Lord Strathcona's Horse (Royal Canadians)

Officer Memo Book

OFFICERS' MEMO BOOK

1. An Officers' Memo Book has existed in the Regiment on and off for many years. It has been used to direct readings to the officers of the Regiment. The book was normally kept in the Adjutant's office and contained various memos, notes articles, service papers and essays of a professional nature. The themes of these papers varied considerably. It was also used to disseminate orders and directives that were deemed not suitable for publication in Routine Orders.

2. The intention is to continue using an Officers' Memo Book as a means of disseminating issues of a professional nature to the Regimental Officers. While the book may contain articles that have already been published in official journals, the intention is to focus on unpublished papers displaying the thoughts of fellow officers that would have otherwise gone unnoticed. The primary purpose of the book is to stimulate discussion about professional topics that are affecting or will affect the Regiment, the Armoured Corps of the Army in general. The book may also be used to disseminate orders and directives pertaining to the officers as required.

3. The Memo book will be published into a separate stand-alone volume every fiscal year, or sooner if necessary. It will be updated with three to four new articles or presentations every quarter to ensure material is fresh and relevant. The Adjutant will be responsible to ensure that the current Officers' Memo Book is maintained and that volumes are produced periodically.

The Memo book will be kept in the Mariner Room and shall not be removed from the Harvey Building at any time. In addition, the articles and presentations in each volume will be available electronically on the Regimental Society Website. All officers will be responsible for reading the articles and will initial the register to indicate which articles have been read.

4. All officers are welcome to suggest articles for inclusion into the Memo Book. Only articles approved by the Adjutant will be placed in the book.

R.A. Cooper
Captain
Adjutant

COVER SHEET

THE COMMAND OF BRITISH LAND FORCES IN IRAQ, MARCH TO MAY 2003

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THE COMMAND OF BRITISH LAND FORCES IN IRAQ MARCH TO MAY 2003

ABSTRACT

This paper reports an analysis of the British Army's operations in Iraq in March-April 2003. Comparisons are made with the similar deployment to Kuwait and Iraq in 1990-1. Coalition land forces operated highly effectively and with considerable professionalism; however, such professionalism should extend to a candid examination of shortcomings. Formation headquarters have grown by about 25% since 1991. There appears to have been an unwarranted growth in staff functions and rank inflation. There is evidence of a tendency to plan excessively, and excessive but unfocussed staff activity which had no positive output beyond the confines of the headquarters.

The net result of this misdirected activity was command and control of subordinate units and formations which was criticized as being suboptimal. Orders which were required were often produced too late, and there was a lack of passage of information from headquarters to subordinates. Recognised operational procedures were often ignored or broken, which was justified at the time as pragmatic rather than being seen as symptomatic of a general problem. Such orders as were produced often lacked clarity and, in particular, tended to give multiple and imprecise mission to subordinates.

INTRODUCTION

1. This paper presents some aspects of the British Army's analysis of the command of land forces during the period of major combat operations in Iraq during 2003. It concentrates primarily on the command of British land forces at the tactical level, although some reference is made to US Army and USMC practice. The Author is the officer responsible for the production of that analysis.

2. British land forces began to deploy to Kuwait in early January 2003. Military operations against Iraq commenced on 20 March. Basra fell on 6 April, Baghdad on 9 April. Coalition land forces moved directly on to peace support and stabilization operations, which continue to the time of writing (May 2004). This analysis considers only the period of major warlike operations. The US name for the Operation was Operation IRAQI FREEDOM; the British contribution was Operation TELIC.[1] The British land force was based on Headquarters, 1st (UK) Armoured Division, with 3 Commando Brigade, Royal Marines; 7th Armoured Brigade and 16th Air Assault Brigade under command.

[1] British operation names are supposed to have no connection with the nature of the operation being planned or undertaken. However TELIC was assumed to stand for 'Tell Everyone Leave Is Cancelled'.

ANALYSIS

3. For the British Army's analysis of the campaign, 93 documents were studied; some of them up to 12 box files in length. 6 CD-ROMs of other material, each containing up to 100 files, were also scrutinised. Most documents were primary sources, including records of interviews taken immediately after operations. Sources included formal post-operation reports from all British and many US formations and combat units; commanders' operational diaries; operational orders; and radio traffic logs. The analysis took roughly four man-months of effort.

4. A number of trends were noted relating to the functioning of headquarters. Comparisons were made with the ostensibly similar deployment to Kuwait and Iraq in 1990-1.[2] Further trends related to the way in which issues were reported and subsequently treated as they were passed up the chain of command during after-action review.

5. Contemporary documents obviously (and understandably) reported the perspectives of their writers at the time they were written. Some of those documents have therefore been found the be mutually inconsistent to some extent. Considerable effort was taken in the analysis to resolve such inconsistencies. This appears to have been generally successful. However, that implies that participants in the operation may have recollections of the events that do not fully concur with the findings of this analysis.

6. The overall perception of the conduct of warlike operations by Coalition land forces was one of considerable effectiveness and professionalism. This perception was reinforced by the analysis. However, a professional body should be able to examine its past performance honestly and openly; to admit shortcomings candidly, and take action to rectify them. That was the spirit in which the analysis was conducted, and this and other reports drafted. Any apparent criticism of coalition forces contained in this paper should be seen in that light; in particular, it should be seen in a context of undoubted professionalism and effectiveness.

7. The analysis of Operation TELIC was conducted in order to identify lessons and rectify potential shortcomings. The identity of units and of the originators of critical comment has largely been concealed, not least to encourage candour in the writing of post- operational reports in future. Consequently this paper is not fully referenced.[3] It does not describe actions taken to rectify issues arising from the analysis.

8. In British military doctrine, 'control' (in the sense of oversight, direction and coordination) is seen as a sub-set of command. Therefore in this paper the term 'command' could be used synonymously with 'command and control'.

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[2] The British Operation GRANBY; the US Operation DESERT STORM.

[3] A fully referenced copy of the final report of the campaign, classified CONFIDENTIAL and with a British national caveat, will be archived in due course.

OVERVIEW

9. Despite the undoubted dedication and professionalism of commanders and staff, tactical command attracted criticism from several sources, from the Land Component to unit levels. Problems appear to have arisen from three overlapping areas. Firstly, from the mechanism by which the campaign plan was translated into tactical missions and orders. This had a major impact throughout the chain of command. Secondly, the continuing and largely unconstrained growth of HQs, which caused problems related to the length and timeliness of orders. Thirdly, HQs seem to have focussed on contingency planning to the detriment of the coordination of their subordinates. This last area is clearly linked to the other two. For example, given no clear planning guidance from the campaign level, HQs understandably undertook considerable contingency planning, much of which was nugatory.

10. Problems lie exclusively in the area of headquarters structures and processes; no particular instances of poor behaviour by individuals were observed. Few *consequences* of poor command were observed, which was probably a result of the poor quality of the adversaries. A more capable enemy would have punished shortcomings severely.

TRANSLATING CAMPAIGN PLANS INTO MISSIONS AND ORDERS

11. During the 1990s NATO nations developed methodologies for campaign planning. Those methods identify tactical actions along defined lines of operations which, if successfully completed, would lead to the campaign end-state and hence the strategic objectives of the campaign. However, in retrospect it appears that the issue of how to translate the campaign plan into orders and missions for land forces has not been resolved.

12. For Operation IRAQI FREEDOM, the Coalition Land Component Commander addressed this issue by issuing the 1st US Marine Expeditionary Force (1 MEF) with a relatively short mission for the campaign as a whole, but then imposing 11 'key tasks' on the Commanding General of 1 MEF. HQ 1 MEF translated this into a 'base order' which included over 2½ pages of missions for 1st (UK) Armoured Division. Subsequently HQ 1st Armoured Division produced a 'base plan' in which the given mission, concept of operations and missions for subordinates ran to almost 13 pages. It is very difficult to read the order and gain any real sense of what was intended. In retrospect, this would be similar to inviting (say) the British 11th Armoured Division to write a single order in May 1944 which would have it land in Normandy, fight the breakout battles, advance through Belgium, cross the Rhine and link up with the Red Army somewhere in Germany in 1944-5. Several commentators remarked on the value of the US practice of the 'rock drill' which is effectively a map or model rehearsal of a plan with key staff and subordinates. On reflection it appears that such measures were necessary during Operation TELIC to enable participants to make sense of over-complex orders. There is also a danger that such complex orders promote mental inflexibility.

EXTRACT FROM 1ST ARMOURED DIVISION'S BASE PLAN: MISSION STATEMENT FOR 3 COMMANDO BRIGADE

c. Missions and Tasks.

(1) 3 Cdo Bde.

(a) Ph I Setting Theatre Conditions. Preparatory activity.

(b) Ph II Shaping Operations.

i. Conduct FPOL with 35 KU Bde in order to posn forces for Ph IIIA1 and IIIA2 .

ii. BPT seize key oil infrastructure on the AL FAW peninsula in order to prevent or mitigate its destruction and resulting environmental disaster.

iii. BPT clear and screen AL FAW Peninsula in order to enable CFMCC to clear SLOC to UMM QASR.

iv. BPT facilitate rearward passage of UNIKOM force to facilitate 1 MEF offensive operations.

v. BPT seize the port of UMM QASR in order to enable humanitarian assistance operations.

vi. BPT to execute TRAP within 6hrs of notification (Task allocated to 15 MEU by 1 MEF).

(c) Ph III Stage A1 Seizure of AL FAW and UMM QASR Port. Attack:

i. Seize key oil infrastructure on the AL FAW peninsula in order to prevent or mitigate its destruction and resulting environmental disaster.

ii. Clear and screen AL FAW Peninsula in order to enable CFMCC to clear SLOC to UMM QASR.

iii. BPT facilitate rearward passage of UNIKOM force to facilitate 1 MEF offensive operations.

iv. Seize and secure the port of UMM QASR in order to enable humanitarian assistance operations.

v. Secure the KHAWR AZ ZUBAYR Naval base.

vi. Secure key oil infrastructure on the AL FAW peninsula.

vii. Clear and screen the Al FAW Peninsula in order to enable CFMCC to clear SLOC to UMM QASR.

viii. BPT to execute TRAP within 6hrs of notification (Task allocated to 15 MEU by 1 MEF).

(d) <u>Ph III Stage A2 Relief in Place with 1st MarDiv</u>. Sustain above tasks and:

i. Establish liaison structure with local key personalities within AO.

ii. Provide Coy sized Div reserve within 6hrs of notification.

It is clear that a better way of translating campaign plans into land tactical activities should be found. According to British doctrine, a subordinate should not be required to execute a mission, or plan a subsequent one, which contains more than one or two tasks (or at most three) and a unifying purpose. It should be seen as the duty of a HQ to clarify and simplify the direction it receives. For entirely understandable reasons, this did not take place during Operation TELIC.

HQ STRUCTURES AND PROCESSES

13. Shortcomings in HQ structure and processes were most apparent at formation level. This may in part be because they are larger and more dependent on explicit process, or simply because evidence from subunit level, which would indicate shortcomings at unit level, are generally not recorded. Overall the evidence shows that HQs have become too large; contain too many overlapping functions; have officers of inappropriately high

ranks; plan too much; and tend to be very busy. However, they are not particularly productive; and produce orders that are too big and which arrive too late.

014. *Size of Headquarters*. Deployed HQs have become unwieldy. The HQ of 7th Armoured Brigade was reported as about 650 all ranks and 240 vehicles. It had a War Establishment of 42 officers, but actually contained 96. It comprised two identical CPs of over 60 vehicles each. The HQ nominal roll records 383 all ranks, excluding the signal squadron echelon.[4] However, the HQs of 4th and 7th Armoured Brigades in Operation GRANBY recorded between 288 and 306 personnel. This growth of 25% in 12 years is not accounted for by changed functions. Detailed analysis of staff posts across several HQs (described below) exposes unnecessary duplication and unconstrained growth. This growth in size was significant: one unit recorded that its brigade HQ 'gives the impression that it cannot cope ... despite the large number of staff officers to hand.' In another instance 'From the experiences to date, any plans that do finally emanate from ... [brigade HQ] to ... [this unit] will be half-baked, uncoordinated and invariably running within an unrealistic timescale.' That comment was made 7 days after G-Day. A brigade HQ noted that 'We are significantly ahead in our planning process in that the div was in bad order due to .... an overabundance of staff officers.' A staff officer in another brigade HQ remarked that orders from Division were 'invariably' quite thick but too late. It may be that HQ 7th Armoured Brigade was an extreme case, but it illustrates a trend observed in several recent operations. Recent operational analysis indicates that in a typical formation HQ, 40% of the staff do nothing useful, and a further 20% produce considerable nugatory output. Formation HQs at or near their current War Establishment appear to be quite manageable. However, significant problems arise when they grow in what appears to be either unplanned or misguided manner for operations.

15. *Growth in Staff Numbers*. As staff numbers grow, more work can be done in total but the effort required to coordinate their activities rapidly exceeds any benefit which increased numbers brings.[5] Studies going back to the 1970s consistently indicate that when staff numbers are reduced, the effectiveness of an HQ improves[6]. Thus further increases to the size of present HQs is not a useful solution, and indeed some rationalisation seems to be required. A detailed comparison of staff numbers in brigade HQs in the 1990s and HQ 7th Armoured Brigade in Operation TELIC is given at Table 1. It takes account of the differences between 'expeditionary' and more conventional brigades. It should be noted that neither during Operations GRANBY nor TELIC was 7th Armoured Brigade 'expeditionary'. In both cases it deployed as part of a much larger forces.

[See next page]

[4] Nominal roll attached to HQ 7th Armd Bde Commander's Diary.

