

**KONINKLIJKE
VERENIGING
TER BEOEFENING
VAN DE
KRIJGSWETENSCHAP**

OPGERICHT 6 MEI 1865

Ereleden

Z.K.H. de Prins der Nederlanden

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E.R. d'Engelbronner

Z.E. luitenant-generaal
J.P. Verheijen

luitenant-kolonel b.d.
W.F. Anthonijsz

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Vice-voorzitter

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mr.drs. C. Homan, kol marns
J.R. Karssing, kol cav
drs. F.J.J. Princen
A.L.C. Onderwater, kol KLu
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MARS IN CATHEDRA

APRIL 1992

NR 88

Mededelingen van het bestuur

Algemene Ledenvergadering

Aansluitend op de bijeenkomst op 22 juni 1992 zal de Algemene Ledenvergadering worden gehouden. De juiste tijd en plaats zullen in de Militaire Spectator bekend worden gemaakt. In tegenstelling tot de lezingen en andere activiteiten van de Vereniging is deze bijeenkomst uitsluitend toegankelijk voor leden.

Agenda:

1. Opening door de voorzitter.
2. Mededelingen door de voorzitter.
3. Jaarverslag van de secretaris.
4. Jaarverslag van de penningmeester.
5. Verslag van de kascontrolecommissie.
6. Verkiezing van de bestuursleden.
7. Verkiezing van de kascontrolecommissie 1991.
8. Rondvraag.
9. Sluiting.

Jaarverslag van de secretaris

Sinds de Algemene Ledenvergadering op 6 mei 1991 is het bestuur als volgt samengesteld: voorzitter: brigade-generaal P. Huijsman; vice-voorzitter: kolonel drs. R.H. Rozeboom; secretaris: majoor A.G.D. van Osch; penningmeester luitenant-kolonel M.P. Dekker; hoofdredacteur van de Militaire Spectator en Mars in Cathedra: brigade-generaal T. de Kruijs; ledenadministrateur: J. Nijman; leden: luitenant-generaal b.d. professor G.C. Berkhof, tweede-luitenant drs. M. de Haas, kolonel der mariniers mr. drs. C. Homan, luitenant-kolonel P.W. Gorissen; kolonel J.C.W. Rhaesa, drs.

F.J.J. Princen, jhr. mr. J.P. de Savornin Lohman, kapitein ter zee R.A.A. Klaver. De bestuursleden kolonel J.C.W. Rhaesa en luitenant-kolonel P.W. Gorissen hebben kenbaar gemaakt niet herkiesbaar te zijn. Als opvolger van kolonel J.C.W. Rhaesa stelt het bestuur voor de kolonel A.L.C. Onderwater. In opvolging van luitenant-kolonel P.W. Gorissen wordt vooralsnog niet voorzien.

In het jaar 1991 heeft de Vereniging voor haar leden en voor geïnteresseerden de volgende bijeenkomsten gehouden.

Op 4 maart 1991 is op de Prinses Julianakazerne een lezing gehouden door Group Captain Andrew Vallence van het Royal Air Force Staff College over het onderwerp "The Importance of Airpower in the 21st Century".

Op 6 mei 1991 is op de Prinses Julianakazerne een lezing gehouden door prof. dr. P.R. Baehr over het onderwerp "de rol van de VN na de Koude Oorlog en de Golf".

Op 30 mei 1991 is in het Haags Gemeentemuseum in samenwerking met het Nederlands Genootschap voor Internationale Zaken een lezing gehouden door François Heisbourg (Directeur "International Institute for Strategic Studies", Londen) over het onderwerp "Possibilities for a Pan-European Security Structure".

Op 4 juni 1991 is in de Ronde Zaal van Defensie Voorlichting een discussie-avond georganiseerd over de Defensienota 1991, o.l.v. H.J. Neuman; forumleden waren J.D. Blaauw (VVD), J.J.J.A. van Rooyen (CDA), L. Sipkes (Groen Links), M. van Traa (PvdA) en P.K. ter Veer (D66).

Op 26 september 1991 is in de Ronde Zaal van Defensie Voorlichting een lezing gehouden door twee gastsprekers van 1(UK)Armoured Division, major T.J. Camp en major M. Varley, over "het optreden van 1(UK)Armoured Division tijdens de Golf-oorlog".

Op 11 november 1991 is op het Opleidingscentrum Infanterie te Harderwijk een lezing gegeven door brigade-generaal b.d. ir. E.B. van Erp Taalman Kip (directeur Prins Maurits Laboratorium TNO) over "technologie-ontwikkeling en de invloed op de Nederlandse Krijgsmacht".

Op 13 november 1991 werd dezelfde lezing door brigade-generaal b.d. ir. E.B. van Erp Taalman Kip gehouden op de KMA te Breda.

Van de gehouden lezingen werd en wordt schriftelijk verslag gedaan in Mars in Cathed-

ra, dat als katern in de Militaire Spectator periodiek aan de leden wordt gezonden. Op 25 oktober 1991 is namens de Vereniging door kolonel A.L.C. Onderwater de Krijgswetenschapsprijs voor cadetten uitgereikt aan de cadet-vaandrig der infanterie L. de Lange.

Op 10 januari 1992 is namens de Vereniging door kolonel der mariniers mr. drs. C. Homan de krijgswetenschapsprijs voor adelborsten (1991) uitgereikt aan eerste luitenant der mariniers E.K. Schot.

Eind 1991 is door de heer drs. H.J. Schouwenburg de Stichting Schouwenburgfonds opgericht. Deze stichting heeft ten doel: "het bevorderen van wetenschappelijke studies en de totstandkoming van wetenschappelijke publicaties op het gebied van de Nederlandse militaire geschiedenis. Zij tracht haar doel te verwezenlijken door onder andere de driejaarlijkse uitreiking van de Schouwenburgprijs voor een wetenschappelijke, militair-historische studie of publicatie. Deze prijs zal bestaan uit een geldbedrag van minimaal f 7500,- en een bronzen penning. Zonder formele banden aan te gaan, heeft de Vereniging haar medewerking aan deze Stichting toegezegd. In het bestuur van de Stichting zal tevens een bestuurslid van de Vereniging worden opgenomen. Als eerste heeft luitenant-generaal b.d. professor G.C. Berkhof deze taak op zich genomen.

In 1991 is de mogelijkheid tot samenwerking met andere verenigingen nader onderzocht. Besloten is deze samenwerking te intensiveren via een daartoe door de Atlantische Commissie reeds genomen initiatief. Dit initiatief betreft o.a. het afstemmen van kalenders en het (onder voorwaarden) publiceren van aankondigingen voor bijeenkomsten in elkaars periodieken.

In 1991 zijn voorlichtingsactiviteiten uitgevoerd door het bestuurslid "public relations" tweede luitenant drs. M. de Haas, en de leden cadet-vaandrig B. Bams, cadet-korporaal P.C. Kleingeld, R. Noordermeer en P. de Groot. Informatie over de Vereniging werd verschaft m.b.v. een informatiestand op de Open Dagen van respectievelijk de luchtmacht (vliegbasis Twente, juni), de marine (Den Helder, juni) en de landmacht (VOC, Ede, augustus). Tevens zijn ledenwervingsacties gehouden op het Koninklijk Instituut voor de Marine, de Koninklijke Militaire Academie en het Opleidingscentrum Officieren. Deze activiteiten hebben enkele tientallen nieuwe leden opgeleverd.

Jaarverslag penningmeester

Resultaten 1991. Het verenigingsjaar is afgesloten met een positief saldo van f 8509,50. Dit bedrag is groter dan voorzien. Dit wordt veroorzaakt door het optreden van een eenmalige bate van f 4255,26. Dit bedrag is restant van oude subsidies i.h.k.v. de leerstoel en is vrijgevallen ten gunste van de verenigingskas. Zonder deze eenmalige, niet voorzien bate zou het positief saldo f 4254,24 hebben bedragen, hetgeen lager is dan voorzien was.

