier 8F 2-8-0s may fairly claim to have been the most advanced freight locomotives produced before nationalisation. Powerful, versatile and reliable, they were used extensively both on and off their parent (LMS) system at home and in several countries abroad. Some were still in service in Turkey in 1976. Members will remember them as over 200 were bought for the WD at the beginning of WW2 and served us well in the Near and Middle East and in PAIFORCE.

This beautifully illustrated book (over 100 photographs) tells the story of the locomotive and a little of the Society who, by raising money, have preserved one of them (No 48773) which is now working on the Severn Valley Railway. Others have been rescued and await restoration.

If you were (or are) a "steam man" you will revel in this book as will all "boys" regardless of age! EEP

BRIAN HATTON A BIOGRAPHY OF THE ARTIST 1887–1916

CELIA DAVIS

(Published by Terence Dalton Ltd. Price £5.95)

CELIA DAVIS is well known to Members. Her autobiography Clean Clothes on Sunday, and its sequel, Far to Go, were reviewed in the Journal. Brian Hatton, her third book, was completed just before her tragic death in a car accident in December 1977.

Brian Hatton failed to survive the Great War, he was killed on 23 April 1916 at the Battle of Katia some twenty five miles east of the Suez Canal when a detachment of the Worcestershire Yeomanry, some 180 strong, were protecting a Sapper working party who were sinking wells. He was an outstanding artist, arguably a genius—why then is he not widely known by the general public? It is probably because so little of his work is in circulation and very rarely comes on the market. Much of his work is in private collections but the bulk is based in the Brian Hatton Gallery at Churchill Gardens, Hertford.

Brian Hatton, an accomplished artist by the age of nine and a prolific letter writer (who illustrated his letters liberally with delightful sketches), was fortunate in that Celia Davis, in collaboration with his sister, has been able to provide the world with such an interesting and readable account of his life as well as of his work.

EEP

BOOK NEWS FROM INSTITUTION OF CIVIL ENGINEERS

All books in this section are published by Thomas Telford Ltd and are obtainable from the Marketing Dept. Thomas Telford Ltd, Telford House, PO Box 101, 26–34 Old Street, London ECIP IJH

GROUND SUBSIDENCE

Price UK and Eire £2-50; overseas by air £4.00

SINCE the publication of the Report on Mining Subsidence in 1959 considerable advances have been made in locating areas of potential subsidence, in predicting the effects of subsidence, and in forecasting the tolerance of different types of civil engineering structure to ground subsidence.

In view of these developments a Committee, set up by the ICE, decided that a completely new volume was required. This book covers causes of ground subsidence, identification, and preventive measures. The effects on structures, communications, land drainage and services are included, and it deals with problems of subsidence caused by natural cavities and disused workings.

A distillation of the most up-to-date information and the most reliable practice, the book sets out to provide guidance to good practice for the civil engineer who is not a specialist in ground subsidence; it also provides an introduction to the extensive literature on more specialized aspects of the subject.

PILING - MODEL PROCEDURES AND SPECIFICATIONS Price UK and Eire £5.00; overseas by air £7.00

So much in piling depends on an exercise of judgement by the experienced engineer; performance depends on sound and alert supervision of the actual works. All this can impose a near intolerable burden on those responsible if they have in addition to meet a specification and contract terms which are confusing and contradictory.

This document contains model procedures for piling, covering contract procedure, conditions of contract, specifications and bills of quantities for piling, a model specification for piling for use incontract documents, and model procedures on site investigation for piling and a model specification for this work. It has been prepared to be consistent with the main forms of contract conditions current in 1977, namely the ICE Conditions (5th edition) and the RIBA Conditions (1963, 1977 revision). Suggested measured items for bills of quantities are also included in the document. They have been prepared in accordance with the CESMM and those methods of measurement in use in building and civil engineering which have been found to be widely acceptable to all sides.

FIBRE REINFORCED MATERIALS: DESIGN AND ENGINEERING APPLICATIONS Price UK and Eire £16.00; overseas by air £19.50

THE Proceedings of a Conference, March 1977, organized by the Joint British Committee for Stress Analysis on the behaviour, design and use of fibre reinforced materials in engineering.

Fibre reinforced materials are finding more and more applications where demanding material specifications have to be met. The twenty-two papers presented at the conference examined the State of the Art along the broad theme of stress analysis dealing with theoretical and experimental methods, dynamic and impact load effects and methods of destructive and non-destructive testing of the materials involved leading to practical product application.

Some Members will be particularly interested in the paper "Carbon Fibre Reinforcement of Experimental Military Bridge Structures" by F J H Tutt of MVEE.