[5] A consequence of Brook's Law. Frederick P. Brooks, Jr. *The Mythical Man-Month: Essays on Software Engineering.* 20th Anniversary Edition, Addison-Wesley, 1995.

[6] For example, QinetiQ/KI/CONSULT/CR03014/1.0 dated June 2003.

Ser	Function	Bde HQ, 1990-1	HQ 7th Armd Bde, Op TELIC
(a)	(b)	(c)	(d)
1.	Total staff offrs	About 45, including watchkeepers and Liaison Officers (LOs)s. (1)	96 (War Establishment of 42)
2.	G2 staff offrs	1 SO3	4
3.	G3 staff offrs	1 or 2 SO3s. (2)	6: 2 SO2 Plans, 2 SO3 Plans, 2 SO3 Ops.
4.	Engr staff offrs	Up to 3 (including any from attached engr sqn or regt)	7
5.	Air, Avn and AD staff offrs	3: 1 Avn (if bde had organic hels); 1 AD; 1 Bde Air LO (BALO).	6; ie 2 of each.
6.	NBC staff	1 ssgt	2 capts, plus 2 offrs attached from Jt NBC Regt (3)

Table 1 – *Comparison of Brigade HQ Size, 1990-1 and Operation TELIC*

Notes:

(1) Armd Bde. Independent expeditionary bdes (1 Inf, 5 Abn, 19 Inf and 24 Airmob) had up to a dozen more, almost entirely for 3rd line logistics.

(2) Armd bdes had 1, which was insufficient for 24hr ops. Independent bdes had up to 3.

(3) Notwithstanding the issue of BRACIS to automate NBC hazard prediction, warning and monitoring.

16. *Discipline*. In 1974, HQ 20th Armoured Brigade reviewed their CP structure explicitly to provide a 'lean, hard, flexible and survivable Brigade HQ'.[7] The result totalled 105 all ranks and 30 vehicles of all kinds. It did not contain many of the functions required of a brigade HQ during Operation TELIC. Artillery, engineer, G5 and media staff were not included in that total, nor were attachments (such as those from the Joint NBC Regiment or the Phoenix Battery). However, adding those officers, and soldiers pro rata, would have brought the total for HQ 7th Armoured Brigade to 166 all ranks[8] and 48 vehicles. This should be compared with the 383 personnel actually deployed. It seems reasonable to assume that since the end of the Cold War the absence of an imposed discipline which strictly limits the size of HQs has resulted in unnecessary growth.

[7] HQ 20 Armd Bde 20/G/001 dated 13 May 74. TDRC Serial 03225.
[8] Including about 40-45 officers.

17. *Augmentation*. Some of the augmentation for Operation TELIC is entirely understandable, such as officers from a Phoenix STA Battery and the Joint NBC Regiment. Numbers of Civil-Military Cooperation (CIMIC) and Media officers were also present. However, much of the increase is a result of unplanned or unconstrained augmentation, both in peace and war. 7th Armoured Brigade claims to have built an entirely duplicate command post (CP), which might be thought to explain the increased in numbers. Some level of redundancy is clearly required. However, HQ 4th Armoured Brigade also claimed to have had an entirely duplicate CP during Operation GRANBY, yet its staff was only the same size as 7th Brigade at the time. In fact, during Operation TELIC 35 members of HQ 7th Armoured Brigade were not duplicated, so the attempt was unsuccessful despite the numbers of personnel added. In addition, it was necessary to combine both CPs once the HQ remained static for long periods. Overall it appears that much of the apparent complexity of modern war stems in practice from the self-imposed complexity of modern HQs. It is most telling that the commanders of both commanders of both brigades saw a requirement for a personal staff officer (a military assistant or aide-de-camp), rather than relying on his COS. This seems to be the first time this has happened. None of the growth of staff numbers is a consequence of digitization.

18. *Staff Functions*. A expansion of staff functions has been a major contributor to the growth of HQs. In general, wherever a new function has been added a new post has been created. There is no evidence of multi-skilling or job integration, which would allow a number of staff functions to be carried out by a lesser number of staff. For example:

a. G1/G4 staff and watchkeepers are present to coordinate the activities of personnel, medical and logistic units. In the case of 7th Armoured Brigade, 2 maintenance watchkeepers and 2 medical LOs were added, for a total of 4 additional posts. It would have been possible to have created the same effect with fewer people if appropriate pre-employment training had been provided.

b. Information Operations is essentially the coordination of functions such as deception, media operations, EW and physical destruction in accordance with the commander's plan. Coordination of functions is a G3 task. In modern conflict operations will tend to move between combat and non-combat functions; the G3 staff should plan and coordinate that process. There is a clear need for Information Operation skills in formation HQs, but that does not mean that extra posts should be created. It might instead mean revision to the pre-employment training of G3 staff.

c. Similarly it is difficulty to see a requirement for a 'deep operations' staff. There is an obvious requirement to coordinate fire; be it in deep, close or rear operations; and this falls naturally to the artillery staff. However, it is difficult to see why the branch which coordinates artillery fire in deep, close and rear

operations should also be exclusively responsible for divisional deep operations. The integration of effects is in the first instance a G3 responsibility.

d. In current British doctrine the G5 branch is responsible for civil-military functions, of which CIMIC is one[9]. CIMIC requires small, expert groups and will tend to be officer-intensive. There is without doubt a requirement for CIMIC groups in a modern land force in most circumstances. However, they should be seen as CIMIC *units* rather than *staff*. This would significantly reduce the apparent need for CIMIC staff in HQs.

The net effect of this expansion of functions is a requirement for time and effort to coordinate their efforts. This appears to have contributed to slow HQ tempo, producing orders which were too large and too late. One COS remarked on the emergence of 'an HQ within an HQ' in his command post, over which he had limited control.

19. *Functional LOs*. The British Army has not differentiated clearly between functional LOs and other elements of the staff. Functional LOs are present to provide technical advice, and to pass reports, returns and requests, typically at fixed times. One person can normally fulfil those functions. Conversely, if an HQ is to function continuously, the main 'G' staff branches must be manned on a 24-hour basis. Thus, in the case of 7th Armoured Brigade above, there is a clear need for 2 SO3 G3s. It is not clear that there should be 2 Bales, since air tasking is largely driven by the 72-hour Air Tasking Order process. It is probably true that the air cell at a brigade HQ needs 24-hour manning, and must overall coordinate air, aviation, AD battlespace management issues. However, a detailed task analysis would probably indicate that that requirement could be met by 2 or 3 people, not the 6 which were at first sight required. This reinforces the need to consider multi-skilling and job integration, suggested at Paragraph 18 above.

20. *Staff Ranks*. The normal working ranks in a divisional HQ in the British Army has generally been major and captain; and at brigade level, captain. There has been a gradual trend since the late 1980s to place lieutenant colonels in staff positions at divisional and even brigade HQs, and several majors into brigade HQs. This effect was exacerbated during Operation TELIC[10] and has several detrimental effects. The most serious is the tendency to over-plan, since these higher-ranking staff tend to be planners rather than being involved in current operations. It reduces the role of SO2s and SO3s; the latter reportedly at times almost to insignificance. The real effect in Operation TELIC was protracted, nugatory staff work. Lieutenant colonels do not perform the same functions as captains and majors.

21. *Excessive Planning*. There were several instances of HQs planning too much. The result was typically orders which arrived too late. Such planning tended to focus on the production of what were effectively contingency plans that were never executed. For

[9] To reiterate, the ***G5*** branch. ADP Command, Page 5-6 Table 5.1. In contrast, in Berlin until 1992 the G5 Branch was exclusively concerned with Military Government.

[10] Both 7th Armoured and 16 Air Assault Brigade HQs contained in effect at least one supernumerary SO1; HQ 1st (UK) Armoured Division about 5.

example, HQ 1st Armoured Division produced a total of 4 Operation Orders, three of them before 21 March. Of those, the second and third covered contingencies which were not in the 1 MEF plan and which were never executed. A very large amount of nugatory effort was produced in planning for a contingency to seize and operate from an airfield at Qalat Siqar, well outside the Divisional area. One brigade HQ produced at least five contingency plans in a 48-hour period prior to 21 March. They used four unestablished plans officers working in shifts around the clock. Not one of those contingencies was executed. In part this was due to the way that the campaign plan had been translated into missions and orders.[11] Alternatively it may have resulted from recent teaching at staff college, which has tended to concentrate on the operational (joint or campaign) level and not pointed out the differences at the tactical (formation) level. A major consequence of excessive planning is the workload it imposes on subordinate HQs. Being smaller, they are even less able to cope.

22. *Effects*. Several staff officers referred to the disruptive effect of attending Course of Action briefs as part of this process. One brigade HQ pointed out on 4 March that Divisional orders contained insufficient detail for the operation they were about to undertake; whereas the Division had already provided a major nugatory contingency plan on 28 February, would produce another one on 11 March and update that on 15 March. Planning is only beneficial if it is well directed.

23. *Contingency Planning*. Divisional and brigade HQs should plan for the next operation, considered as perhaps 6-30 hours ahead for a brigade and 12-48 hours ahead for a division.[12] It is sensible, where possible, to plan for not just the intended next operation (the sequel) but also some alternatives (branches). Some eventualities could take place at any time; contingent orders should be considered to cover them. In the case of Operation TELIC the sequel (Phase 4 operations) and the most probable contingency (the seizure of Basrah) were not properly considered, whilst other possibilities were considered at great length.[13] One advantage of contingency planning is that it provides both mental rehearsal and a sharing of intent. MAPEXs have many of the same benefits. However, given that the real circumstances are never likely to be predicted accurately in advance, the subsequent generation of extensive plans will tend to be nugatory. A short fragmentary order giving only the outline of the contingency, possible missions and key coordinating detail might be entirely sufficient.

24. *Excessive Activity*. The overall impression from Operations IRAQI FREEDOM and TELIC is of HQs that were large and usually very busy but which produced relatively little output. A colonel observing one British brigade HQ noted that its staff was being 'fixed' by continuous calls for internal updates: 'they cannot work effectively with constant updates'. In another the COS was frequently overloaded by people asking him

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[11] See paragraphs 11-13 above.

[12] Staff Officers' Handbook, page 3-28-1. In the Second World War a division's planning horizon was essentially 'the next day', which implies 12-36 hours hence.

[13] During Operation GRANBY, HQ 1st Armoured Division was at risk of being swamped by having to respond to too many plan and orders from HQ VII (US) Corps. The GOC directed the priority of planning so as to respond only to essential issues.

unnecessary questions; people 'would not take no for an answer' unless it was personally from the COS. That may be because his SO3s' authority had been undermined by the presence of SO2s. Despite its augmented size HQ 7th Armoured Brigade provided only 8 fragmentary orders in the 18 days between 21 March and 6 April. In the same period the Divisional HQ sent 27 fragmentary orders[14] but of those 9 contained only miscellaneous coordinating detail. At its busiest the Divisional command net was carrying only an average of 5 messages per hour over a 12-hour period, with a maximum of 19 (roughly one every three minutes). Peacetime exercises suggest that rates of up to 50 messages per hour can be accommodated. At the same time there were several calls from subordinates for greater flow of information – meaning situation reports. The evidence strongly suggests that during Operation TELIC deployed HQs contained too many people, busied themselves with too much nugatory planning, but did not run well internally.

25. *Length of Orders*. In several cases the results of this process – the orders – were excessively long. At the beginning of a campaign or major operation relatively long orders are required. They often contain detailed information which is required as a one-off process. Instructions for the handling of enemy prisoners of war were an example in this case. However, at least one divisional and one brigade operation order doubled in size between their first and second editions. A detailed examination of its contents suggests that the increase was not justified. On one 25-page operation order, the Mission first appeared on Page 10. It was almost impossible to gain the sense of the order from reading it. Many fragmentary orders ran to 4 pages, simply because of the inclusion of numerous 'No Change' items. Several would otherwise have been less than 10 lines long. A battalion second-in-command reported that his unit HQ had produced an operation order one inch thick prior to G-Day, but that about an hour after the beginning of operation only one page was still relevant. Not only do long orders take time to produce, they take time to read and be acted upon. During the Cold War, brigade orders rarely exceeded 10 pages plus annexes, not least due to physical problems of reproduction. British HQs appear to have lost the art of brevity, and in places were telling subordinates how to do their business.

26. *Timeliness*. Much of this criticism would not affect operational effectiveness directly – it would simply keep excessive numbers of staff officers busy. However, the critical impact was that on important occasions the relevant orders were released too late. For example, 5 fragmentary orders regarding initial operations were released by the Divisional HQ on 21 March, the day after operations started. Operations to enter Basrah are another example. A fragmentary order warning of the possibility of entering Basrah was released by HQ 1st Armoured Division on 2 April. On 5 April the (battalion) battlegroups (BGs) of 7th Armoured Brigade received warning of an orders group, to be held on 7 April, concerning operations to occupy Basrah not before 8 April. Basrah fell on the morning of 6 April; 7th Armoured Brigade rushed out an operation order dated 0600hrs that day which acknowledged that some of the events in the order may already

[14] A 'fragmentary order' is a relatively short document which contains changes to an extant operational order. They are usually issued in response to changes to the situation which do not require a completely new plan to be formulated.

have taken place. They had. The Divisional HQ rushed out a fragmentary order, which said very little of substance, dated 0815hrs. Thus neither the Division nor the Brigade had a contingency plan, in the shape of an order, to cover a contingency which had been discussed in February. However, both HQs clearly thought that one was required. Either the order was unnecessary, or it was too late. In those circumstances, it seems that short contingency plans written on perhaps 2nd or 3rd April would have been sufficient. Similarly, the Divisional HQ released its orders for Phase 4 – peace support operations – on 21 April, 15 days after Basrah fell. In the interim battlegroups were largely left to their own devices, and there was a lack of clarity of responsibility between, for example, the CO of in-place BG in Basrah, the commander and the staff of 7th Armoured Brigade, and the divisional artillery commander, who had been appointed to oversee military governance. Such criticisms are not unique to the British Army: a member of the HQ of 1st Marine Division commented that 'The planning cycle was way behind the execution being conducted by the forward commanders. Div HQ was still producing lengthy OPLANS and FRAGOs that were too late for the commanders, as they had already stepped off.'