Dit wordt veroorzaakt door een tweetal tegenvallers: ten eerste moest briefpapier worden aangeschaft en ten tweede was de publikatie van het jaarverslag aanzienlijk duurder dan voorzien, doordat het separaat moest worden verzonden en niet kon worden opgenomen in een van de uitgaven van Mars in Cathedra. Het bestuur zal pogingen in het werk stellen dit laatste in 1992 te voorkomen.

De relatief hoge andere bestuurskosten worden veroorzaakt door het feit dat in 1991 tweemaal afscheid werd genomen van bestuursleden die zeer lang hebben gefunctioneerd en het feit dat nog enige nagekomen kosten van het lustrum

moesten worden betaald.

Een belangrijke meevaller is de kostenpost "Lezingen". Deze kon relatief laag blijven vanwege de samenwerking die met enige andere verenigingen heeft plaatsgevonden waardoor de kosten konden worden gedrukt.

Per 1 januari 1991 is een nieuw rekeningstelsel ingevoerd voor de boekhouding. Hierdoor is een aantal kosten verantwoord op een andere rekening dan waarop zij begroot was. De begroting was namelijk opgesteld door de vorige penningmeester en daarbij was het oude rekening-schema gehanteerd.

Balans per 31 december 1991. Het boekjaar van de vereniging wordt afgesloten per 31 december 1991. Dit betekent dat een post "nog te ontvangen rente" die vorig jaar wel reeds bij het kapitaal was geteld, dit jaar daar niet bij is geteld. Dit is de reden dat het kapitaal niet is gestegen met hetzelfde bedrag als het positief saldo. In feite was bij de berekening van het kapitaal vorig jaar reeds een voorschot genomen op deze nog te ontvangen rente. Uiteraard is dit een zuiver boekhoudkundige zaak en zal deze vertekening in de volgende jaren niet meer optreden.

BALANS per 31 december 1991

Activa

Liquide middelen	
Girorekening 1	4114,75
Girorekening 2	150,—
Bank	1391,03
Beleggingen	
Leeuwrekening	41.500,—
C & E Bank	57.423,54
Debiteuren	
Te bevorderen subsidie	542,96
Uitstaande voorschotten	157,97+
Totaal activa	105.280,25

Passiva

Vooruitbetaalde contributie 1992	19.690,—
Kapitaal	85.590,25 +
Totaal passiva	105.280,25

Resultatenrekening 1991

Baten

	Werkelijk	Begroot	Verschil
Contributie	28.984,00	29.000,00	-16,00
Subsidie leerstoel	18.542,96	18.000,00	542,96
Rente	4918,25	5000,00	-81,75
Diversen	4255,26	0,00	4255,26
Totaal inkomsten	56.700,47	52.000,00	4700,47

Lasten

	Werkelijk	Begroot	Verschil
Ledenadm	3794,34	3600,00	194,34
Secretariaat	5178,60	2000,00	3178,60
Publ Rel alg	1146,80	0,00	1146,80
Betalingsverk	166,56	0,00	166,56
Overig bestuur	3181,85	0,00	3181,85
Lezingen	6296,26	9000,00	-2703,74
Leerstoel	18.542,96	18.000,00	542,96
MiC	7603,65	8000,00	-396,35
Diversen	2279,95	5000,00	-2720,05
Totaal uitgaven	48.190,97	45.600,00	2590,97
Positief saldo	8509,50	6400,00	2109,50

Begroting 1992

Baten		Lasten	
	Begroot		Begroot
Contributie	29.000,00	Ledenadm	3600,00
Rente	5000,00	Secretariaat	2500,00
Leerstoel	18.500,00	Publ Rel alg	1250,00
Diversen	0.00	Betalingsverkeer	250,00
		Overig bestuur	2000,00
		Lezingen	9000,00
		MiC	8000,00
		Leerstoel	18.500,00
		Prijzen	1750,00
		Diversen	1000,00
Totaala inkomsten	52.500,00	Totaal uitgaven	47.850,00
		Positief saldo	4650,00

Begroting 1992. Het bedrag voor lezingen is onveranderd gehouden op f 9000,-. Het bestuur meent dat aan deze hoofdactiviteit van de vereniging voldoende financiële middelen te beschikking moeten staan.

Omdat betalingsverkeer niet langer gratis is, is hiervoor voorshands een post van f 250,- begroot.

Het is voorzien dat ook het jaar 1992 kan worden afgesloten met een positief saldo. Deze saldi worden echter van jaar tot jaar kleiner, waardoor het in de toekomst wellicht noodzakelijk is een contributieverhoging door te voeren.

Adelborstenprijs 1991

Het afgelopen jaar kwam wederom een afstudeerscriptie van een 5e jaars-officiercursis van het Koninklijk instituut voor de marine in aanmerking voor de toekenning van de adelborstenprijs van onze Vereniging. De overhandiging van deze prijs vond plaats tijdens de uitreiking van de getuigschriften aan de 5e jaars officiercursisisten, aan de eerste luitenant der mariniers E.K. Schot voor zijn scriptie "Het Sovjet buitenlands beleid", op 10 januari j.l.

In deze bekroonde scriptie legt de scribent op verdienstelijke wijze het grillige verloop van het Sovjet-buitenlands- en veiligheidsbeleid van de afgelopen jaren bloot, een en ander vooral tengevolge van de interactie tussen de internationale ontwikkelingen en de binnenlandse politieke prioriteiten.

Hoewel de gegevens waarop het werkstuk zich moest baseren gebonden waren aan het tijdstip van onderzoek, doen deze echter niets af aan de kwaliteit van de door de scribent geleverde prestatie. De schrijver geeft in de scriptie ervan blijk een uitermate ingewikkelde stof in overzichtelijke patronen te kunnen vervangen, zonder zich in wijdlopiegheid te verliezen, een en ander in een heldere stijl. Tevens zijn hoofd- en bijzaken keurig gescheiden, terwijl de historische achtergrond vloeiend overgaat in actuele beschouwingen. Resumerend voldoet de scriptie alleszins aan de eisen die gesteld zijn voor de prijs van onze Vereniging. De prijs werd op de bovenvermelde datum uitgereikt door het bestuurslid van onze Vereniging, kolonel der mariniers mr. drs. C. Homan. Deze maakte in zijn toespraak van de gelegenheid gebruik om de aanwezige marine-officieren op te wekken lid te worden van onze Vereniging. Zoals bekend, is in vergelijking met de twee andere krijgsmacht delen het aantal marine-officieren dat lid is van onze Vereniging vrij gering.

Voordracht

Op 26 september 1991 werd door twee officieren van het Britse leger, major T.J. Camp en major M. Varley, onder grote belangstelling in Den Haag een lezing gehouden over het onderwerp:

Het optreden van 1(UK) armoured division tijdens de Golfoorlog

De tekst van de voordracht is in het volgende weergegeven. Na afloop van de lezing werd uitgebreid en openhartig met de inleiders van gedachten gewisseld. Het weergegeven van een samenvatting van deze discussie is, vanwege de aard van de besproken onderwerpen, echter niet mogelijk gebleken.

Major T.J. Camp behandelde als eerste spreker de operationele en tactische aspecten van het optreden van de Britse divisie, terwijl major M. Varley vervolgens de logistieke ondersteuning aan de orde stelde.

Introduction

My name is major Tom Camp and I am the staff officer grade two responsible for operations in Headquarters 1 British Armoured Division. I left the Army Staff College early last November to join the headquarters just before it deployed to the Gulf. Thank you for inviting us here tonight to speak on the subject of Operation GRANBY. The operation was the largest mounted by British forces since the Falklands Islands Campaign in 1982 and more importantly was mounted using heavy armoured forces as opposed to the specialised commando and parachute troops used in the Falklands. For that reason more than any other the Gulf Campaign has been examined closely for lessons to be gained, not only for future Out of Area operations but also for the future concept for the Defence of Central Europe which envisages a more mobile defence conducted over far greater distances than currently.