INSTRUMENTATION FOR GROUND VIBRATION AND EARTHWORKS

Price UK and Eire £10.00; overseas by air £13.00

Two papers, one on recording earthquakes and the other on ground vibration instrumentation, introduce fourteen papers which cover assessment of scismic risk; detection and location of earthquakes and unplanned explosions; investigations of earth tremors; analysis and correction of ground and seismic motion recordings; ground vibration monitoring, and instrumentation and methods for acquisition and processing of data; vibration measurement in engineering problems; use of vibration monitoring on offshore structures; and effects of vibration on occupants of buildings. Discussion on the papers is included in the volume.

THAMES BARRIER DESIGN Price UK and Eire £10.00; overseas by air £13.00

THE Proceedings of a Conference held in London on 5 October 1977. Over recent years the possibility that London might be inundated by a combination of high tide and tidal surge has moved from a possibility to a danger so real that protective measures have become essential.

The sixteen papers presented to the Conference, covered the background to the project, the geotechnical and environmental concerns and the design. The participants came from many disciplines and the discussions on the papers raised many aspects of concern to both engineers and environmentalists.

FLOODS AND RESERVOIR SAFETY: AN ENGINEERING GUIDE Price IIK and Fire 52.00 and an in 54.50

Price UK and Eire £3.00; overseas by air £4.50

THIS guide replaces the 1933 report "Floods in Relation to Reservoir Practice" and is intended to assist those individuals who bear the personal responsibility that comes from being appointed to the statutory panel of engineers qualified to design and inspect impounding reservoirs.
THE MIDDLE EAST: LIFE AND WORK FOR THE CIVIL ENGINEER Price UK and Eire £2.00; overseas by air £3.00

A selection of papers presented at a Meeting held at the Institution of Civil Engineers on 17 November 1977

To anyone who has served in the Middle East this booklet is somewhat superficial in places and one cannot help feeling that at least one paper from the Armed Services would have been appropriate. It does however present a useful picture and does give some useful general background on the type of work and clients, project organisation, working with other nationals, design standards, construction materials, plant, labour, communications contracts and payments. The weakness lies in that it doesn't cover how to live, this is where the Services could have contributed a great deal.

HIGHWAYS AND THE ENVIRONMENT Price UK and Eire £2-00; overseas by air £3-00

THE key point papers presented at a Colloquium held at the Institution of Civil Engineers on 4 November 1976 together with a distillation of the discussion.

The delegates to the Colloquium came from the road construction industry and planning departments most closely concerned with making decisions on highway planning and construction. The object was to produce a brief but comprehensive review of the state of knowledge of the impacts of highway schemes on the environment and their physical measurement, and to study means of reducing any conflict between the country's needs and environmental disturbances.

MAINTENANCE OF MARITIME STRUCTURES Price UK and Eire £5.50; overseas by air £8.00

PROCEEDINGS of a Conference held at Institution of Civil Engineers, London 13 October 1977. A number of publications have concentrated on Design and Construction of maritime

A number of publications have concentrated on Design and that the surface area of structures but little has been written on maintenance. When it is realized that the surface area of an underwater structure can be as much as 40 acres, the value of these nine papers will be obvious. They cover organization of systematic underwater inspection and maintenance, underwater welding, case histories of repairs in respect of offshore facilities, ports and breakwaters for both concrete and steel structures.

NOBODY BUT NAAFI COULD GIVE YOU TERMS LIKE THESE

Naafi provides a service exclusively for the Forces. That is why you're bound to be better off buying through Naafi – whether it be a car, catavan, motor cycle, moped or even a boat.

See for yourself! When you buy a new car through Naafi you can benefit from ...

- * Really worthwhile discounts from selected dealers
- * Exceptionally low HP charges
- * First class car insurance
- * Free personal life assurance

 Premature repatriation scheme
No restrictions on taking your car abroad

* Incorporation of freight charges in HP agreement

And Naafi can offer you so much more ... an HP deposit-saving service, an easy payment plan for car insurance premiums, used car purchase facilities ... all specially geared to ensure a better deal for Service people. Ask Naafi about it to-day.

You can't do better!

The Ley to successful തി Natocars buying is free. Ŀ Every Servicer uld see this free quide orce's car purchase whether you eventually buy from us or not. It can save you a lot of money and unfold disappointment. In 32 pages it gives you all the background information you could wish for with prices spett out in block and white. No its; no buts; no vague verbal quotations; no hudden extrus. You'll soon see what makes us No. 1 in cars for H.M. Forces. * Unrivaliad range of vehicles and facilities. Univaliad range of vehicles and facilities. Big Nato Discomas and part exchange. U.K's wides Tax Free stocks for immediate export. Confidencial credit with deposits from 50% and 48 months to pay. Special low interest DA hoans on cart for Garmany. Unique personal service proven over 10 years and completely geard to your needs. ана си уригления alvery anywhere anytime, U.K., ог Europe, Free favry rvice for U.K. collection Irom Germany, Insurance, export pagerwork - its all taken care of for you. No wornus. No toose ends. Deal direct with the original Natocars and Don't Commit Yourself Until You Have Read Our Pack. Natocars A better way to buy your next car Wylds Estate • Bristol Road • Bridgwater • Somerset TA6 40G Telephone: Bridgwater (0278) 55555 Telex, 46285 Telex, 46265 Π Present Address ۵ Ø ۵ ۵ - Lie aleg Le very dan - (+Dar tel) I FORD DVAUXHALL CCHRYSLER CISIMCA LEYCAND Ľ C Austin C Morris C Princess C M G C Rover C Triumph 🛙 🗆 Daimler 🗇 Jagoar C MOTOR CARAVANS CUSED CARS