27. *Battle Procedure*. It was commented on several occasions that orders were produced in parallel because warning orders and orders were consistently produced too late. In retrospect this appears as justifying poor battle procedure. Warning and operations orders from HQ 1 MEF appear to have been consistently late, which had an effect right down to subunit level. However, whilst some blame can be placed with higher HQs, intermediates do not seem to have taken control of the process at their own level for the benefit of their subordinates. In addition, those orders that were produced often contained inappropriate levels of detail. Old lessons concerning the need for timely and efficient passage of orders need to be reinforced.

28. *Summary*. Operation TELIC provides plentiful evidence that HQs have become too large; they contain too many branches; their staffs show a tendency to be over-ranked; and they tend to concentrate on planning, to the detriment of issuing timely orders and keeping subordinates informed. This appears to be at least in part because Staff College and Combined Arms Staff Trainers concentrate on planning, rather than the conduct of operations. On reflection it appears that we need to:

a. Reduce the size of deployed HQs;

b. Provide firm guidance and education to ensure that unconstrained re-growth does not occur;

c. Streamline HQ processes, with less nugatory planning and more effective passage of information, both internally and externally; and

d. Change the focus of training to concentrate on execution (in particular, decision-making under stress of time and information constraints, and passage of information) and less on planning.

All of these may benefit from an approach that includes task re-design and job integration, which will clearly have training implications.

TACTICAL MISSIONS AND ORDERS

29. Operation TELIC provided clear and well-documented evidence that current training is leading to missions, and orders generally, that are excessively long, confusing and hard to understand. Quite separately, they are inconsistent with the spirit and principles of Mission Command.[15] For example, in one order the stated mission ran over 20 lines. In two battlegroup orders (from different battlegroups) the 8 subordinate subunits were given an average of 8 or 9 tasks each. Instances of 12 or 13 tasks in a mission statement were noted. Such lists of tasks often had no stated purpose, which would make prioritizing between them impossible. The concept of operations was often verbose and lacked clarity. The statement of commander's intent often simply reiterated the mission (which reduces to 'I intend to achieve my mission'). Alternatively they were excessively complex: one intent statement ran over 7 lines and was then followed by further intent statements for each of 3 phases. Plans were often phased, when substantive activity only took place in one phase: arriving at the line of departure and reorganization are not substantive activity. In at least one case the order contained a 'desired end state', which simply repeated the mission. In several other cases mission statements contained multiple contingent tasks (as in 'be prepared to ...'), which were either implied tasks that need not be stated, or coordinating detail.

MISSION STATEMENTS

One example from Operation TELIC illustrates these difficulties. A battlegroup was tasked with securing part of Basra. The mission statement gave 8 tasks to a particular subunit, with the anodyne purpose 'in order to expel the Regime and set the conditions for transition to peace support operations.' The City had been subdivided into very small areas as a control measure. Examination of the mission showed that the first two tasks were adjacent terrain features; the third was to cross a feature which lay between them, the next two were similar implied tasks, the sixth was a coordination measure and the last two were contingencies. By re-drawing the boundaries to include the terrain of the first two tasks, the tasks in the subordinate's mission could have been reduced to 'Seize Objective A' and then 'conduct peace support operations in Area B'. The attached sketches illustrates the process. There were several similar examples.

[15] Mission Command is the British Army's philosophy of command. It is explicitly linked to a manoeuvrist approach to operations which seeks to attack an enemy's will and cohesion rather than his strengths. It is essentially a decentralised style of command; its principles are unity of effort (underpinned by the concept of main effort), decentralization, trust, mutual understanding and timely and efficient decision-making. *ADP Command*, Army Code 71564, April 1995, paras 0210-0212.

Illustration:

In Figure 2, the subunit's objective is subdivided into areas CAT and DOG. Route SPADE runs between CAT and DOG. The tasks given in the mission statement produced during Op TELIC would read:

'a. Seize Obj CAT;
b. Cross Route SPADE within boundaries;

c. Seize Obj DOG;

in order to ...'

However, by simply re-drawing the boundary of the objective to include CAT and DOG (say, Objective LION), the task becomes simply:

'Seize Obj LION, in order to ...'

'Crossing SPADE within boundaries' becomes an implied task.

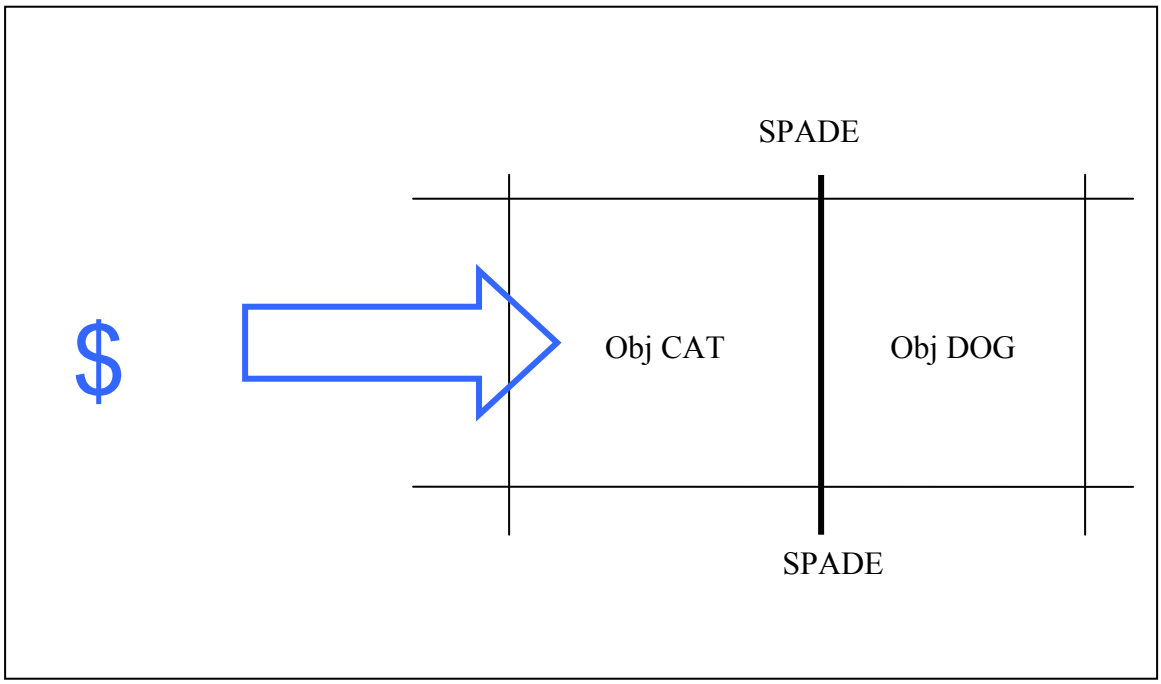

Figure 2: *Redrawing Boundaries to Simplify Mission Statements*

30. During Operation TELIC concepts of operations tended to be excessively lengthy; appear self-important; and contain statements of the obvious (reducing to 'I intend to achieve my mission'). At times they attempted to be inspirational in a manner which would work well face-to-face, but was lost when receiving the written order cold. A concept of operations and subordinates' mission statements together should rarely exceed two pages, and normally be considerably less than that. There is a clear requirement to clarify guidance for the content of orders, particularly missions and concepts of operations.

MISSION COMMAND

31. Commander's reports from Operation TELIC stress the importance of the philosophy of Mission Command, but on occasion state that there are times when detailed orders are required. However, the evidence is otherwise. **No examples of a need for close control were given**. Nor were any found subsequently. There is a need for careful and detailed planning on some occasions, particularly where subordinates must cooperate closely in time and space. At times significant constraints must be placed on a subordinate's freedom of action. However, neither of those are contrary to the spirit of giving clear direction to a subordinate, and then allowing him to execute it as he sees best. The fact that, for example, in doing so he may not cross a given line does not affect the philosophy of Mission Command. In practice, there is considerable evidence that execution was generally decentralized during Operation TELIC. What appears to have happened is that missions were not phrased clearly and simply, which overshadowed the real flexibility that in practice appears to have been afforded.

CIS

32. On Operation TELIC, the Clansman radio system struggled, but coped. 'Patron was inconsistent, Brent was overloaded, and most calls on Ptarmigan were weak and broken.'[16] The level of battlefield digitization was patchy and inconsistent, whilst the need for voice communications remained strongly apparent. Battlefield digitization was extremely limited. It had two major weaknesses: a lack of connectivity and the need for uninterrupted power supplies. BOWMAN radio, which will replace Clansman, is eagerly awaited. However, no case of critical loss of communications was noted. Systems seem to have worked, and current expectations appear to challenge the laws of physics. Expectations are often based on experience of static HQs using terrestrial landline or even fibre optic cables, which are simply not available in mobile operations. US experience stressed the value of satellite-based communications to low levels of command, but even then found that video teleconferencing (VTC) had to be limited because of excessive use of bandwidth. In general it seems that **traffic invariably expands to fill the available bandwidth**, not least because of the adoption of high-bandwidth systems such as VTC. Technical breakthroughs have been promised for decades, but do not appear to occur despite the introduction of much more technology and the complexity it brings. If anything the evidence is that headquarters have become

[16] A direct quote from a staff officer in a brigade HQ. Patron and Brent are deployable secure speech systems. Ptarmigan is the major land formation deployable CIS.

larger and less responsive. High bandwidth systems may have contributed to that. Information and bandwidth management will be critical aspects of digitization.

33. IT was deployed on British Army combat operations for the first time during Operation GRANBY in 1990-1, and huge progress has been made since then. Modern HQs could probably not function without it, but the progress of digitization is uneven. Relatively little IT exists at unit or battlegroup levels, and some aspects such as artillery and air defence have attracted more digitization than, say, logistics or battlefield engineering. Most IT systems are functionally 'stovepiped'. For example, artillery CIS can operate up and down the chain of command, but cannot interoperate with other battlefield functions.

34. One US battlefield IT system, deployed across the Coalition, had a marked impact. The Blue Force Tracker (BFT) automatically reported the location of all units equipped with transmitters to all HQs having a BFT monitor. For the British land contingent this typically meant transmitters at unit level and monitors at formation level. A screen shot of BFT is shown at Figure 3. Experience of BFT was mixed. High-level HQs (at corps level and above) were generally more in favour of it than units and low-level HQs. It did not provide sufficient detail to be a significant factor in avoiding fratricide. It displayed Coalition unit locations very accurately, but Iraqi unit locations were only as good as the most recent intelligence. Often this was very good; at times reports were badly out of date. One British HQ reported that the most important use of BFT was to display the location of US forces theatre-wide, providing a broad situation report. It seems likely that as more elements are issued with such systems, their perceived effectiveness will increase.

HEADQUARTERS ESTABLISHMENTS

35. The size, and growth in the size, of formation HQs was discussed above. Following Operation TELIC a number of proposals for increase to HQ establishments were made. The following proposals for enhancements have been noted:

Divisional HQ:	**Brigade HQ: (1)**	**BGs:**
(a)	(b)	(c)
- SO1 and SO3 Media Ops	- SO3 Information Ops	- BG Amb Offr (capt)
- Medical Ops Branch	- SO2 Medical	- Unit Press Officer (2)
- SO2 or SO3 ES Avn	- G5 cell (under armour)	- Armd Sqn battle capts
- SO1 Avn	- SO2 and 2nd SO3 Media	- SO3 Arty Ops (3)
- SO1 Air	- SO3 NBC	- A senior Medical Offr (4)
- SO1 G5 (CIMIC)	- Comd's MA or ADC	
- SO1 Div (Log) Sp Gp	- additional geo pte	
Total: 7-10 posts	Total: 8 posts	Total: about 6 new posts

Table 2 – *Suggested Enhancements to HQ Establishments*

[see next page}

Notes:

(1) For armoured brigades. 11 posts have been noted for 3 Commando Brigade.
(2) Permanently established.
(3) Vice the SSgt currently present.
(4) It being considered that unit MOs are generally insufficiently experienced to both command unit medical assets and advise COs.

36. British HQs are 4 times larger than they were in 1945.[17] Although some increase has clearly been necessary, there is no convincing reason to explain such increase of that magnitude. Analysis of archives suggests that incremental increases have occurred in largely unconstrained fashion almost continuously in the intervening period.[18] As noted above, detailed analysis of task and functions does not adequately explain that growth. Whatever the merits of specific proposals, it is clear that uncontrolled and misguided augmentation of HQs has in the long run been detrimental to their function, and should be strongly constrained.

37. The tendency to increase the rank held in a particular appointment should be particularly avoided. Greater trust should be placed on the quality and training of junior officers and NCOs, and enable them to gain the experience from the operations whilst still young. Any other trend is in the long run inevitably self-defeating.