We hope to give you a feel for the campaign this evening, but more importantly highlight the lessons learned as a result of the Gulf War. It will be necessary to give you sufficient details of the operation in order to place the lessons in context, but we hope to avoid merely subjecting you to a campaigning history.

We will conduct the briefing in four parts. Firstly we will consider the background and mounting of the campaign, from both an operational and logistic point of view. We will then consider the in-theater training and preparation in Saudi Arabia before going on to cover the ground war itself between 24 and 28 February 1991. Finally we will summarise the lessons learned with particular emphasis on their relevance to future operations.

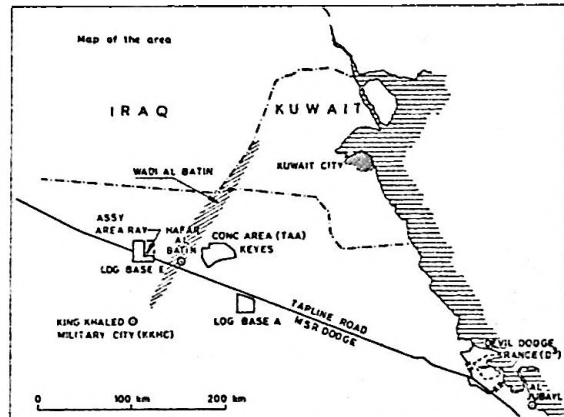
I would emphasize that our perspective is that of the division. A division that while important to us was only a small part of a much larger operation. The facts you will hear are all correct but I would point out that the views expressed are in many cases our own. While we are happy to answer your questions, those answers are not for quotation elsewhere.

Background and mounting

You will recall that Iraqi troops invaded Kuwait in the early hours of 1 August 1990 after a period of tension and much arguing concerning oil revenues and the cancellation of loans made from Kuwait to Iraq during the Iran/Iraq War. The United States announced its decision to send troops to the Gulf on 7 August. The British government declared its intention to send forces to the Gulf on 8 August although these were initially air and naval forces.

On 14 September 1990 the Secretary of State for Defence announced that 7 Armoured Brigade (Armd Bde) of 1 Armoured Division (Armd Div) would be sent to the area. (We will refer to the deployment of the 7 Armd Bde Group (Gp) as 'GRANBY ONE' and the subsequent deployment of the divisional headquarters and 4 Armd Bde as 'GRANDBY ONE POINT FIVE').

It is worth acquainting you with the areas which



will be referred to throughout the briefing. They are on the map. I would point out: Jubayl, the Tap-line road, Hafar Al Batin, Wadi Al Batin and ... the scale.

The 7 Armd Bde Gp began to deploy into theatre after a detailed reconnaissance by the commander. Initially training for the 7 Armd Bde units of operation 'GRANBY ONE' had been limited primarily to live firing in Germany prior to deploying to the Gulf in early October last year. This was supplemented by individual training organised mainly by units. Once in theatre, 7 Armd Bde initially continued individual training while acclimatising to the extreme temperatu-

res. The brigade was declared operationally ready on 16 November and transferred to the Tactical Control of the 1st Marine Expeditionary Force.

One week later it was decided to deploy 4 Armd Bde and Headquarters 1 Armd Div to bring the British contingent up to divisional strength. The division consisted of 4 and 7 Armd Bde, both with an artillery (arty) and engineer (enrg) regiment (regt) in support (sp). The division also had two depth fire regts, one of M110 and one of MLRS, an aviation (avn) regt and a medium reconnaissance (med recce) regt under Operational Command. Time for deployment and training was short.

The Commander General (COG) Rupert Smith conducted his reconnaissance in November and returned home with a good idea of how the divisional battle would have to be fought. He had decided that he would have to fight the division sequentially so that if one element of it was in trouble then that portion uncommitted could assist in the extraction of the first part. To do this successfully the ability to gather information and the availability of long range fire power would be critical. Intelligence as always would be the key to success and the division needed to be self reliant for it.

The next critical factor was organisational mobility. The divisional commander defined this as the ability to be independent at as many levels of command as possible; independent for indirect fire, engineer resources, logistics. This would allow regrouping to be quick and for groupings to be isolated for a period of time. Stocks at first line must all be mobile and with cross-country mobility to go where the tracked vehicles were going. The division had to be organised in such a way as to be capable of enduring a long fight. It was felt at one time that this could be as much as something of the order ninety days. This would have logistics implications but led eventually to divisional commander asking for a battalion headquarters to handle reserves both men and equipment. The divisional commander also recognised that operations would in the main be offensive and that force ratios were such that the allies would have to concentrate on few axes and go in deep. Drills, movement and regrouping would have to be fundamental training objectives. The flanks of the division would be vulnerable and this reinforces the need for groupings to be logistically independent and identified a need for extra operations and troops to guard headquarters.

The divisional headquarters concentrated on organising itself to go to war in a new theatre. It was decided that the headquarters would require two identical complexes, both of which were

self contained and capable of controlling the division in war. This was not possible initially with our Germany establishment of men or vehicles. It was acknowledged that all elements of MAIN headquarters would require armoured protection and tracked movement. The decision to fully duplicate all agencies in both headquarters obviously required additional manning. In total the main G2/G3 headquarters staff increased from a pre-GRANBY establishment of 45 officers and 46 soldiers to 76 officers and over 100 soldiers. This was due in some measures to the fact that the divisional headquarters had recognised that it would have to provide certain functions for itself which would normally have been provided for it by a British corps headquarters. The Air Support Operation Centre grew in size significantly and additional electronic warfare elements were incorporated into the intelligence teams.

Meanwhile 4 Armd Bde and its support troops concentrated on preparing vehicles and training prior to deployment. Once the decision to deploy the majority of the division had been made, the training cycle sought to take advantage of all those lessons learned by 7 Armd Bde. It centred mainly on Army Training Directives, but due to the competing priorities, much training obviously had to continue after deployment to Saudi Arabia. Training was conducted largely using unit resources but was supplemented by visiting specialist teams such as that for desert navigation. As for the 7 Armd Bde Gp, the aim was to attempt to allow all crews of tanks and armoured fighting vehicles to fire their main weapons before deployment to the Gulf and a live firing programme took place in Germany. All main battle tanks completed firing, although some changes to the ship loading programme were necessary in the later stage to achieve this.

In theatre preparations

The divisional headquarters opened in Al-Jubayl on 10 December 1990 and began to assess the requirements for equipment and training now that the division was in theatre. Training was the over-riding priority for 4 Armd Bde which was slowly arriving. 7 Armd Bde had been in theatre for some two months and were well acclimatised and skilled in desert techniques. The matter was complicated by the fact that 4 Armd Bde was normally under the command of the British 3 Armd Div in Germany and had not been under our command before.

I will now go into some depth on the training which was essential prior to the operation. As I have already indicated, 4 Armd Bde and much of the artillery, engineer and logistic units had not worked with the division before. And we we-

re about to conduct operations in a theatre for which we were unprepared. The training conducted can be broken down into three main areas:

Firstly, training of commanders and their principal staff was achieved by means of a series of five map exercises (MAPEXs), held at divisional headquarters. The objective of these exercises was to familiarise commanders and their staff with the GOC's concept of battle for the future operation. The ideas and discussions which flowed from the exercises contributed much to the later success. In that only short oral orders were necessary in battle to give direction, since all were aware of the overall concept and associated procedures. I must emphasize that the MAPEXs focussed on general concepts and maximum flexibility, since we had no firm idea of who or where we would be fighting. It was not targeted against a specific area or enemy.