A first-class design blockmaking and printing service is offered by the printers of this journal

W & J MACKAY LIMITED

LORDSWOOD CHATHAM KENT ME5 8TD

ADVERTISEMENT FOR THE JOURNAL Combined Service Publications Ltd PO Box 4, Farnborough, Hampshire. GU14 7LR Telephone (STD 0252) 515891

HISTORY OF THE CORPS OF ROYAL ENGINEERS

PRICE LIST 1978

							MEMBERS	NON-MEMBERS
Volume	I Norman times-1860					••	£4·50	£9.00
Volume	II	1860-1885	• •	••			£4·50	£9.00
Volume	III)	1005 1014	••		••	••	£3-00	1,6.00
Volume	IV	>1000-191#	••			••	£3.20	17.00
Volume	v1	- •				۰.	£5.50	£11-00
Volume	VI '	1914-1939					£3.50	17.00
Volume	VII]			••	• •	• •	£3.00	6.00
Volume	VIII*	ALAL ARAL					£4.00	18.00
Voiume	IX	1939-1940					£5-00	£10-00
COMPLET	'R SET			••			£27.00	£54-00

Postage and Packing, Surface Mail UK, 70p per Vol up to £1.60 per set Postage & Packing, Surface Mail Overseas, £3.00 per Vol up to £7.00 per set

Sets for Members may be purchased:

1. By single payment of £27.00, plus p & p if applicable.

2. By Bankers Order of:

(a) 9 monthly payments of £3.00

(b) 4 quarterly payments of £6.75

The set will be despatched on receipt of Bankers Order, plus cheque to cover $p \le p$ if applicable.

Sets for Non-members by single payment of £54.00, plus p & p if applicable.



Centenary Meeting - 27th November 1975

COMMEMORATIVE COPIES

THE Centenary Meeting of the Institution of Royal Engineers was held on 27 November 1975. The *RE Journal* published an introductory article by Brigadier J H S Lacey CBE (Secretary of the Institution 1958–72), the Proceedings of the Meeting and a number of written contributions following the Meeting.

All these articles have been collected and have been bound in an attractive red cover as *Commemorative Copies of the Proceedings and Correspondence Inspired by the Meeting*. With each copy (in a pocket inside the back cover) is a Royal Engineers Special Commemorative Cover, hand stamped No 1487 dated 22 May 1975, the actual Centenary Day. Only one hundred of these Commemorative Copies have been produced, each is signed by the President of the Institution for authenticity. This will enhance the value of each copy.

They will be sold on a "first come first served" basis at £3.00 each. Applications to Secretary, Institution of Royal Engineers.

Back Numbers of Royal Engineers Journal

IS YOUR SET OF JOURNALS COMPLETE?

DO YOU REQUIRE A SECOND COPY OF ANY PARTICULAR ISSUE?

SOME 800 issues of the *Journal* have been published. Of these some 750 back issues are available for sale to Members of the Institution of Royal Engineers. In broad terms:

a Between 1872 and 1904 the *Journal* was published monthly and combined the functions of both the *Journal* and *Supplement* as we now know them. In appearance it was rather like a foolscap version of the present *Supplement*.

b Between 1905 and 1922 it changed and became very like the Journal of today although it was still published monthly,

c Since 1923 the Journal has been published quarterly.

The earliest issue available is No XIV published in 1872 (one copy only) and despite its age every word is readable. Some of the covers of early issues are faded and dusty and show their age. The value of these back numbers on the open market would vary from pence to pounds, depending on the content, rarity of issue and the degree of acquisitiveness of the prospective buyer.

As sales are to be confined to Members only, a flat rate of 50p per copy will be made regardless of the open market value.

PORTRAITS AND SILVER OF RE HQ MESS

PUBLISHED BY INSTITUTION OF ROYAL ENGINEERS PRICED £1.50

THIS beautifully illustrated book contains the photographs and descriptive details of fifteen Mess portraits and forty-one pieces of Mess silver. It is a fascinating reference book on the familiar items we have seen and on which our knowledge, (for most of us to say the least), is sketchy. Which portrait was the first to be acquired by the Mess? Which piece of silver is the most valuable? Who v as Ko? Who was the first engineer officer to command a British army in the field! The answers to these questions and many others are yours for the asking price.