DIVISIONAL HEADQUARTERS

38. In part due to the increased size of divisions, the number of combat support and combat service support subunits[19] has grown, and with that the HQ has also grown.[20] For example, in the Second World War there were effectively four engineer, four logistic support and three maintenance companies in a typical British division. Within the divisional area today there would be nine logistic support, eight maintenance and up to 20 engineer subunits. As a result there are several units of those arm and services,[21] and the head of branch at divisional HQ is a colonel; in 1944-5 he would have been a lieutenant colonel. For comparison:

[see next page]

[17] Establishment Table II/110/3 effective 30 Nov 43; together with II/104/3 effective 8 Dec 43, III/181/2 effective 10 Dec 43, II/261/2 effective 24 Feb 43, II/290/1 effective 7 Dec 43 and II/215/1 dated 20 Feb 45.
[18] MoD Historical Branch (Army) letters HB(A) 6/3 dated 1 Dec 98 and 21 Apr 99.
[19] Combat support: for example, artillery, air defence and engineer. Combat service support: for example, personnel, supply, maintenance and medical.
[20] During the Second World War a division was typically 11-16,000 men strong, without the 'divisional slice' of Corps and Army troops. A similar division today is 20-25,000 men strong.
[21] Typically, 4 engineer, 2 logistic support and 4 maintenance battalions.

Ser.	Appt (1)	Br Div 2002-3	Br Div 1944-5	Third US Army 1944-5
(a)	(b)	(c)	(d)	(e)
1.	COS	Col	Lt Col	Maj Gen
2.	DCOS	Col	Lt Col	None: Army G1 and G4 both Cols.
3.	Comd Arty	Brig	Brig	Col
4.	Comd Engr	Col	Lt Col	Col
5.	Comd Maint	Col	Lt Col	Col
6.	Comd Log Sp	Col	Lt Col	Col

Table 3 – *Comparison of Ranks*

Note:

(1) Shows nearest equivalent for British Second World War divisions.

Current divisional HQ organization is in some aspects nearer to that of a Second World War army than that of a division. This is not unique to the British Army; in 2004 the G1-4 Branches of a US division are led by lieutenant colonels, whereas they were led by majors in 1945. In the Second World War a head of arm or service (for example, the engineer and maintenance commanders) was in practice the CO of a battalion-sized unit of about 3-4 companies. Because the nominal organization of divisions has become considerably bigger, there are now several such units (typically discriminated between 'close' and 'general support'), with a colonel's staff to coordinate them. That would be entirely justified if such a division at full scale were ever deployed. However, only 2 Army brigades were deployed for both Operations GRANBY and TELIC, and the existing staff structure was adapted to fit.[22] On reflection:

a. If the Army expects that it will not generally send more than 2 brigades on a large-scale operation, there might be scope for rationalizing the command chain and reducing rank representation.

b. It cannot be said that a unit commander cannot also function as the arm or service advisor to a divisional commander. That practice was the norm during the Second World War, because the mission of the unit was identified as that of supporting the division, as a British divisional HQ and Signal Regiment still does today.

c. Similarly, the apparent complexity of modern war should not be used to justify increased rank representation. As previously discussed, that apparent complexity is at least in part a consequence of the real complexity of HQs. Any such argument is self-fulfilling.

[22] The attachment of a third brigade (3 Commando Brigade) in the case of Operation TELIC cannot be taken to justify retaining those rank levels, since the internal rank structure of 3 Commando Brigade is appreciably greater than that of an Army Brigade. The two cannot be justified simultaneously

39. The responsibility of G1 and G4 staffs appears to have shifted, and the results have been detrimental. Until the early 1980s the DCOS of a British formation was called the 'Deputy Assistant Adjutant and Quartermaster General'. Together with his staff he actively controlled all personnel and logistic assets in the formation.[23] They now largely see themselves as being responsible for planning and coordination of personnel and logistic functions from the formation HQ. This leaves a gap in the control of the formation logistic units, and a consequent wish to appoint further officers to that function. For example, Table 2 reflects a wish for an extra SO1 to run the Divisional (logistic) Support Group, and the HQ of a close support logistic battalion became in effect the HQ of the Brigade (logistic) Support Group for 7th Armoured Brigade. During the Second World War those jobs were done by the logistic support battalion and company commanders respectively. This suggests that there may be grounds for concern in relation to the staffing of future Army structures

40. During Operation TELIC, HQ Artillery 1st Armoured Division had relatively few resources. Initially, the divisional Offensive Support Group (OSG) had just one (self-propelled) artillery battalion was under OPCOM, but in practice that battalion supported 7th Armoured Brigade for much of the operation. The only other unit in the OSG was a close air defence battalion, which was subsequently re-roled for rear security operations. Nevertheless the Deep Operations Cell in Divisional HQ was augmented by 4 lieutenant colonels. Whilst it is dangerous to draw too many conclusions from a single operation, the appointment of a brigadier as divisional artillery commander with a large and potentially increasing staff should not necessarily be taken as a model for the future.

AFTER-ACTION REVIEW

41. The British Army's analyses of previous wars and campaigns show common shortcomings. Unit and formation reports, perhaps with commendable loyalty, show a tendency to avoid criticism of superiors. This has a cost. Weaknesses are glossed over, and overall reports tend to stress the positive rather than provide a balanced view. This is especially true where reports are aggregated to higher levels. Important facts are omitted, and it is normally impossible to gain an understanding of combat operations at subunit levels. For example, the Kirke Report into the lessons of the Great War was not published until after the death of Field Marshal the Earl Haig[24] in the 1930s; and the available military records of the Falklands Conflict omit several key details, which are recorded in published books. In addition the production of such reports is usually slow. It was not always so: during the Second World War the British Army regularly published extracts of combat lessons identified within a few weeks of the start of a campaign.[25]

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[23] For example, Maj Gen (retd) Keith Spacie, formerly DAA and QMG of 16th Parachute Brigade, personal communication.

[24] The CinC of British Armies in France in WW1.

[25] During Operation HUSKY, the Allied invasion of Sicily, the War Office published and distributed tactical lessons after 5 weeks of an 8-week campaign. Without this, valuable lessons would not have been available in time to influence operations for the Normandy landings in June 1944.

42. Many of these shortcomings were seen during Operation TELIC. Published unit reports rarely criticize their superior HQs[26]; an outbreak of Diarrhoea and Vomiting which ran to over 1,000 cases by 15 May was largely overlooked; and detail down to subunit level was largely missing. For example, 1 RRF Battlegroup was attacked several times in up to battalion strength supported by tanks; this is not recorded in its commander's diary. The MOD 'First Reflections' document stated that mobilization of Reserves 'proceeded smoothly', which is not a balanced view of the truth. It was similarly disappointing to see a MOD Corporate Communications brief produced as late as December 2003 which said that the 'the UOR programme was a major success'; which was also a somewhat optimistic assessment. It also said that reservists should, in future, be given 21 day's notice of mobilization and that this was 'up from 14 [days]'. Whilst that statement is true as a reflection of intent, it hides the fact that in mobilisation for Operation TELIC many reservists got considerably less than 14 days' notice.

CONCEPTS AND DOCTRINE

43. The terms 'Effects-Based Operations' (EBO) and 'Networked-Enabled Capability' (NEC) are not found in extant British doctrine. They are at most statements of policy, concepts or aspirations. Thus the use of the term 'effects-based' in connection with Operation TELIC is hollow and unnecessary. To ascribe useful meaning to those terms in the context of Operation TELIC is premature. It does not reflect the way in which the commanders and staff were trained, and so any use of such terms should be taken with caution. It is also unfortunate to see such terms paraded with only flimsy justification. For example, smart munitions are of themselves not network-enabled. The use of statistics concerning the increased use of precision-guided munitions as evidence for the efficacy of NEC during Operation TELIC was not justified, and in this case probably not justifiable. Public reports of Operation TELIC have at times indulged in the overenthusiastic use of such terms without proper justification. The risk is that such usage is subsequently used to support policy or doctrine, without a proper basis in observed fact. EBO and NEC are emerging *concepts*, which may require doctrinal codification after further study.

OBSERVATIONS AND CONCLUSISONS

44. British Brigades and Battlegroups displayed considerable effectiveness during the period of warlike operations in Iraq in 2003. They operated for 15 days after the fall of Basra without an extant operation order. They worked well, which is to their credit. It suggests that British low-level tactical doctrine, and their experience, allowed them to work purposefully. However, it indicates that much of current HQ processes, and the orders thus produced, are nugatory. Subordinates can and did work adequately without much of them. Much of the activity observed in HQs did not lead effectively to useful output. Staffs have become too big, and some judicious reduction is required. Shortcomings in the way various doctrinal processes, such as formulating mission statements or the exercise of mission command, require further thought.

[26] However, adverse criticism can be found in commander's diaries.

45. This Paper has tried to avoid presenting any negative impression of the individuals involved. Coalition land forces, including the British, performed well. Shortcomings, where observed, were not due to stupidity or ignorance; they probably reflect doctrine, teaching and training that needs to be revised. The material used in this paper has already informed the British Army's review of HQ structures.[27] The precise conclusions to be drawn by members of an international forum such as the ICCRTS will vary from nation to nation and service to service, since any such conclusions will depend on organizational context and culture. This paper is offered to the CCRP in order to foster debate and discussion, and so no further conclusions are offered here.

[27] May 2004.

'Leopard 2 provides Canada with the firepower, mobility and protection to save lives in Afghanistan.'

LEOPARDS BACK IN THE WILD

Since reversing its decision to phase out MBTs, the Canadian Army has acquired more tank combat experience than any other member of the 16-nation 'Leopard 2 club', **Ian Kemp** reports.

Krauss-Maffei Wegmann (KMW) formally handed over to the Canadian Army the first of 20 Leopard 2 MBTs upgraded to A4M CAN configuration in a ceremony at Germany's Bergen-Hohne Training Area on 7 October. The tanks, which feature underbelly protection and slat armour, will soon be deployed to Afghanistan.

'The flexibility, professionalism and teamwork exhibited by KMW over the past three years to support Canada's Leopard 2 A6M in Afghanistan were exceptional,' said Daniel Hebert, project manager, Tank Replacement Project, at the ceremony. 'Now, with the Leopard 2 A4M, KMW continues to be instrumental in providing Canada with superior firepower, mobility and the protection required to save lives.'

Canada and Denmark, which followed Ottawa's lead by sending five Leopard 2A4s to theatre, are the only NATO nations employing tanks in Afghanistan. Its experiences in-country have prompted a complete change in the Canadian Army's armoured vehicle strategy. In 2003, the service announced that it intended to replace its fleet of 114 105mm-armed Leopard C2s (the Canadian version of the Leopard 1A5) with 66 105mm-armed General Dynamics Land Systems Stryker Mobile Gun Systems (MGS), which were in development to equip the US Army's Stryker Brigade Combat Teams.

However, after the successful deployment of a squadron of about 20 Leopard C2s to Afghanistan in 2006, the army decided to place greater emphasis on protection. It cancelled the MGS project and received government approval in March 2007 for the US$641 million dollar Tank Replacement Project.

The Badger armoured engineer vehicle, based on the Leopard 1 chassis, will be replaced by up to 18 AEV derivatives of the Leopard 2 under the Force Mobility Enhancement project. *(Photo: DND)*

TWO-PHASE APPROACH

The first phase of the project was to borrow 20 German Army Leopard 2A6Ms and two Buffel armoured recovery vehicles (ARV) to replace the Leopard C2s in Afghanistan. KMW received a contract to upgrade the tanks to the 2A6M CAN configuration. The standard Leopard 2A6M features additional underbelly armour to protect against anti-tank mines, hence the suffix 'M'.

The upgrades for Canadian service included a slat armour cage around the sides and rear of the hull and turret to provide additional protection against rocket-propelled grenades, and the installation of Canadian radios and electronic countermeasures equipment. As the intention was to return the tanks to the Germans, the original 7.62mm MG3 machine guns were retained and air conditioning was not fitted. The first MBT arrived in Afghanistan in mid-August and the last was deployed by the end of 2007. Air conditioning and the Saab Barracuda Mobile Camouflage System were later installed in-theatre.

The second phase of the project was the purchase from the Netherlands in December 2007 of 100 surplus Leopard 2s – 80 2A4s with L/44 120mm main guns and 20 2A6NLs with the longer L/55 120mm main gun – which would form the basis of a tank fleet to remain in service until 2035. The original intention was to refurbish 82 tanks and convert the remaining 18

A Canadian Leopard 2 A6M CAN uses its 120mm main gun to destroy an IED 'factory' in Afghanistan. Use of the tank gun instead of laser-guided bombs reduces collateral damage. *(Photo: DND)*

KMW formally handed over the first of 20 upgraded Leopard 2A4M CAN tanks to the Canadian Army on 7 October. They will be airlifted to Afghanistan over the coming months. *(Photo: KMW)*

to specialist roles. Approval was later given by the government to purchase 15 surplus Leopard 2A4s from Germany for spare parts.

However, progress on refurbishing the ex-Dutch tanks has been slow and it was only in July 2009 that Public Works and Government Services Canada (PWGSC) awarded KMW a contract to upgrade 20 2A4s for deployment to Afghanistan. Crews are still training at the German Army Tank School in Munsterlager because no Leopard 2s are yet operational in Canada.

The use of the Leopard 2A6M CAN has been credited with saving lives. It was quickly discovered that insurgents would rarely mount small arms or other direct fire attacks when tanks were deployed, and the vehicles have been used for a wide range of missions including direct fire support, convoy protection, route clearance and deception. The 120mm main gun has proven an effective means of delivering precision fire without the risk of collateral damage associated with employing close air support.

Canadian officers have stated the need for a 120mm high explosive squash head (HESH), round similar to the munition available for use with the 105mm main gun, to attack buildings and other structures such as the thick walls which frequently surround Afghan compounds. As mine ploughs, rollers and bulldozer blades could not originally be fitted to the Leopard 2, C2s were retained in-theatre, a typical operational tank troop consisting of four Leopard 2 'gun' tanks and two C2s fitted with specialist attachments as required.