Secondly unit training which was centred mostly on DEVIL DOG DRAGOON Range (D3 Range as it was to become known). This was situated to the north of Al Jubayal and was constructed jointly by British and American engineers (hence the name!). The apparently simple task of obtaining clearance for live firing was fraught with delays and problems, and dealing with a multitude of individual owners proved a challenge. Experience showed that there is no such thing as 'spare desert', it is all owned by somebody and this complicated discussions for clearance and nearly delayed use of the facility. D3 Range totalled over 500 square kilometers and included tank commissioning and small arms ranges, dry and live training area for manoeuvre units up to battle group strength, specialist ranges for engineers and artillery including MLRs, and a large impact area which allowed the employment of close air support.

Thirdly, formation training including all arms involvement was possible on D3 Range. The engineers had constructed a sizeable defensive position incorporating all the features which we knew of the Iraqi forward defences, so that brigades could practise breaching and clearance of enemy positions by the infantry. All principal fighting elements of the division had completed a comprehensive package of individual, unit and brigade level training by the end of January 1991. Training was tempered by a requirement to conserve main assemblies for operations from quite an early stage and track mileage was strictly controlled. Priority was given to 4 Armd Bde and thus 7 Armd Bde were limited to fifteen km a week for the Challenger tank and thirty km per week for the Warrior fighting vehicle.

The division moved to concentration area KEYES between 14 January and 3 February 1991 and this period of time spent in KEYES and the

latter move to area RAY provided the opportunity for the division to train and manoeuvre as a whole. The divisional level training took the form of four major elements:

Firstly, a final MAPEX was conducted on 27 January at divisional headquarters and had the additional benefit of being attended by staff officers of 1 (US) Mechanized Infantry Division who clarified the manner in which they intended to breach the Iraqi defences. This was a valuable mind clearance exercise and allowed commanders of all elements of the division to re-examine the GOC's concept and ask specific questions of the Americans.

Secondly, Exercise MUSANNAH STORM between the 29th and 31st January 1991. This included a joint TEWT/CFX phase with 1 (US) Mechanized Infantry Division who would be securing and developing the breach for us. This involved all commanders and as many vehicle drivers as possible conducting a walk and drive through the US lane marking system and identifying all the light and signs which they would expect to see during the breach operation.

Thirdly, Exercise DIBDIBAH DRIVE between the 4th and 6th of February involved a complete rehearsal with the American division. A 100 km circuit of area KEYES allowed all elements of the division, including logistic elements to pass through a practise breach area, using the US lane system.

Finally, Exercise DIBDIBAH CHARGE between the 14th and 16th February capitalised on the divisional move to assembly area RAY and provided the first real opportunity to manoeuvre the division. Regrouping from one brigade to the other was practised and the division rear area was able to conduct a night move.

A large amount of new equipment were procured for the division in the form of UORs - Urgent Operational Requirements - a key one being uparmouring for Challenger, Warrior and engineer vehicles. This had been procured as a protective measure but added three tons to the weight of a Warrior or Challenger. There was no argument about the benefits of ballistic protection but it is no use having vehicles where the crews are safe but never reach the objective. The division conducted trials to examine speed and agility, fuel consumption, maintenance, recovery as well as the vehicles ability to cope with bridging equipment and loading onto tanktransporters. We also trialled the fitting of the armour, both in camp and in the desert.

Other new equipment included satellite navigation systems which contributed much to the later success of the campaign by allowing us to move confidently at night. We also gained additional heavy machine guns for air defence and secure radios for logistic nets. Secure radios we-

re issued at company/squadron levels for the first time, a measure which did much to reduce the need for codes when battle began.

While all this training and equipping was going on, the commander and his plans team were continuing to refine the operational plan. What the divisional commander wanted to achieve were easily digestible objectives for the brigades, so that they could consume the 'bite sized' piece quickly with minimum loss and move on. Thus we would achieve tempo. Furthermore, if the committal of the brigades could be sequential, then the one not in Contact Battle became the logistical main effort, thus speeding up the process of reorganisation and replenishment.

By late december 1990 the decision was taken for us to be subordinated to 7 (US) Corps, and we were authorised to plan with them although we were not under Tactical Control. The overall plan had everyone deploying in Phase I to positions south of Kuwait. During this time 1 (UK) Div was to appear as part of the Marine Force. It was felt that the identification of the British, a major US ally, by the Iraqis would help them to identify the main effort, so our subordination to 7 (US) Corps as we both in fact move to our concentration area had to be concealed for as long as possible. Then, in Phase II 3rd Army of 7 & 18 corps would side step west of Wadi A1 Batin and the Marines would move up, so that all corps were in line but this would need to be concealed.

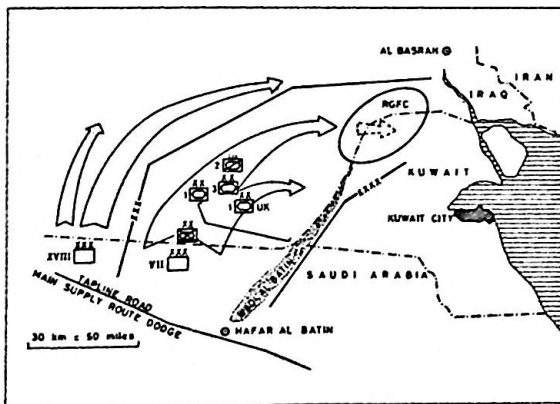
Commander 7 (US) Corps had been given the mission of destroying the Republican Guard. He intended to get his main striking power, at a minimum the two big US armoured divisions (which were approximately four times the combat power of 1 (UK) Armd Div) up into the killing area to destroy the Republican Guard (see: OPERATION PLAN VII CORPS). He wanted to do this without having to fight to get there and planned to use his cavalry regiment, 2 ACR (Air Cavalry Regiment), about equivalent size to 1 (UK) Armd Div, to find the gap and lead 1 & 3 (US) Armd Div north. However, he had to breach the main defensive position with 1 (US) Infantry (Inf) Div because he could not be sure of a gap, he could

not afford to make his main supply route (MSR) any longer and we, his flank guard, would not have been in the right place in the right time to protect his flank. The planned second echelon of his attack was 1 (US) Cavalry (Cav) Div held as theatre reserve and employed initially to carry out feint attacks up the axis of the Wadi. The overall plan envisaged the two wings attacking 24 hours before the centre. The idea being to get the Republican Guard to react to one or other wing and then strike it with 7 (US) Corps and the Air Force. G-day was the first day of the ground war, but H hour for 7 (US) Corps would be on G+1 when 1 (US) Inf Div would breach while 2 ACR would lead 1 and 3 (US) Armd Div around and through the gap they were to create on the western flank. A detailed operational appreciation by the plans team of enemy positions as they were known at the time coupled with known existing routes led to the target matrix. The target matrix was designed to give a series of objectives achievable by brigades sequentially. The problem of breaking out of the breach of the Iraqi defences created by United States forces also concerned the divisional commander. He assesses that there were three possible scenarios as follows: - scenario 1: The enemy were fixed or being slow off the mark and we had space - the clear air option. In which case 7 Armd Bde would lead.

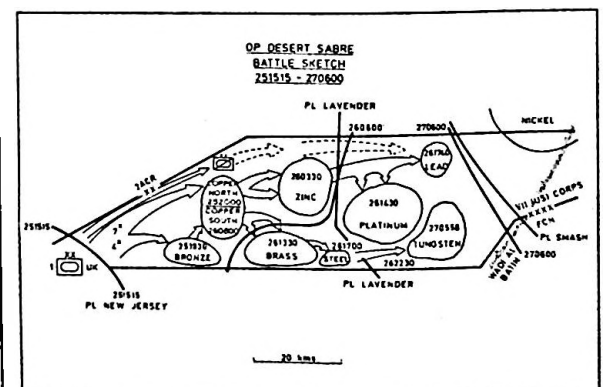
- scenario 2: The enemy were closing, in which case one or other brigade would lead, depending on where it was expected that the meeting engagement would take place. The object being to halt the enemy far enough out to get the division out to destroy him.