Several of the Leopard 2A6M CANs have suffered damage from mine or IED strikes, and although crews have suffered injuries no fatalities have occurred. After three years of hard service, the full squadron will be replaced over the coming months by the newly upgraded Leopard 2A4M CAN tanks. Rather than return the borrowed tanks, the Department of National Defence has decided it would be more cost-effective to upgrade the 20 Leopard 2A6NL tanks to 2A6M standard and return these to the German Army instead.

COMBAT VEHICLE PROJECT

Other changes have also been made to the Tank Replacement Project. Defence Minister Peter MacKay announced on 8 July 2009 the Family of Land Combat Vehicles (FLCV) projects, collectively worth approximately US$4.9 billion. The Force Mobility Enhancement (FME) segment of this will acquire new capabilities based on the Leopard 2 chassis, an element originally included in the tank project.

The first phase covers the acquisition of 13 armoured engineer vehicles (AEV), with options for an additional five, and two ARVs, with an option for another two. The second phase covers the acquisition of 29 sets of dozer blades, mine ploughs and mine rollers to equip the Leopard 2 fleet. It includes an option for a further 30 sets of implements. On 6 October, PWGSC issued a notice of proposed procurement for the AEV portion of the project, asking interested companies to respond by 22 December.

The FLCV programme also includes the acquisition of 108 (plus 30 options) wheeled or tracked IFVs, designated the Close Combat Vehicle (CCV), to support the Leopard 2. On 8 October, PWGSC announced that five companies which had responded to the solicitation of interest and qualification were found compliant and have been included in the pre-qualified bidders list. These are Artec, BAE Systems Hägglunds, General Dynamics Land Systems Canada, Nexter Systems and Rheinmetall Landsysteme. Bids close on 1 April 2011.

Following recent cuts to the defence budget, there has been considerable media and industry speculation about the government's commitment to the CCV, especially as the vehicle is not scheduled to achieve full operational capability until July 2015, four years after the withdrawal of Canada's 2,900-strong contribution to the International Security Assistance Force in Afghanistan. However, senior army and DND officials have repeatedly affirmed the department's commitment to the project. **LWI**

Donald Alexander Smith, 1st Baron Strathcona and Mount Royal

A Lecture to the “Extraordinary Canadians” series of Living and Learning in Retirement
Glendon campus, York University

Feb. 18, 2011

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Introduction

- Donald Alexander Smith was born in Sorres, NE Scotland, in 1820 and died in London, England 94 years later in 1914.
- So how could a person born in Scotland, who died in England be considered an extraordinary Canadian. But Canadian he was as can be evidenced by Sir Wilfrid Laurier's tribute in the House of Commons on hearing of his death. "Since Sir John Macdonald, I do not think there has been any **Canadian** whose loss has occasioned so deep and universal sorrow."
- High praise indeed from an impeccable source.
- In what way was Smith a Canadian? – he came to Canada, specifically Labrador, in 1838, age 18 as an employee of the Hudson's Bay Company. In his lifetime he served as the CEO of the Bay, of the Bank of Montreal, and with his cousin George Stephen was the unshakable investor in the CPR and the man who drove in the last spike – the most famous Canadian photograph of all. These were only the most important of his Canadian business involvements.
- His largest investments were in two American railways [the Great Northern Railway and the Northern Pacific Rly] At age 89 he also became the 1st Chairman of the Board of what is now British Petroleum.
- Politically he served as Special Commissioner during the 1st Riel Rebellion, sat in the H of C for nearly 20 years from Manitoba and Montreal and while there brought down John A.'s government in 1873 and was approached about being Prime Minister in the mid 1890s.
- He lived in Canada until 1896, when at age 76 he was appointed our High Commissioner to the Court of St. James, by far the most important diplomatic post in the Canadian service. He served in that role until his death, an unprecedented tenure.
- Knighted in 1886 he became the first Baron of Strathcona and Mount Royal in 1897.
- The historian Alexander Reford has described Smith as the 'Foremost example of rags to riches in a Cdn context.'

A brief digression

- Before continuing I would like to thank you for the generous intro and point out two things that should have been mentioned and also to tell you how I came to choose Donald Smith.
- My mother
- My wife
- Choice of Smith
- Michiel' mentioned Sam Bronfman, E. P. Taylor, and Roy Thomson. When we met we discussed the possibility of Sir Edmund Walker, long time CEO of the Bank of Commerce and founder of the ROM. I countered c Edson Loy Pease, who made RBC the # 1 bank in Canada, moving it from 7th to 1st in 15 years early in the century.
- But a few years ago I did a show for TVO on Canadian business icons and I settled on Smith after thinking about Timothy Eaton as well as some brewers and distillers. In question period you can give me your choices.
- Michael Bliss – no help on bios but help c audience
- Before turning to Smith's extraordinary business achievements I would like to briefly touch upon his personal life including his charitable activities and his political involvement.

Personal Life

- In 1853, now 33 years old, he married Bella Hardisty. The Hardisty's were an old hbc family. After falling love they had a daughter. Ten months later in march 1853 they decided to get married. There was a complication in that she was already married *a la facon du pays* and had a son, Jamesie. However that did not stop Donald who determined that the first marriage was not legal and who performed the marriage ceremony himself – both groom and officiant.
- He always worried about his 'marriage', especially before he became an hereditary Baron. He is supposed to have remarried Bella 4 X, always during times of crisis.
- For example in 1896 on their 43rd wedding 'anniversary' they were remarried in NYC . We 'do again take each other for husband and wife'.
- Bella was of mixed blood – one can only imagine how she was received in Queen Victoria's court. She was referred to as 'a dour old hoddy doddy squaw'. Or 'our lady of the snows'.
- But Donald loved her deeply and when apart he wrote or cabled every day.
- He also provided her with beautiful properties in Montreal, Scotland [Glencoe] England [Debden Hall], and Wpg [Silver Heights].
- In spite of the unusual circumstances surrounding his marriages he was made an hereditary peer 3 years after first becoming a Baron. There is a 4th Lord Strathcona now approaching 90, who apparently attended McGill for part of his education.
- One other personal note the Strathcona preferred soda to scotch, 2 meals a day [porridge], slept 6 hrs/nite

Lord Strathcona was a Philanthropist

- He had a special interest in education – particularly women's education and in health care, particularly the Royal Vic Hospital & the McGill Medical faculty
- His first major gift was made in 1883 - $30,000 Trafalgar institute – girl's school in Mtl
- The following year he started providing money for women scholar's @ McGill, who became know as 'Donaldas'.
- A decade later he funded a separate college for women – Royal Victoria College complete c endowment
- In spite of long association with [1874-1914] the board of mgmt of Manitoba College, a Presbyterian College he 'ignored U of M in his bequests' – more on that later
- Starting in 1883 he was a generous supporter of McGill's faculty of medicine. In 1887 – c his cousin George Stephen they provided $1,000,000 + purchased a site for Royal Victoria Hospital which opened in 1893, which he continued to support
- He was generous in his support of physical and military training in schools and also of YMCAs across Canada
- In the UK he gave money for the establishment of a faculty of commerce at Birmingham and was a generous supporter of the University of Aberdeen. He also supported his home community of Sorres. 1902 – King Edward's Hospital Fund for London hospitals + special grant to hospital in Sorres
- Because of the enormous sums he had made investing in American railways he decided to give money to an American university and he chose Yale.
- Chancellor of two Universities – McGill, 1888 and Aberdeen, 1903 and the recipient of @ least 14 honorary degrees

Lord Strathcona's Horse

- Better remembered than his University/Hospital donations are his contribution of over $1 million [$20 million today] to raise a regiment. The commander of the unit was Sam Steele of North West Mounted Police fame.
- Steele recruited and equipped the cavalry regiment, composed of skilled horsemen (cowboys and North-West Mounted Police members) - 537 officers and men, as well as 599 horses, at Strathcona's expense for service in South Africa.
- The regiment won renown for their scouting skills.
- The unit was needed because British regulars were not doing well against the rough riding Boers whereas Lord Strathcona's Horse did do well on the open veldt.
- The offer also helped Prime Minister Laurier in Quebec because he could point out that tax dollars were not being spent on the South African war
- After the war, the regiment boarded ship at Cape Town on 20 January 1901 and arrived in London on 14 February. Here they met Lord Strathcona for the first time, were presented their medals by King Edward VII personally, and were well treated in terms of food and drink. Apparently Sam Steele made an ass of himself
- On its return to Canada on 9 March 1901, the regiment was disbanded but the regiment was recreated as regiment of the Permanent Force in 1909

Smith's political involvement is reasonably well known but let me briefly recapitulate

- On November 19, 1869 the Hudson's Bay Company transferred Rupert's Land to the new Dominion of Canada. This was not only the largest real estate deal in Canadian history it was one of the largest real estate deals in the history of the world, significantly larger than the Louisiana Purchase in the United States.
- The initial fallout from the acquisition was unfortunate, i.e., the 1st Riel Rebellion at Red River.
- Once the trouble began in late 1869 Prime Minister Macdonald appted Smith as a Special Commissioner to negotiate c Metis in mid December & Smith was there before the year was out. At the time Smith was nearly 50, and had recently moved to Montreal from Labrador as Commissioner of Eastern Operations for the Bay.
- Jan. 1870 – met and negotiated with Riel. Shortly after Riel executed Thomas Scott, Smith left for Ottawa to report to the PM.
- HBC was impressed with Smith's work and made him President of the Northern Council which met in Norway House and then Chief Commissioner, the senior executive in Canada. His base was now Red River/Winnipeg and he arrived there at the same time as General Wolseley's expeditionary force.
- The company encouraged him to get into politics which he did with a vengeance being first elected a Member of the new Legislative Assembly of Manitoba in 1870 and the following year Member of Parliament from Selkirk.
- He only served one term as a Manitoba MLA – because double mandates were abolished.

His first time in the House of Commons

- In 1871 there was a by –election as a result of Manitoba entering Confederation and Smith ran as an Independent Conservative in Selkirk . His occupation was given as Hudson's Bay Co. employee. He won easily.
- The next year there was a general election and again Smith won easily, not only defeating three opponents but garnering 80% of the votes.
- In 1873 the government of Sir John A Macdonald was defeated because of what is known as the Pacific Scandal/Slander. Donald Smith, the independent Conservative was one of the key defectors who voted against & brought down the government.
- At the time John A. said of him "That fellow Smith is the biggest liar I ever met."
- In the 1874 general election, still running as an Independent Conservative against a prominent Liberal merchant he won 60% of the vote.
- In the 1878 general election, the one where Sir John A. returned to power, Smith ran again as an Independent Conservative against another prominent Conservative – Alexander Morris, founding Pres of Albany Club, and managed to win by 9 votes or a margin of less than 1%.
- The result of that election was challenged and declared void which necessitated a by-election in 1980. This time Smith lost to a Conservative journalist. Henceforth Smith would have no fond memories of Winnipeg – story of railway car
- Smith's views as a legislator were narrow and he was referred to as the Honourable member for the HBC

His second time in the House of Commons

- In the late 1880s Smith and John A reached a rapprochement and Smith ran once more as an Independent Conservative – this time in Montreal West [future Westmount] in the 1887 general election. By this time his occupation had been elevated to governor of the Hudson's Bay Company.
- In that Parliament some accused him of making money from his involvement c the CPR. Smith's response was that it had cost him $100,000 more [nearly $ 2 million today].
- In 1891 he was re-elected with 84% of the vote – largest margin of victory in Canada. While an M.P. Smith never lost sight of his own interests – he was still called the member from HBC and there were the allegations of the money he made out of the CPR but let me read you an excerpt from Hansard defending foreign investment in Dominion Coal, one of Canada's largest corporations in the late 19th century in which Smith was an investor.
- "It would not [have] been very prudent for the few people who were interested in the mines to have taken upon themselves the burden of furnishing all the additional capital required for this purpose, so we looked around, and we found in Boston good and energetic men, with ample means, who would be glad to join with us in the enterprise. With them we came to an understanding to form a company organized under the laws of Canada, and they as well as we are subject of course to the laws of Canada, in regard to all property held within the Dominion".

High Commissioner rather than Prime Minister

- Finally you will recall that John A died in 1891 and was followed as PM in quick succession by Abbot, Thompson [who died @ Windsor Castle], the unfortunate Mackenzie Bowell who was vanquished by a ‘nest of vipers’. Bowell wanted Smith to succeed him but the ‘prize’ went to Tupper and in 1896 Smith succeeded Tupper as High Commissioner to the UK . He remained in the post until his death – being retained by both Laurier and Borden.

Now we turn to Business

- I have told you of Smith's major involvements, by no means all – i.e. HBC, BMO, CPR, American railways and BP. Let's put those ventures in context.
- First HBC – HBC was [and still is] the oldest corporation in North America and a company of considerable influence. As the Prairies opened up the Company shifted from the fur trade to land sales. In the late 90s profits were around $300,000 Cdn in the currency of the day. In the last decade of Smith's life they ranged between $1.2 million and $2.6 million and were paying dividends in excess of 50%. They were the oldest and one of the largest and most influential companies in Canada.
- Second BMO - In the nearly 20 years [1887-1905] that he was President of the Bank of Montreal it was by far the largest and most important bank in Canada and one of the most important in North America. While the Toronto based Bank of Commerce was coming on strong, when Smith stepped down as President of BMO in 05 BMO was still more than 60% larger than the Commerce– indeed it was much larger than the Commerce and the Merchants combined 2nd & 3rd. [BMO acquired Merchants in 1921].
- Third CPR, Canada's largest corporation – Smith was one of the 4 early stage investors and he never bailed on Stephen – when the CPR was on the precipice of bankruptcy in 1885 – he was the one who stood fast c his cousin, George Stephen – his reward to drive the last spike.
- Fourth – American railways – he was the third largest investor in the Great Northern Railway [SPPR] and the Northern Pacific Railway and a director. These railroads ran from Chicago through St. Paul to Seattle. [Yale story]
- Fifth – BP – he was the 1st Chairman of Anglo-Persian Oil Company, the first company to extract oil from the Middle East – and later became BP.

I hope that gives you some context for some, not all, of his business activities

- I would like to explore one other aspect of his business career and that is when he made his major moves. I think this is particularly important with a **living and learning** group.
- In 1885 when the CPR was on the precipice, before the 2nd Riel Rebellion, it was 65 year old Donald Smith that cousin George Stephen could count on for loyalty, steadfastness and most important of all cash. Smith of course would benefit greatly post 85 when CP's stock spiraled upwards as it became by far the largest corporation in Canada.
- Two years later, age 67, Smith became President of BMO, a position his cousin had held before him [one six year term Pres in between them – Smithers – little know about him]. Smith continued as President until he was 85 and then he became Honorary President.
- Two years after becoming President of BMO he made his move on HBC and at age 69 became Governor of that venerable Company – a position previously held by such as Prince Rupert and the Earl of Marlborough, Churchill's ancestor. Unlike the Prince and the Earl Smith was the only person in Bay history to rise from the bottom to the top and he held the top job until his death.

BP

- Perhaps most remarkably at **age 89** he became the first Chairman of BP.
- Here is what the history of the company says in part
- "in 1904 … to head a syndicate which would include the Burmah Oil Company. The venture appealed to Smith's belief in the empire and had the approval of various departments of the British government, anxious for a foothold in Persia and for fuel for the British navy.[**you will recall that this was a time of technological change from coal to oil and the British navy was crucial in preserving Britian's role in the world]** Smith subscribed £50,000 with little hesitation. He also played a role in the Anglo-Persian Oil Company Limited, which was formed out of Burmah Oil to exploit its discoveries in Persia. He became the company's first chairman in February 1909. Although by then an octogenarian, he was far from a titular chairman. He participated in the establishment of the company and its share structure and in the choice of bankers, brokers, and directors. He was the largest individual shareholder, with 30,000 of its 1,000,000 ordinary shares. His influence was also vital in establishing the company as the principal supplier to the British navy. He played a key role in staving off amalgamation with Royal Dutch Shell, persuading the British government to acquire two-thirds of the company's shares, the embryo of British Petroleum. Smith remained chairman until his death and his family continued as substantial shareholders."
- To summarize so far when he reached the age of Living and Learning be was one of the two key investors in CPR, became CEO of one of North America's largest banks and then took over HBC, North America's oldest company.
- And while serving simultaneously as CEO of the Bay and Canada's High Commissioner in London he agreed at age 89 to Chair a brand new corporation vital to Britain's future.

How He Got Rich

- OK – so what have I missed – I have missed a lot but among his bigger endeavours I have missed his American railway investments.
- Story of 2009 Independent Study – student wanted to study an entrepreneur – I suggested Smith and we agreed that the issue would be when and how Smith made his money.
- Early on I realized that we were in trouble with this project. The student correctly identified that Smith's great fortune began with his investments in the St. Paul's & Pacific Railway [SPPR]. The St. Paul mentioned is the capital of Minnesota. Smith's first attempt to gain control of the railway was in 1872 when he was only 52.
- My first question to the student in an early review of this project was where did he make his money so that he was in a position to take over a railway. The student seemed surprised by the question. His response was he was very well paid!
- Recall that by 1872 Smith had become Chief Commissioner of the Bay, the senior Bay executive in Canada, and was being paid £1,500 a year, roughly $7,500 – a very good salary and 75 X what he made as a clerk when he first came out.
- But a key point is salary men are well off – they are not rich. The student's answer was similar to Inspector Closeau when asked how his wife could afford her fur coat and other luxuries on an Inspector's salary replied 'she is very frugal'.

He Climbs the Bay's Corporate Ladder

- Thus began a laborious and unrewarding task of exploring the beginnings of Smith's fortune. And I will spare you the details – other than my response to the student's first and second attempts.
- Let us briefly summarize Smith's career from 1838 to 1871. In 1838 he came to Canada at age 18, was sent to Labrador. His starting salary was £20/annum. Four years later we was a Clerk making £100/annum – obviously a good employee who managed to increase his income 5 fold in 4 years.
- The next year he was given administrative responsibility of the seigneury of Mingan, north shore of Gulf of St. Lawrence. Some time in the 1840s he started investing money for his fellow employees.
- They habitually saved a high proportion of their income and invested it @ 2% [remember this was a non inflationary environment]. Smith took over their investments and promised 3%. He often did better and kept the money for himself.
- At the same time he continued his climb up the corporate ladder being promoted to chief Trader for the Esquimaux district of Labrador in 1852 and a decade later promoted to Chief Factor of Labrador – hence his nickname of Labrador Smith.
- Smith was no fool – from this remote position he corresponded with the Smithsonian and he reached out to Montreal and London.

Montreal, London, J.J. Hill

- In 1865 he went to Montreal & met his cousin George Stephen, later Lord Mount Stephen, for the 1st time, Stephen, three years older than his cousin, was already one of the foremost financiers in Montreal
- That same year he went to London & met c HBC directors. This was shortly after the sale of the company to the International Financial Corporation, an early investment bank. This meant the company was no longer a cozy partnership but rather a publicly traded company AND the new investors forsaw the demise of the fur trade and wanted to get into real estate.
- Three years later, in1868, Smith moved to Montreal as Commissioner of Eastern Operations. By now he was a wealthy man c a good income and a prestigious position. With his cousin, George Stephen and others he began investing in major manufacturers of textiles and rolling stock.
- Then as you know from my earlier remarks he went West to deal c Louis Riel and it was in the West that he became Chief Commissioner
- One fateful night in 1870 Smith met James Jerome Hill.
- Hill was Canadian born [Wellington County, Upper Canada] but moved to St. Paul at an early age. He was one of the great American railroaders of the 19th century. The distinguished HBS historian Tom McCraw is writing a History of Immigrants who contributed to America's wealth and Hill is the Canadian representative.
- Here in Smiths's own words are how he described the meeting, which was to have such a major impact on North American railways.

Donald Smith meets James Jerome Hill

- “On a cold stormy winter evening, in March, 1870 after having been practically a prisoner of Louis Riel at Fort Garry for some time, I was returning to Ottawa, headed south over the prairies by dog-team, when we met a similar outfit going north. The drivers stopped and the travelers introduced themselves. We knew each other by reputation, but that was my first meeting c James J. Hill of St. Paul. We chatted a few minutes and then decided to make the most of the encounter and camp together for the night in the shelter of a nearby gully running down to a river. Hill and I occupied one tent, our drivers the other….The Canadian Pacific Railway was born that night, in that tent on the frozen prairie….”

The Saint Paul and Pacific Railroad [SPPR]

- In 1872 Smith and Hill along with Norman Kittson formed the Red River Transportation Company. Kittson, like Hill was Canadian born and raised [although in lower Canada – Chambly/Sorel] who had settled in St. Paul. In addition to his business interests he was Mayor of that city in the late 1860s.
- That same year Smith was appointed to the Board of the Bank of Montreal and made other investments both in Manitoba – e.g. the Bank of Manitoba and in Montreal, e.g. Canada Cotton.
- But his big play with his cousin, George Stephen, Hill and Kittson was the SPPR.
- The SPPR was started in 1862 by a group of regional businessmen and the State of Minnesota as part of a general initiative to get a railway linking the hub cities of Minneapolis and St. Paul with the Pacific.
- The financing came from abroad, specifically Dutch investors in the form of bonded loans, which was the usual way to raise capital until sufficient construction had been done and the traffic from the completed portion of the railroad could generate sufficient earnings to cover expenses and generate profits and/or further re-investment.
- The SPPR had heavily overextended itself through debt. There was considerable volatility in the par value of its securities on the Amsterdam stock exchange. The SPPR was not able to meet its debt obligations, and it defaulted on debt payment in May 1873. The increasingly wary Dutch investors forced the company into receivership.

Working Out The Deal

- “The usual reaction of Dutch brokers, when a lot of capital was threatened by a default, was to call for a protective committee. Bondholders were requested to deposit their bonds with the committee, in exchange for certificates, and when a suitable quantity had been thus acquired, the committee asked for authorization to act for all” (Veenendaal, 107).
- SPPR’s problems were exacerbated by the general financial crisis of 1873.
- J.J. Hill, had already acquired a reputation as an astute businessman acquiring bankrupt companies, reviving them and then selling them for a substantial profit was quick to spot an opportunity in the failed SPPR. What he lacked was the capital necessary to acquire it. Having already established a good business relationship with Smith and Kittson he was able to get three of the “Big Four” who would finally acquire the SPPR. The fourth was George Stephen who remained unconvinced of the profitability of the acquisition until he visited the area and learned of the number of settlers that were expected.
- Smith never had such reservations about the potential profitability of the railroad (or for that matter of the land itself), which presumably came from his experiences in Labrador. My theory is that after being in Labrador the North American Prairie looked bountiful to him.
- Once Stephen was on board, the question of financing still remained. A trip to London to meet with with Sir John Rose, former Canadian Minister of Finance and Canada’s unofficial High Commissioner who had his own investment firm Morton, Rose & Company proved unsuccessful. Stephen then went to Amsterdam to meet with the bankers for the Dutch interests in the SPPR.

The Deal Gets Done

- The Dutch investors had earlier sent a representative from the protective committee, and they had asked John Kennedy (whose New York financial house took over the receivership of SPPR) to represent their interests in the sale of their rapidly depreciating stock. They were able to work out a deal with Hill that Kennedy strongly endorsed, and the Dutch were therefore willing to accept. However, Stephen's lack of success in getting financing from London meant that the deal was off.
- Thus, a combination of desperation, and disappointment on the part of the Dutch spurred on the final deal: "no payment in cash, but payment in securities of a new railroad company to be incorporated after the old Saint Paul and Pacific was sold at foreclosure" (Veenendaal, 119).
- Hill and Smith were shrewd negotiators. They invited the Dutch to visit the railroad. They counted on 'having the Dutchmen come from their compact well-developed Holland, see for themselves, in setting a value upon rusted abandoned rails, running over endless occupied prairies in a country still wild enough to dismay even the most stout hearted" – but the country didn't dismay Hill and Smith – they only saw opportunity.
- NOTE that Smith used his position with the Bay to survey opportunities for himself as much as for his employer. And he got himself into the railway business NOT his employer.

Success

- The total costs to the Big Four associates came close to $5,000,000, of which $1,000,000 was to be paid in cash and the rest in new bonds. George Stephen was able to get the Bank of Montreal to extend a loan of $700,000 at a preferred rate, the rest put up by Stephen, Smith, Kittson and Hill in a four-way partnership that would be divided into five parts, one for each of the four principal partners, and the fifth to be placed with Stephen for “the purpose of securing the necessary means to carry out and complete..said agreement.”
- Hill was appointed director and general manager for the new railroad, which he executed with his usual flair and competence.
- Smith and his partners shared a belief that the Northwest, whether Canadian or American, faced a prosperous future from which they could benefit.
- The success of the SPPR can be largely attributed to Hill but the result was that “by 1885 each of its founding fathers—Hill, Kittson, Smith and Stephen—had parlayed a $70,000 cash investment in the St. Paul’s and Pacific into St. Paul, Minneapolis, and Manitoba securities worth $5 million” (Bliss, 260). Smith was an investor not a manager. He had bet on an opportunity and the right person and came out a very rich man, well placed to support his cousin in financing the CPR and acquiring a control position in HBC. And Smith was shrewd enough to continued investing in railways in the West where Hill was involved which resulted in even greater wealth.

Great Northern Railway/Northern Pacific

- In 1889 Hill on the base of the SPPR formed the Great Northern Railway which ran 1,700 miles from St. Paul to Seattle. The Great Northern was the only privately funded, and successfully built, transcontinental railroad in United States history. No federal land grants were used during its construction, unlike every other transcontinental railroad built. It was one of the few transcontinental railroads to avoid receivership following the Panic of 1893.
- The Northern Pacific was a direct competitor to the Great Northern. Founded in 1871 it ran westward from St Paul along the Canadian border. Both railroads lacked a connection to the important transportation hub of Chicago.
- Hill in competition with Edward H. Harriman acquired the vital Chicago link [the Chicago, Burlington and Quincy], dividing ownership equally between the Great Northern and Northern Pacific.
- Not to be outdone, Harriman came up with a crafty plan: Buy a controlling interest in the Northern Pacific and use its power on the Burlington to place friendly directors upon its board. On May 3, 1901, Harriman began his stock raid which would become known as the Northern Pacific Corner. By the end of the day he was short just 40,000 shares of common stock.
- In three days the Harriman, [working c Kuhn Loeb]-Hill [working c J.P. Morgan] imbroglio managed to wreak havoc on the stock market. Northern Pacific stock was quoted at $150 a share on May 6, and is reported to have traded as much as $1,000 a share behind the scenes. Harriman and Hill now worked to settle the issue for brokers to avoid panic.