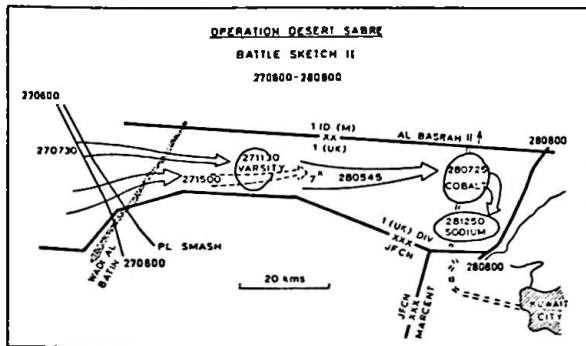
- scenario 3: The enemy had counter attacked, we would have to continue the breakthrough, in which case 4 Armd Bde would lead, reinforced with extra engineers and of course artillery. This was the worst case and therefore we would enter the staging areas with 4 Armd Bde leading.

The ground war operation Desert Sabre - see Battle sketch I and II



Operation Plan VII Corps





By the 24th February, the division was in area RAY. The battle had actually started for the division some seven days earlier with the artillery group conducting an artillery raid programme which was part of the corps Deep Battle at that time and, apart from reducing the enemy's artillery and dominating their minds, it had deception objectives. These artillery raids served not only to enhance the training of the artillery group and also reduce the enemy's ability to interfere with our attacks by attacking from the south when we got behind him.

You will recall 7 Corps was to attack 24 hours after everybody else. However, the Republican Guard were not tempted to move and 7 Corps were told to attack at once. 1 (US) Inf Div attacked with a fire plan of sixty batteries of artillery on an initial frontage of about seven kms: and made rapid progress. So not sooner had the divisional commander given orders on G-day than we were told to move to the staging area more quickly. Movement orders were re-issued and we started up the routes on our tracks rather than by tank transporter as planned accepting the risk of mechanical attrition which in the event proved to be minor. The GOC flew forward and MAIN headquarters was activated just on the border with Iraq. It was expected that we would start the passage of lines at about 1000 the next day.

All that afternoon and evening we focussed our attention on the objectives COPPER, BRONZE and PLATINUM. Our reconnaissance drone flew and flew again, and every American aircraft which completed corps deep attack tasks onto the enemy brigades in PLATINUM & BRASS were asked what was happening. By midnight the GOC decided that the enemy were not going to counter attack into the breach and as the enemy did not appear to be moving the division would go for the clear air option. A warning order was issued which, amongst other things, changed the order on march so that 7 Bde led instead of 4 Bde.

At dawn on the 25th February, MAIN headquarters moved again and co-located with headquarters 1 (US) Inf Div just south of the breach. At midday the corps commander gave the order

for 1 (UK) Armd Div to go. At the same time he said that he wanted 1 (US) Inf Div to move round to our north, leaving only a brigade in the breach, so as to be attacking in their sector by the following dawn having relieved 2 ACR. Both of divisional commanders asked for a moment to think about this and after about five minutes said they could do it. The solution was to cut 1 (UK) Armd Div in half, separating the divisional logistics from the brigades. It was thought that this would last for eight hours, in fact it was nine and the GOC was prepared to do this because of the logistic grouping, which has already been discussed.

The GOC then gave orders over the radio which largely confirmed the warning order. Essentially he was going to have his main effort with the depth battle focussed on COPPER/BRONZE until 7 Bde were clear of the phaseline NEW JERSEY. Thereafter the main effort switched to 7 Bde, who on a narrow front, and grouped with two med recce regts were to attack the enemy's weakest point, as the commander judged it, to go through COPPER NORTH, destroy anything in their path and then to destroy the forces in ZINC and then to block east-west movement over LAVENDER within boundaries. The artillery group followed and once 7 Bde were at COPPER, was to shift the depth battle to ZINC and subsequently LEAD. The GOC's concept was to get in as deep as possible as quickly as possible so as to interdict and then destroy forces moving in sector. 4 Bde, the last out, were to clear the enemy from BRONZE and COPPER SOUTH so that we had room to get everyone out. They were not allowed to cross TULIP without orders because they did not have enough artillery to satisfy the commander's desired force ratios. Finally the depth battle also included the flanks and commander artillery had 142 Fieldartillery Bde super-imposed to cover any enemy counter attacks from the south. In effect that was the divisional reserve. I haven't time to tell you of the rolling traffic jam as we attacked in driving rain and blowing sand with the 16/5L Med Recce Regt mixed up with 7 Bde and the artillery logistical vehicles intermingled with 4 Bde on that first night. However one of the consequences was that the depth attack on ZINC never really took place.

Well by dawn on 26 February, 7 Bde were on LAVENDER and having a series of contacts with that were believed to be units occupying or moving into occupy the prepared positions just to their east. The 16/5L Recce Regt were overlooking LEAD - 100 kms deep into the enemy - and air interdiction operations were being directed onto targets. The commander artillery and the divisional commander had a discussion and the MRLS reft were moved right forward to en-

gage LEAD. The main effort switched to 4 Bde and they were told to destroy the enemy in BRASS. Because the targets were so spread in depth and we wanted to continue hitting LEAD. The only reserve was the aviation regt. The weather was not on the side of the aviation. Winds were about thirty knots, lifting sand and it rained occasionally. The GOC felt that he had to do this because if BRASS was bypassed, the corps logistic routes now protected in the brach by only one battalion group could be attacked by the enemy before anything could be done about it.

Once 4 Bde had dealt with the enemy in BRASS, it was felt that the enemy in sector could try and counterattack but they would always present a flank to one or other of the brigades. Our concern were the divisions to our north. Communications were poor both to corps and 16/5L, but it was encouraging to hear that 16/5L with the MLRS in the depth battle were breaking up groups of enemy vehicles coming south and we intercepted a message from the TAWAKALNA Division of the Republican Guard discussing a withdrawal with General Headquarters in Basra. The main effort was shifted back to 7 Bde who were directed onto PLATINUM with their secondary objective being LEAD. 4 Bde were warned to attack TUNGSTEN on orders, and this became commander Royal Artillery depth target.

In the planning process PLATINUM had been divided into two because the correlation of forces was such that it had either to be attacked by a four battalion group brigade in two phases or both brigades. Now the divisional commander had a measure of the enemy he started to adjust the equations and committed only 7 Bde with reinforcing artillery to the attack. As an example of the man on the spot knowing best, commander 7 Bde reworked the equation again, attacking with only two battalion groups and was quickly onto his secondary objective with the third. We had direct fire weapons covering the most important point on our limit of exploitation about twenty six hours after we started, having had directed indirect fire onto it for some ten hours. Once PLATINUM was secure, the main effort shifted back to 4 Bde, who set about destroying the enemy in TUNGSTEN. At divisional headquarters we were receiving orders from corps to be prepared to pursue the enemy.

During this period we had outrun our recce systems. The CVRTs (combat vehicle reconnaissance tracked) lacked speed and protection, drone, sound ranging etc. could not keep up and communication with corps headquarters was difficult. The divisional nets were

fragmented. One could usually talk on something to somebody but it was not all informed. So that night 4 Bde continued their attack and we took the following measures in preparation of the pursuit:

- a. The medium reconnaissance elements were pushed over out limit of exploitation.
- b. 7 Bde were grouped as a strong force (100 Challengers, 50 Warriors, two medium arty regts and six MLRS) and the commander intended to dispatch them straight at any objective he was given. They were to go at best and the division catch up when I could.
- c. An artillery group was to follow and consisted of alternate headquarters, six MLRS, a medium artillery regiment and four FARPS (forward area refueling points) of the avn regt.
- d. The balance of the division would then follow led by 4 Bde which would be committed to either a parallel pursuit or to a divisional attack depending on circumstances.