The truth revealed eight years later

- In 1909 the British Society for the Advancement of Science met in Winnipeg. Both Smith and Hill were present, Smith because he was both President of the Society and High Commissioner. Smith was asked to speak to the Canadian Club of Winnipeg which he did to a sold out audience.
- Smith spoke first, then Hill responded. At first Hill seemed hesitant but then went on with both passion and sentiment. He said,
- "You will doubtless recall …that Black Friday in my career eight years ago, when certain financial interests [i.e. Harriman] tried to take the Northern Pacific away from me." He the described how the stock shot up to $500 a share; then in a single wild hour that seemed to turn the financial world insane, they ran it up to $1,000 a share – a catastrophic disturbance that rocked the financial capitals of the world.
- "I had used all available resources in the fight. I could do nothing more. In that wild hour I was finished. I saw the results of my life's work evaporating. I was sitting, alone, in my room in a New York hotel, in black despair. It was the darkest day of my life.
- Presently, a rap came on the door and a messenger handed me a cable. I have that cable with me today." It was from Lord Strathcona whom he had not seen in years.

Lord Strathcona to the rescue

- “Harriman interests have cabled offering $1,000 a share for use of my Northern Pacific stock at approaching meeting to which I have replied ‘My stock is in vaults…in New York at disposal of my friend James J. Hill to whom I am cabling my proxy for use at coming meeting. For me the clouds had suddenly parted and glorious sunshine was streaming through, scattering my desolation. I was saved.
- Shortly afterward, I received the cable containing the proxy and by the use of my friend’s shares, I was in control of the stock. The Harrimans did not even come to the the meeting.
- Through the years since, I have a number of times tried to get a bill for that proxy, but the matter has either been evaded, or my letters have been ignored. That gentlemen, is my tribute ot my friend, my tribute to your distinguished guest today, Lord Strathcona.”

Conclusion

- So there you have it – I hope you will agree with me that Donald Alexander Smith, 1st Baron of Strathcona and Mount Royal deserves to be considered as a truly extraordinary Canadian.
- The circumstances of his marriage**s** were certainly extraordinary.
- His generosity to educational institutions and hospitals not to mention the army were also extraordinary - particularly I think his focus on female University education in the late 19th century
- While a 20 year political career is not in and of itself extraordinary – I do think it is extraordinary that this man was Special Emissary to Louis Riel, and that he subsequently brought down John A.'s government in the CPR Scandal, was brought back into the Conservative fold nearly two decades later and offered the Prime Ministership in 1896 and then served longer as Canadian High Commissioner to the UK than any other person and under 3 different Prime Ministers.
- Finally his business career was extraordinary and I have only touched the surface here. But on the surface from age 65 onwards he pounded the last spike of the CPR and stood fast @ Craigellachie c cousin George Stephen, served as CEO of the Bay and BMO, and became the 1st Chairman of the Board of BP. And he was able to do this because as in his 50s in the middle of winter on the Prairies he met and became a life long friend of J.J. Hill.
- Truly extraordinary!!!

Appendices

- Business Time Lines
- Lord Strathcona’s Estate
- Partial Bibliography

Business Time Line

- 1838 – came to Canada, Labrador – starting salary was £20/annum
- 1842 – promoted to Clerk - £100 – 5 fold in 4 years – not bad
- 1843 – admin control of the seigneury of Mingan
- he invested money for his fellow factors.They habitually saved about £750/yr and invested @ 2% - he promised 3% & often did much better.
- 1847 – Berton or Newman- re his eyes
- 1852 – promoted chief trader – Esquimaux district, Labrador
- 1862 – promoted to Chief Factor of Labrador district
- 1865 – went to Montreal & met his cousin George Stephen for the 1st time, Stephen already one of the foremost financiers in Montreal
- 1865 – went to London & met c HBC directors – shortly after sale to IFC
- 1868 – moved to Montreal as Commissioner of Eastern Operations,
- 1868 – c Stephen, Angus & Paton – established Paton Manufacturing Company [textiles]
- 1869 – c Stephen & others – Canada Rolling Stock Co.
- 1870 – President of the HBC's Council of the Northern Dept
- 1870 – met James Jerome Hill near US Canada border
- 1871 – negotiated change in arrangements c wintering partners – cut them out of profits on land sales
- 1871-74 – Chief Commissioner of the Bay - £1,500 –
- 1872 – Hill, Kittson & Smith formed Red River Transportation Co.

Business Time Line -2

- 1872 – association c BMO began – c appt to the Board
- 1872 – Bank of Manitoba, Central Telegraph Co., Man Insce Co
- 1872 – Canada Cotton Manufacturing [future Domtex]
- 1873 – Smith became Land Commissioner when the Bay divided Fur trade and land sales
- KEY – used his position c the Bay to survey opportunities for himself as well as the Bay. He got himself into the Rly business NOT the Bay
- 1873 or 4 Berton says “He was wealthy in his own right”.
- 1873 – 8 c Hill & Kittson – SPPR – that & St P,Mpl & Man rly – foundation of fortune for Smith, Stephens & Hills fortunes
- 1875 – among the incorporators of the Manitoba Western Railway
- 1876 – Smith had little capital [DCB] turned to Stephen – BMO & J. S. Kennedy & Co in NYC – permitted him to acquire St. Paul Rly, which became his main holding – Nern Pacific – initially Stephen had opposed the investment – 4 individuals Stephen, Smith, Kitson, Hill
- 1878 – the Red River Transportation Company gained control of SPPR – Smith was a partner in Red River – price of $5.5million – short term financing from BMO thur Stephen
- 1879 – resigned as Land Commissioner & resigns from Bay but starts buying up stock
- 1879 – became a director of SPPR – he owned 20% of the stock
- 1882 – became a VP of BMO
- 1882- Almonte Knitting Co.
- 1883 – 1st ‘officially’ a Director of CPR, replacing Hill – primary role fin advice to Stephen
- 1883 ff – large investor c Stephen in Lake of the Woods Milling Co.- 5th largest mftring co, Canada North West Land Co., Cdn Salt Co.

Business Time Line - 3

- 1887 Pres of BMO to 1905, then honorary Pres to his death – ceremonial role – Drummond ran the place – did this permit Smith to continue to be an entrepreneur – BMO only 2.8% of his holdings @ death. [His cousin George Stephen was Pres 1876-81] Smith succeeded C.F. Smithers and was succeeded by George Alexander Drummond
- 1888 – a founding partner of Fed Telephone co – had Mtl franchise until sold to Bell in 1891
- 1888 – Deputy Governor of the Bay
- 1889 principal shareholder & governor of HBC – only person to have risen from lowest to highest level – 75 years c the company
- 1891 1st President of what became Montreal Trust – created by B of M
- 1893 – Dominion Coal Co – 6th largest non fin corp in Canada
- -wanted to be Pres of CPR but he did drive the Last Spike in 1885
- - 3rd largest shareholder in Great Northern Rly & Northern Pacific [Chicago to Seattle], relatively small shareholder in CPR
- 1899 – 1st Pres of Royal Trust
- Sat on many boards – life cos., , mftr., rly, coal, CBA etc.
- Owned newspapers to control media
- 1909 – age 89 1st Chairman of BP
- An investor more than a financier

Lord Strathcona's Estate

- Died January, 1914
- His estate was valued @ £4,651,000 or US$23,255,000 [most say it was worth much more but he disposed of a great deal before his death].
- His largest holdings were:

1. the Great Northern Railway [28.4%],
2. Northern Pacific Rly [14.5%],
3. CPR [17.7%],
4. BMO [2.8%],
5. Laurentine [2.0%],
6. Dominion Steel [1.7%],
7. HBC [1.1%]

- NOTE He forgave loans to two former Cdn Finance Ministers, one Cons, one Lib.

Partial Bibliography

- Berton, Pierre. *The Last Spike*. Toronto: McClelland & Stewart, 1971.
- Burley, David G. “Hill, James Jerome”, *Dictionary of Canadian Biography*. Vol: XIV (1911-1920). Toronto: University of Toronto Press, [
- Bliss, Michael. *Northern Enterprise: Five Centuries of Canadian Business*. McClelland & Stewart: Toronto. 1987.
- Hidy, RalphW., Muriel Hidy, Roy V. Scott, Don L. Hofsommer. *The Great Northern Railway: A History*. Boston: Harvard Business School Press, 1988.
- Klassen, Henry C., Kitsson, Norman Wolfred, *Dictionary of Canadian Biography*. Vol: XI (1881-1890). Toronto: University of Toronto Press, [
- McDonald, Donna. *Lord Strathcona: a biography of Donald Alexander Smith*. Toronto: Dundurn Press, 1996.
- McLeod, Margaret Arnett “Two Railway Titans Meet at Winnipeg, 1909”,Manitoba History, October 2006 [24-26]
- Newman, Peter. *Merchant Princes.* New York: Viking, 1991.
- Preston, W.T.R., *The Life and Times of Lord Strathcona,* Toronto, McClelland, Goodchild & Stewart, 1914.
- Redford, Alexander. “Smith, Donald Alexander, 1st Baron Strathcona and Mount Royal.” *Dictionary of Canadian Biography*. Vol: XIV (1911-1920). Toronto: University of Toronto Press, (939-947).
- ----“ Stephen, George, 1st Baron Mount Stephen.” *Dictionary of Canadian Biography*. Vol: XV (1921-1930). Toronto: University of Toronto Press, (939-947).
- Smith, Shirlee A. “A desire to worry me out: Donald Smith’s harassment of Charles Brydges, 1879-1889,” The Beaver, v. 67:6 (December 1987/January 1988): 4-11, ill.
- Veenedaal, Augustus Jr. *The Saint Paul & Pacific Railroad: An Empire in the making 1862-1879.* DeKalb, Illinois: Northern Illinous University Press, 1999.

Tactical Armored Patrol Vehicle (TAPV) Support Concept

CFB Edmonton

27 May 11

LCol Bédard

ILSM

Briefing Aim

Update Land User Community about the future TAPV capability and its impact on the CSS organizations.

Outline

1. TAPV Background
2. Support Concepts
3. Army Impacts

1. TAPV Background

- Description
- Scope
- Timeline
- Funding
- Pre Qualified Vehicles
- Distribution

Project Description

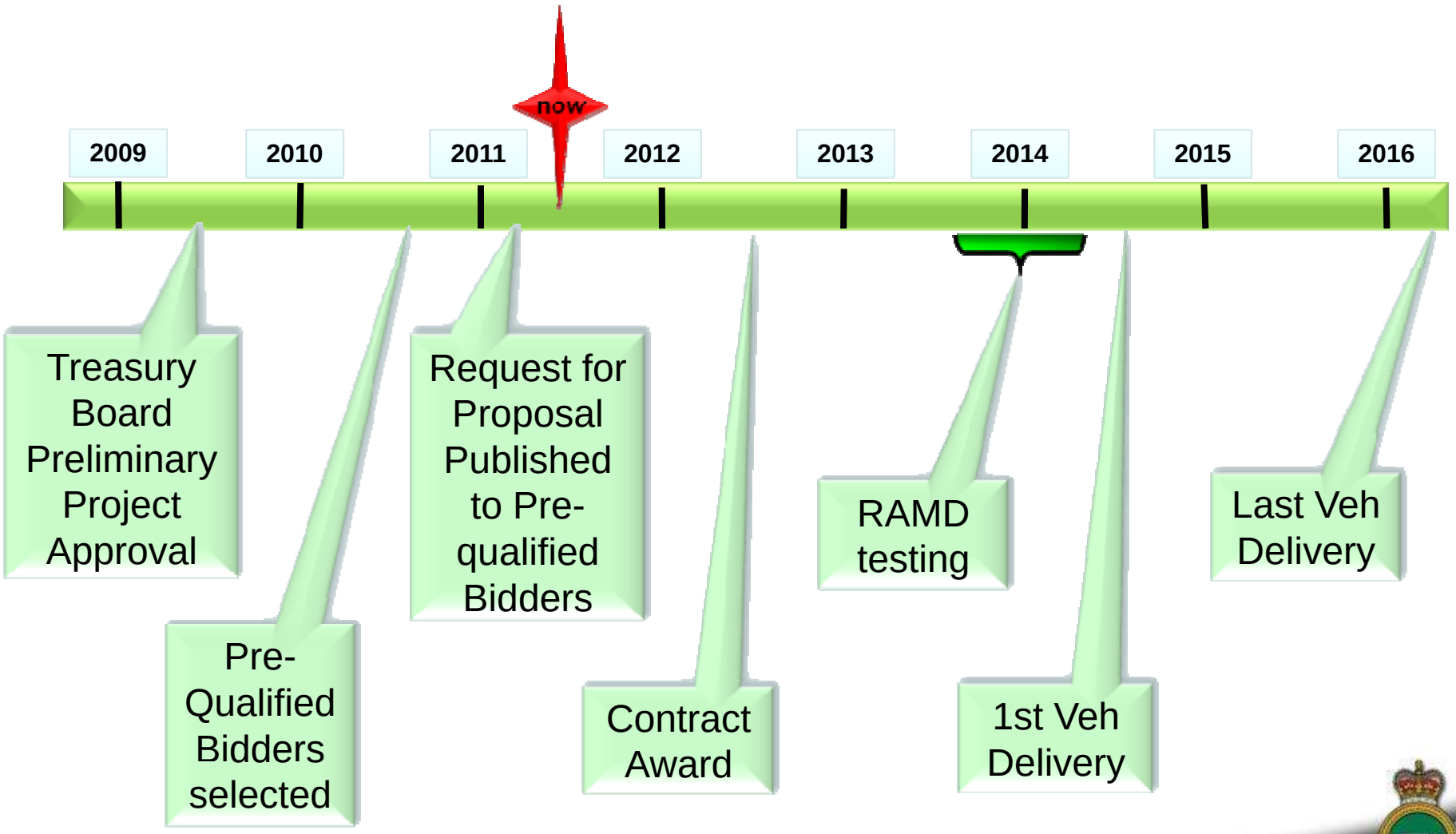
- Field a modern fleet of multi-purpose, combat armoured vehicles for use in domestic and expeditionary operations that are **highly mobile and provide a high degree of crew protection**.
- The TAPV will conduct reconnaissance, command and control, liaison, and armoured personnel transport tasks.
- The TAPV will replace the **COYOTE** (less surveillance), **RG-31** and complement the **G-WAGON** fleet.

Deficiencies

Project Scope

- **500** TAPV in two variants with **Dual Remote Weapon System** (RWS) equipped with **C6** and **40mm AGL** (same as CASW).
  (192 reconnaissance, 308 general utility).
- A long-term (**25 years**) through life in-service **support contract**, competed along with the TAPV project including the initial delivery of Support components (parts, pubs, STTE, training, etc.)
- Acquisition of operational and training stock of **ammunition** (first 2 years).

Project Timeline



Project Funding

For the Family of Land Combat Vehicles (FLCV)

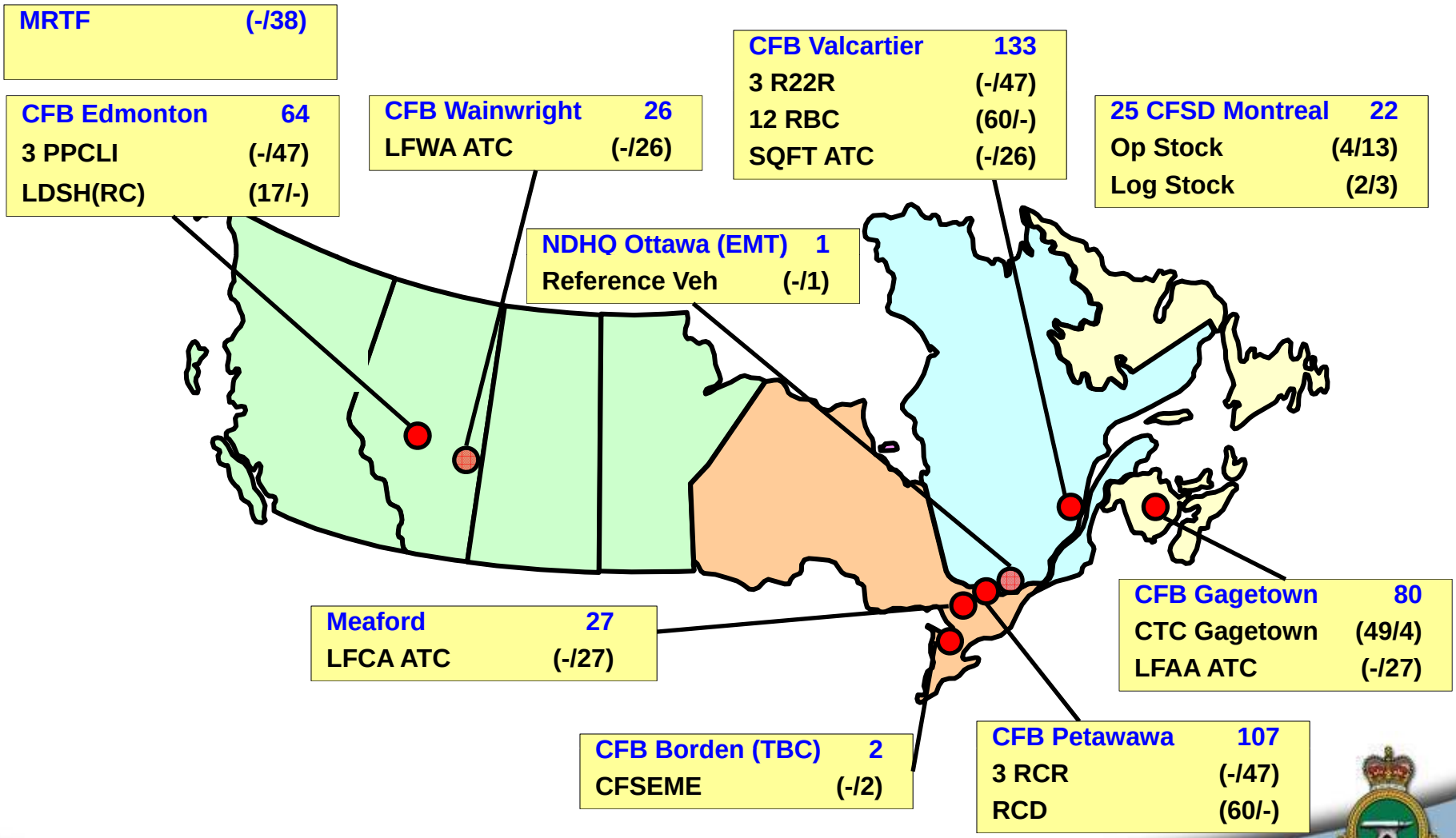
1. Tactical Armoured Patrol Vehicle (TAPV)
2. Close Combat Vehicle (CCV)
3. LAV3 Upgrade
4. Force Mobility Enhancement (FME)
   (Eng and Recovery variants to support Leo2)

Total funding envelop of $5.1B; (Vehicles + Initial Support (Training, STTE, Pubs, Parts (2yrs), etc.)

TAPV – Pre-Qualified Vehicles

	OEM (and Respondent, if different from OEM)	Vehicle
1	BAE Systems Hägglunds AB, Sweden	Aligator 6x6
2	BAE Systems Land Systems OMC, South Africa	RG35 RPU
3	BAE Systems Land Systems OMC, South Africa	RG-31 Mk5 EM
4	Force Protection Industries, Inc, USA	Cougar 4x4
5	Force Protection Industries, Inc, USA	Cougar 6x6
6	Nexter Systems, France	Aravis
7	Oshkosh Corporation, USA	M-ATV
8	Textron Marine and Land Systems, USA	MSV (Mobile Survivable Vehicle)
9	Thales Australia (response submitted through Thales Canada Inc.)	Bushmaster

TAPV Distribution
Recce (192) / General Utility (308)



Distribution

Fleet	TAPV	Armd Recce	General Utility	Remarks
Deployed	0	0	0	
Op Stock	17	4	13	
Log Stock	5	2	3	
Reference/CFSEME	3	0	3	1 for Ref, 2 CFSEME (1 x veh, 1 x optics/wpns)
MRTF	38	0	38	WFM Package - IA TF, MP, NSE, etc..
LFWA ATC (Wainwright)	**26**	**0**	**26**	
LFCA ATC (Meaford)	27	0	27	
SQFT ATC (Valcartier)	26	0	26	
LFAA ATC (Gagetown)	27	0	27	
3 PPCLI (Edmonton)	**47**	**0**	**47**	1 x coy with 17 additional
LdSH(RC) (Edmonton)	**17**	**17**	**0**	1 x sqn
3 RCR (Petawawa)	47	0	47	1 x coy with 17 additional
RCD (Petawawa)	60	60	0	2 x sqn with 17, 1 x sqn with 26
3 R22eR (Valcartier)	47	0	47	1 x coy with 17 additional
12e RBC (Valcartier)	60	60	0	2 x sqn with 17, 1 x sqn with 26
LFDTS (Gagetown)	53	49	4	
Totals	500	192	308	

Vehicles Delivery

- Edmonton – End 2014
- **Gagetown (Armoured School) – End 2014**
- Petawawa – Early 2015
- Valcartier – Mid-end 2015
- Reserve – End 2015/Early 2016

Assumptions:

- No delay with the acquisition process
- Fielding plan align with the Managed Readiness Plan

2. TAPV Support Concept

- Performance Based
- Maintenance Concept
  - DND
  - Contractor
    - FSR
    - 202
    - STTE
    - HUMS
    - IETM
- Spare Parts
  - Ownership
  - Distributions
  - Replenishments
  - Ready Pack
- Training
- Infrastructure

Performance Based Approach

- DND specify the WHAT (Outcome)
- Contractor determines the HOW; within DND's constraints.

  - Completely transparent to Users.
  - Business as usual (almost…)

Key Performance Metrics

- Time/Distance between replacement of critical parts.
- Numbers of DND Technicians hours required to maintain TAPV.
- Time to deliver a part to the depot.

TAPV Support End State

- A Prime Contractor will replenish all TAPV Spares and Repair Parts responsibilities against a fixed price per km/hr.
- A Prime Contractor will commit to a minimum reliability (MTBF) for the TAPV.
- A Prime Contractor will commit to a maximum level of effort to conduct operator, 1st & 2nd line maintenance.

Maintenance Concept

- **DND** conducts level 1,2, limited 3 (no change)
- **Contractor** responsible for overhaul of major Components/LRUs and Major repairs (Accident, IED, Mid-life upgrade, etc.)
- **202 wksp** can conduct repairs when urgent requirements cannot be done on time by the Contractor.
- **FSR** will be in-situ for **one year** following the delivery of the 1st vehicle for Gagetown, Valcartier, Petawawa and Edmonton.

Maintenance Concept

- **STTE** will be procured and owned by DND (no change), including contingency kits for future ops deployment.
- **Health Usage Monitoring System** (HUMS) is procured with the TAPV which will monitor:
  - Usage, Environmental Conditions, Configuration and Sub-system technical operating data
- Tech Pubs will be in the **Interactive Electronic Technical Manual** (IETM) format accessible through the DWAN.

Supply Concept

- Spare parts will be **owned by the Contractor**.
- DND CFSS will hold a total of **60 DOS** split between Units/Base and Depot accounts
- Replenishment of Spare & Repair Parts will be **pushed automatically** for each part ordered.

Supply Concept

- Parts will be moved through the current **CFSS distribution system** (no change) for Canada and deployed Operations
- **Deployable Ready Pack** (qty 4) each supporting 25 TAPV containing 60 DOS (operational tempo) will be kept at the Contractor's under 40 DNTM.
- **Common bulk and consumable** item will be provided locally (no change)

TAPV Training Concept

Operator training **(Driver and RWS operators)**

Contractor provides initial Cadre Training (ICT) serials to generate the necessary competency in units and school in order for them to carry on steady state.

Technician training **(Veh, RWS (EO or Wpn), LCIS)**

Contractor provides ICT serials until CFSEME – CFSCE have incorporated the TAPV requirements into their curriculum.

TAPV Training Sequence

TAPV Training will include the following phases:

- Familiarization Training
- Initial Cadre Training
- Regenerative Training

Familiarization Training

Aim: Provide to selected personnel the basic knowledge IOT participate in the following activities:

- Managing of Contract work
- Design reviews
- Planning of training activities
- Training Development Working Groups

Initial Cadre Training

Aim: Provide Canada with competent, Contractor certified TAPV operators, technicians and instructors capable of conducting Regenerative Training.

Immediately following the reception of the TAPV, ICT will be conducted at:

Edmonton, Gagetown, Petawawa, Valcartier, Meaford, Wainwright, Montreal.

Regenerative Training
(Steady State)

Operator training: delivered by Units, ATC and CTC as soon as a sufficient number of competent instructors has been qualified through the ICT.

Technical Training: delivered by CFSEME and CFSCE as soon as the schools have incorporated the TAPV training delta into their training curriculum.

Simulation

- In order to maintain the competency of crew commanders and gunners a RWS simulation system will be provided to units conducting individual training.
- Will consist of a **computer, screen and joystick**.
- Maintenance above operator level will be a contractor's responsibility.

Infrastructure

- TAPV PMO has identified funding to account for the potential infrastructure requirements.
- Infrastructure Study ongoing. Lead by DLI and includes all new army capabilities.
- Subject to Army's approval.

3. Army Impacts

How will TAPV affect your Day to Day Business ?

-Constraints
-Benefits

Army Constraints

1. **TAPV usage is now directly link to availability of O&M funding.**
2. **Units/formations could be required to closely manage mileage.**
3. **Army units will be accountable for using and maintaining the TAPV within design specs.**
4. **Army will be required to accurately record TAPV data into DRMIS.**
5. **TAPV spares can only be installed on TAPV vehicles.**

So What's in it for the Army?

Army Benefits

1. A readily deployable and supportable platform on operations. (Strat)
2. Highly predictable O&M costs. (Strat)
3. A platform which will continuously (Strat & Tact):
    1. Improve in Reliability
    2. Reduce in Maintenance burden
    3. Reduce in Supply Chain Costs
4. Reduced Logistic footprint (Tact).
5. Readily access to accurate data (HUMS) (Strat & Tact)
6. Readily access to up to date Tech Pubs (IETM) (Tact)

QUESTIONS?

Extra Discussion Slides

Support Responsibilities for Army Systems

(Potential split)

DND Responsibilities

- MA&S Business / budget planning
- Capital acquisition
- Operational planning
- Contract management
- Fleet readiness status
- Asset Management
- Performance reporting – corporate
- Workforce management
- Recording availability data
- Performance reporting
- Regenerative training
- DND conducted maintenance
  - Planning, execution, parts demanding
- On-vehicle maintenance record
- Technical problem notification
- In-House Tech investigation and R&O capability
- Warehouse & distribution from Hand-Over Point, management

Potential Contractor Responsibilities

- Project Management
- Logistics Support Analysis
  - Ongoing/Reference data / obsolescence mgmt
- Supply Chain Material Management
  - Initial Provisioning, Parts Procurement, Forecasting, Stock level management, Total Asset Visibility,, Component Repair & Overhaul, Transport & Delivery to Hand Over Point, Disposal
- Configuration management
- Maintenance program
- Initial Training support
- Special tools & test equipment
- Maintenance and Operator technical documentation (electronic pubs)
- Health & usage monitoring, diagnostics & maintenance recommendation
- Engineering Support
- Engineering Change
- 3rd & 4th Level Maint & co-planning
- Technical Problem Management
- Technical Support (FSR in & Out of Canada)
- Performance reporting

DND Management tasks - red | DND Technical tasks -green | Contractor tasks - blue

Vehicle Unavailability Drivers