Logistically we were strung out from the assembly area to LEAD, SOME 250 km. We had bypassed a lot of enemy positions, we had a large number of POWs (prisoners of war) waiting to be collected and it was unclear what would happen next. The deputy chief of staff had already started the move to close up. The division rear boundary was set on LAVENDER/SOUTH PLATINUM, the limit of range of the rear most MLRS system. While all these orders were being given, 4 Bde were still fighting and to our flanks the situation was this:

- a. To the north, 7 Corps had 1 (US) Inf Div, 3 (US) Armd Div and 1 (US) Armd Div in line and swinging like a door into the Republican Guard who were, it was believed, trying to conduct a withdrawal through a series of delay lines unaware that each line was already outflanked. 2 ACR was following up having been passed through phaseline SMASH. 1 (US) Cav Div was doing the most amazing move racing round the outside track to get outside 1 (US) Armd Div and into the fight. 24 (US) Mech Div from 10 (US) Corps was attacking east alongside the edge of the Euphrates valley. The corps commander wanted 1 (UK) Armd Div to attack north to the junction of the Basra-Kuwait road with the border.
- b. To our south and east the Egyptians were still attacking and we heard that the US Marines were on the outskirts of Kuwait City. Planning was difficult, we could gain little information about the enemy. Communications were poor; the 7 Corps headquarters was split with Plans in their main headquarters, still near Logistical (Log) Base E, and their tactical headquarters north of phaseline SMASH, dealing with operations. We were hard up

against an arm boundary and in effect air was being controlled at army group level. Matters became a little clearer and we were told to attack due east to an objective called VARSITY. The original idea of going north had been dropped because the divisions to the north were making good progress. We were cleared to VARSITY over the army boundary so that if those divisions to our north stalled we could then attack north. At about 0730 on 27 February 7 Bde attacked to VARSITY. We understood the Egyptians had now broken through and were heading east on a parallel axis. During the afternoon 4 Bde moved up and in effect the division were in column facing east between LEAD and VARSITY and waiting for orders which we did for the rest of the day.

By now men were tired. The pace of advance had been frantic and little time had been allowed to gain sleep. The headquarters was moving so quickly to attempt to keep up with operations that even those staff off-duty had no chance for sleep. In all, it moved five times in 100 hours. Thinking was slowing down, men were concentrating on their function and had nothing to spare for what was going on around them; with the result that even when nets were all informed, all were not comprehending.

The divisional commander was told in the late afternoon of 17 February by corps main headquarters to plan to attack south down the Wadi to clear a main supply route (MSR) through the bypassed enemy defences so as to shorten the overstretched fuel replenishment for the divisions to our north. The commander planned to use 4 Bde reinforced with the engrp for this task. Orders were written, because of fatigue the general did not trust verbal orders, and we were just about to issue them when at about 2200 we were told to prepare to attack east to cut the Basra-Kuwait road. Planning began in earnest. The situation was complicated by the announcement of a cease-fire scheduled for 0500 local. The orders for the attack east although prepared were not issued and the brigades were told to be at two hours notice and get some rest. There was obviously confusion over time-zones because two hours later we were told that the cease-fire was now scheduled for 0800 local. We were ordered to execute the attack east to the Basra road. By 0545 hours 7 Armd Bde was mobile and it cut the road at 0725 hours having covered forty kms in 100 minutes. Shortly after this the cease-fire came into effect, with 7 Bde astride the road, 4 Bde in the vicinity of VARSITY and we then moved the guns and logistics between the two. For us the ground war was over. It lasted some 100 hours.

The lessons for the future

Before we go to consider any lessons for the future. I believe that it is worth noting three points.

- Firstly, the desert is unique in the freedom to manoeuvre which it gives and the speed at which operations can be conducted.

- Secondly, we were operating under the total air supremacy of the allied forces and this undoubtedly affected the manner in which we approached some problems.

- Lastly, although the operation was an undoubted success, we must seriously question the will of the enemy to oppose us and interfere with operations. This of itself caused us difficulties by producing a frantic pace of advance, but it is unlikely that we will have an enemy of such poor quality at a time in the future.

All that accepted, Operation GRANBY provided an opportunity for the division to go to war and test it's procedures and organisation. The nature of the operation, being fast moving manoeuvre warfare over large distances is suggested by many to be of relevance to future operational concepts, particularly for the ACE Rapid Reaction Corps. It is perhaps worth examining some of the lessons learned. It would emphasize again that much of this is personal opinion and not official policy yet. There are a wealth of operational lessons from the Gulf. I intend to pick upon the major ones and we can hopefully develop others during questions.

Deployment

The major lessons of deployment was the arrival of assets into theatre. We undoubtedly suffered from being totally at the mercy of civilian shipping companies who delivered our equipments to the Gulf. We experienced delays in the arrival times of equipment and thus operationally ready dates for units. Although manageable, this created much work in rescheduling activities once in theatre and meant that at least one unit deployed direct onto the operation without much significant work-up training. Additionally, although primarily a logistic matter, the maintenance of accurate manifests and locations for assets led to much heartache by the operations staff in the bid to get units operationally ready prior to the war. Increased use of computers to record asset location coupled with accurate labelling is the answer. Although seemingly trivial, it proved a major headache for the staff.

Organisation

voldoet de schrijft alle zaken aan de eisen die gesteld zijn voor de prijs van onze Vereniging. De prijs werd op de bovenvermelde datum uitgereikt door het bestuurslid van onze Vereni-

ging, kolonel der mariniers mr.drs. C. Homan. Mark (major Varley) will speak on logistic manning, but I must touch briefly on the subject of the 24 hour battle. The pace of GRANBY was furious and resulted in all staff being extremely tired after only 100 hours of conflict. The headquarters which seeks to control manoeuvre formations in a rapid battle must be organised to do so. The establishment of two headquarters, capable of alternately being in command and properly staffed is essential. All branches, artillery, engineers and intelligence, must have identical teams in each headquarters ready to carry on the branch function when their headquarters is in command. The question of the plans/operation split was also emphasized. The plans team was fully occupied in examining and promulgating options for the battle. The operations team was equally occupied with the details of implementing those plans when issued. The two functions cannot be conducted by the same individuals. I suggest that in this respect GRANBY holds many lessons for the future less dense battlefield which will lead to more movement. The plans staff must be adequately manned to allow them to function properly. We are addressing this in our plans for staffing ACE Rapid Reaction Corps.

The depth battle

The concept of presecuting the depth battle using MLRS and Air was validated. It reduces the enemy before the contact battle reaches him and prevents him affecting the contact battle also. This may have implications for the future battlefield where we may well be seeking to delay and degrade the enemy before he reaches our delaying forces.

Reconnaissance

This was a problem. GRANBY highlighted that Challenger and Warrior are fast moving vehicles in battle which require even faster recce in front of them. The question of protection was also highlighted with respect to recce vehicles. The future concept of armed recce and the vehicle to conduct it require to be addressed.

Recognition

The GRANBY experience of the problems associated with friendly force recognition and engagement was a salutary one. The problems of many nations operating vehicles alongside each other is one with particular relevance for the future and which have to be closely monitored if the same thing is not to occur with the rapid reaction corps. The problem of identifying friendly vehicles in poor weather and visibility or indeed through a thermal imagery sight at 3000 meters should not be underestimated. The deployment of equipment from a variety of nations

in the close country of Western Europe will bring particular problems associated with it. The problem is exacerbated by aircraft and attack helicopters which attack from great distances often through thermal sights.

Liaison

We were part of an alliance and indeed part of an allied corps. The difficulties associated with this should not be underestimated and are again relevant to the future of multinational formations. The provision of suitable experienced liaison officers was critical to our success and required a large number of fairly high-ranking officers to be deployed to our superior formations. While viewed as a penalty initially, their contribution was invaluable to the overall success of the operation. There is often a vast difference between two allies over the manner in which operations are conducted, even with such close allies as ourselves and the Americans!!!

Moral/Will to fight

The Gulfwar reemphasized an old lesson and that was the importance of morale and the will to fight. The enemy either did not believe in their leaders and the reason for the war, or had their morale reduced by the continual air preparation which preceded the ground offensive. What is clear is that the enemy's low morale was a decisive factor in the speed of our success.

Training and preparation

Conversely, the speed at which the British soldier adapted to a new environment and mastered new techniques and often unfamiliar equipment validated our selection techniques. A great deal of training, re-organisation and equipping was achieved in a remarkable period of time. It indicated that even accepting all the other shortfalls which I have highlighted, the performance of our soldiers in the desert reinforced the need to train personnel to be prepared to be flexible, receptive to new ideas and above all be aggressive in their approach to matters. It was a matter of great personal satisfaction to me to see the enthusiasm and application with which our soldiers undertook the preparation for operations.

Technology

The impact of technology should not be overlooked. The satellite navigation systems mentioned earlier allowed us to move with confidence in the desert even at night. The accurate information provided by remotely piloted vehicles allowed us to pin-point the enemy and then deliver vast amounts of high explosives onto him by using MLRS. Thermal imagery allowed us to engage the enemy by direct fire at a greater

range than ever before in combat. While technology does not replace the need for highly trained and motivated troops, it does increase their impact tremendously. While expensive technology is hard to finance in peace, it's effect is evident in war and this war was perhaps the best example so far.

Many of the lessons associated with operation GRANBY were logistic however and Mark will now cover these.

Background and mounting

My name is Mark Varley, I am a Royal Corps of Transport officer by trade and during the Gulf War I was one of the two grade two J1/J4 operations officers in the divisional rear headquarters. I arrived fresh from attending the Australian Army Staff College to join the headquarters on the day they deployed into the desert in Saudi Arabia. As such, my knowledge of the mounting of operation GRANBY is limited, however I will do my best to cover the background and mounting phases of the operation from what I have since read and heard. As you have just heard operation GRANBY was mounted in two distinct phases (ONE and ONE POINT FIVE). Our method of doing this caused the logistic units deployed considerable problems. By far the worst was that to support the deployment of GRANBY ONE we created an ad-hoc third line logistic headquarters, the Force Maintenance Area (FMA), ignoring the tailor made divisional rear headquarters who were ideal and obvious people for the job. Staff for the FMA, were taken from many sources including divisional rear headquarters and when GRANBY ONE POINT FIVE was mounted many logistic headquarters found themselves short of experienced staff officers creating more gaps at a critical time. The lesson here is to stick to standard groupings who are used to working together.

Additional to this was the fact that over the last few years the British Army, in its search for manpower cuts had pursued a policy of cutting the peacetime establishments of logistic units and opting for reservist personnel to top them up in the war. Many units only had sixty percent of their war establishment and as the territorial army were not called out gaps had to be filled from other units in UK and BAOR. The only exception to this was our medical units. These rely so heavily on reserve personnel that the government did issue selected call outs to some medical staff in order to fully man the filled hospitals deployed to Saudi Arabia.

To deploy GRANBY ONE POINT FIVE it beca-

me clear that due to poor equipment and spares availability much of the corps main equipments would have to be cannibalised. This was true and almost the entire BAOR fleet of many major equipments were stripped of major assemblies to support the two arm'd bdes deployed. As a result of this reorganisation very little logistic planning took place in Germany as staff had their hands full of mounting the operation. We did however take one very successful step towards solving this problem and that was to give responsibility for mounting all GRANBY ONE POINT FIVE units to 3 Armd Div leaving our headquarters time to reorganise itself and our divisional signal regiment. We eventually deployed with almost a corps worth of logistic support at second and third line including, four transport regiments, our entire tank transporter fleet and a corps slice of support helicopters. This helicopter fleet which included fifteen Puma helicopters which were dedicated to casualty evacuation (CASEVAC), twelve Sea King helicopters for long haul CASEVAC and twelve Chinook helicopter used for both personnel and stores lift were to prove very valuable to us. Logistically we used them mainly to lift key items such as power packs but they were also used extensively in the evacuation of POWs.

To cope with the change of environment and the demands of fast moving mobile operations we had to considerably modify our own headquarters. In a matter of weeks we changed from being a soft skinned headquarters using barns and factories to a fully hardened headquarters mounted in armoured personnel carriers. This gave us greatly increased mobility and protection in addition to a much welcomed increase in communications assets. To illustrate the problems I previously mentioned of manpower shortages, the signals troop of some fifty personnel supported divisional rear headquarters were drawn together only three weeks before deployment and came from fourteen different units, not the ideal way to start a war.

Perhaps the last major lesson learnt was one that we should have learnt from the Falklands War and that was the importance of the correct loading and documentation of shipping. We failed to realise the importance of unit integrity and had units arriving in small packets who were then unable to begin training. In addition to this our loading manifests were not always accurate or passed to Saudi Arabia in time to be useful. We did however learn from GRANBY ONE, in that we sent many of our logistic units early in the GRANBY ONE POINT FIVE deployment so they could begin the task of moving and accounting for the vast amount of stores and equipment that were beginning to flood into Saudi Arabia.

In theatre preparation and training

Unlike the teeth arm units who's priority on arrival in theatre was to begin training, the logistic units went straight into their war. By this I mean that their first task was to rapidly ensure that the division was logistically well balanced and ready to fight a war as soon as possible. As a result of this little formal training was done, however as you have heard we took part in all the divisions work up exercises and used the little time we had to great effect. Our initial planning was complicated by the continuous arrival into theatre of more and more stocks and equipment. Often we did not know what exactly was on the ships until they had been offloaded. This resulted in our scaling policy changing with the arrival of each ship.

From the beginning however we based our logistic planning on a number of factors that we saw as important to allow our logistic system to cope with the demands of mobile offensive operations in a hostile environments. The primary aim of our planning was to increase the logistic self sufficiency of units enabling them to operate divorced from their logistic support for lengthy period of time. We did this by greatly increasing their first line lift capacity for all stocks. In addition we created special task groupings for key functions such as fuel resupply or the movement of MLRS ammunition (ammo). Finally we acquired a number of new equipments such as US M548S and all wheel drive fuel and water tankers to carry fuel water and ammo well forward with brigades. The major units allocated to each of the brigades were a dressing station, forward repair group, transport squadron and a forward stores company. They moved as part of the brigades administrative area. Logistic units are normally controlled at divisional level in our army and not packeted out to brigades so this was very much a departure from the norm.

To add to our problems the climate was proving hard on much of our equipment and a detailed study of vehicle reliability and the mean distance between failures of critical equipments became a vital part of the GOC's planning of the battle. We worked hard to cope with the modification of many of our vehicles, some were up-armoured and others required modification to cope with the dust and sand that were ruining engines far too quickly.

We also spent time liaising with our allies, particularly the US, over logistic support. It became clear that we had to rely on our own national logistics both for reasons of non standardisation and because the Americans had problems of their own due to the sheer scale of their deployment. That said there were a number of areas

where we were able to combine our logistic resources and help each other out. On occasions we both used each others fuel and water facilities and we in particular made use of American medical facilities to supplement our own. Most of this cooperation relied on the deployment of liaison officers, a job that is often under played in peace time. We deployed very large numbers of liaison officers and found them a vital aid to command and control at all levels.

Having decided on our plan we then faced the additional handicap of not being able to disseminate it widely for reasons of operational security. This we overcame by prepositioning vital resources but restricting knowledge of the overall plan to only essential planners. The major result of our operational security restrictions was to restrict our early movement of stocks west of the Wadi A1 Batin as any large scale early dumping in this area could have compromised our intention to assault from this direction. In the end, using all our available transport lift and taking the calculated risk of ground dumping much of our first line artillery ammo we were just able to inload our storage areas. Key points to note are the FMA based on the port and airhead of A1 Jubayl, the forward field maintenance area (FFMA) in Logistic (Log) Base ALPHA which is basically a forward detachment of the FMA and Log Base ECHO the eventual home of the divisional maintenance area. These were linked by a single basic road called the Tapline road and used by both us and the Americans to inload our logistic stores areas. The traffic conditions on this road were desperate with some very unusual traffic hazards. We had a number of drivers killed in traffic accidents on the route.

The reason for splitting our stocks holdings was that we knew our line of communications (LOC) would eventually be long and hoped to open a MSR up the Wadi A1 Batin and supply the division with stocks from the area from the FFMA. The stock holdings are from SHAPE Planning Guidance (SPG), a unit of measure that we found very difficult to work with.

With only weeks to go we began to tackle our outstanding problems by looking afresh at our systems or lack of them. These was the need to rapidly reconstitute a brigade after combat, the need to handle large numbers of POWs and cope with the problem of rear area security. The first we solved by creating the divisional reconstitution group (DRG). This was an ad hoc grouping of a main repair group, stores carrying vehicles and crewed arm'd vehicles mounted to tank transporters. They travelled close behind the forward brigades and would move forward to replenish a brigade once it had withdrawn from the close contact battle. The aim being to rapidly restore combat power and allow it to

return to battle. Thankfully we never had to test the system fully but I am convinced that it would have worked.

Rear area security was never properly resolved but again thankfully we were never tested in this area by the Iraqis. That said as we moved into Iraq and became separated from our rear arm units the GOC allocated a medium reconnaissance squadron and gave us permission to dismount the DRG armoured battlegroup from its transporters if a threat developed.

Our POW problems were partly solved by the late allocation to the division of three lorry mounted infantry battalions. A plan was made to deploy two of the battalions well forward with the brigades where they could quickly take over the handling of POWs from the forward units allowing them to maintain their momentum. In the event we took over 7000 POW's and the system, although severely stretched did work.

The ground war

The three main factors that influenced the logistic units during the ground war were speed, constant movement and communications problems. The division rear headquarters moved four times during the eighty hours from crossing the line of departure to arriving in Kuwait and covered over 300 kms. Logistic units had reacted quickly to the speed of battle and concentrated when the opportunity arose to resupply the forward units. They relied on good communications which we were not always able to achieve. The importance of our satellite navigation systems, basic drills and junior leadership and initiative were all vividly illustrated by the standard lay-down that we used for deploying the divisional rear area units. This would not be suitable to the built up areas of Western Europe but shows that standard drills can be rapidly developed to suit terrain and when operated well save a considerable amount of time and command effort.

It is true to say that our logistic planning was completely vindicated during the albeit brief battle when the division reached Kuwait after some ninety hours on the move, fighting as it went it still had sufficient stocks of all commodities to allow it to fight its way a further 150 kms north to Basra, if the order had been given. Our emphasis on forward self sufficiency had paid off and apart from worried hours over the disappearance of a large tanker convoy we had coped with an LOC now almost 350 kms long over bare desert, which still contained large numbers of by-passed enemy positions and kept our resupply lines open. There were few

nasty moments for the logistic units. The odd vehicles ran over mines or unexploded bombs. Some came briefly under fire from bypassed Iraqi positions and there were occasions when we all hoped that American A-10 aircraft knew that we were British logistic units and not fleeing Iraqis.

Once hostilities ceased there remained much for the logistic units to do. The 7000 POWs needed feeding and medical attention and then had to be moved back to camps in Saudi Arabia. We also had a tired division of 25000 men who needed food and water and our priority once the POWs were dealt with became the rapid reconstitution of the division as at this stage we were not sure what was to happen next.

We also had to look to recovering over 200 items of equipment left behind in Iraq either as a result of breakdowns or enemy action. Our battlefield recovery teams also began collecting in abandoned Iraqi equipment and our planners began to tackle the problem of moving both men and our planners back home as soon as the order to move was given. To leave you with some idea of the scale of just the UK logistic effort I will give you a few statistics. Over 13500 vehicles were moved to and from Saudi Arabia, over 5000 containers and over 45000 tons of ammunition. In a twenty four day period in late December, early January divisional transport assets moved over 24000 tons of stocks and seven million litres of fuel over a round trip distance of 400 kms along a single track road. Many of our logistic vehicles covered a years peacetime mileage in one month. Unlike our armoured vehicles our new fleet of wheeled logistic vehicles proved themselves to be very reliable as did their drivers.

It is important before looking at the logistic lessons from this operation to bear in mind what Tom (major Camp) has said about our complete domination of the battlefield. This allowed us a freedom of action that is unlikely to happen again. Additionally as I have already mentioned we had the luxury of having almost a corps worth of logistic support units and the war was mercifully short. That said there were some important basic lessons learnt and much work is now going on in our army to ensure that these are incorporated in our future structures and operating procedures.

Perhaps the overriding lesson was to emphasize the sheer size of the logistic support necessary for a modern armoured division. Our divisional rear units numbered over 1700 vehicles with a pass time of almost eight hours and they all had to be moved around the battlefield by the division rear headquarters. I will now look at the major lessons learnt starting with:

C3; Command Control and Communications

This was by far the most important lesson learnt and perhaps the most important when viewed against future NATO operational concepts. Our need to substantially reinforce all logistic units and headquarters in both manpower and communications assets illustrated that our current levels of both are inadequate. Without the ability to rapidly staff logistic plans, issues orders and then communicate those orders to units the ability to concentrate logistic units is lost. In the fast moving situation of operation GRANBY we only just made it and much work is now going on to ensure that logistic units and headquarters are adequately staffed and give adequate intelligence and communications assets to allow them to function under the ACE Rapid Reaction Corps concept.

Reliability

The availability of major equipments during the Gulf campaign was very high. This however was achieved only by the use of huge amount of repair parts and almost twenty four hours a day commitment from unit and other maintenance organisations. Inherently our equipment was not reliable. We must ensure that any future military equipments have a high degree of reliability even if this is to greatly increase the initial capital cost. This spend to save policy not only leads to more efficient equipments but allows for a substantial reduction in the logistic tail required to support current formations.

Vehicles and mobility

You may remember me saying earlier in my talk that we had to acquire at short notice a number of high mobility vehicles to move fuel water and ammunition. As a cost saving measure our army now has considerably less mobility in its logistic vehicle fleet. This was seen as an acceptable compromise for defensive operations in Western Europe. From our Gulf experience it is clear that in order to supply fast moving mobile formations we must have a more mobile logistic vehicle fleet. In addition to this, given to quantity of stocks required to support a modern military formation, vehicles need to have a bigger load carrying capacity and be multi-capable. Our demountable rack offloading and pickup system (DROPS) was a great success and we are now looking at expanding its use from fuel and ammunition carriage into many other areas.

Rear area security

In the future less dense battlefield there are unlikely to be any front lines behind which logistic units can operate. As a result of this and our Gulf experiences we are now looking hard at the ability of logistic units to defend themselves, either as individual units or collectively. They

need to be better equipped and trained for self defence, have available to them guaranteed air artillery support and know how to use it and on occasions have substantial combat unit support allocated to their protection.

There are obviously many special to arm lessons learnt that I have neither time of knowledge to touch on now however I would be more than willing to elaborate to the best of my knowledge on any areas of particular interest to you during question time. I wish to add on a final point to this presentation and that is to say that I would hate you to think that operation GRANBY was entirely fraught with problem solving and that our in place systems and operating procedures did not work. We were asked to highlight our lessons learnt and that in the main is what I have done. As a division we did something that was not been done since World War II and we did it successfully. Most of our equipment, training and operating procedures worked well and what you have heard from me tonight has been the worst points from an otherwise very successful operation.

Bijeenkomsten

In mei houdt de vereniging twee bijeenkomsten in De Ronde Zaal van het Defensievoorzichtingscentrum, Korte Houtstraat 21, Den Haag.

7 mei:

Optreden EG - monitor - missie in Joegoslavië

Gast sprekers bgen J.C. Kusters en bgen G. Eleveld.

26 mei:

Political and military aspects of security in the Mediterranean basin

Gast spreker gen Luigi Caligaris

Zaal open 19.00 uur (aanvang 19.30 uur). Aanmelding tel. (015)152700, tijdens werkuren.