



SSO ARMED



Armour *Bulletin* des Blindés



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The Armour Bulletin des Blindés

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LEOPARD C1 at work. CF photo.
Plat supérieur
LEOPARD C1 au travail. Photo des
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Back Cover
Squadron shoot. Photo Cpl Stacey,
RCD
Plat inférieur
Tir d'escadron.
Photo du Cpl Stacey, RCD

Colonel Commandant's Foreword



This is my first contribution to the Armour Bulletin and accordingly it seems appropriate to express to Brigadier General S.V. Radley-Walters the sincere thanks and appreciation of the Corps for the leadership, guidance, and support he has given to the Corps and to the image of the Corps in Canada's Armed Forces. I know General Rad will continue to give us that same support in the years to come. General Rad was a strong supporter of everything the Corps stands for, including the Armour Bulletin, and I wish to thank him on behalf of all members for the indelible mark he has left as Col Commandant.

I wish to thank the School Commandant, Lieutenant Colonel K.L. Thornton, CD for the opportunity to communicate with members of the Corps in this Bulletin. The Armour Bulletin has evolved into a first-rate publication serving as a forum for the expression of ideas by members of the Corps.

Having succeeded General Rad and having known personally all other previous Colonel Commandants — Worthy, Wotherspoon, MacDonald and Amy, I am very keenly aware of the significant impact and stature they brought to this position. I will endeavour to continue what they started in terms of representing the Corps wherever and whenever it is required.

In June, 1987 the Minister of National Defence presented a White Paper on defence — "CHALLENGE AND COMMITMENT-A Defence Policy for Canada". To quote from the White Paper "We must also have appropriate land forces to demonstrate presence, authority and effective defence within Canada in peacetime and to defend against incursions and sabotage in war. Canada needs well-trained and well-equipped land forces comprising both Regulars and Reservists, to protect military vital points and to deploy rapidly to deal with threats in any part of the country. Land forces now fall short of these requirements". To implement the policies stated in the White Paper it will of course require the identification of new tasks and the acquisition of new facilities and equipment. In the case of the Reserves, the White Paper states "the size of the Reserves will have to be significantly increased and their training and equipment substantially improved". Flowing from the White Paper there clearly will be a greater emphasis on increased support, financial and otherwise, to achieve the results contemplated by the White Paper.

The Corps has a new challenge which it can and will meet. The challenge of course will require an increase in size and commitment of the Reserves.

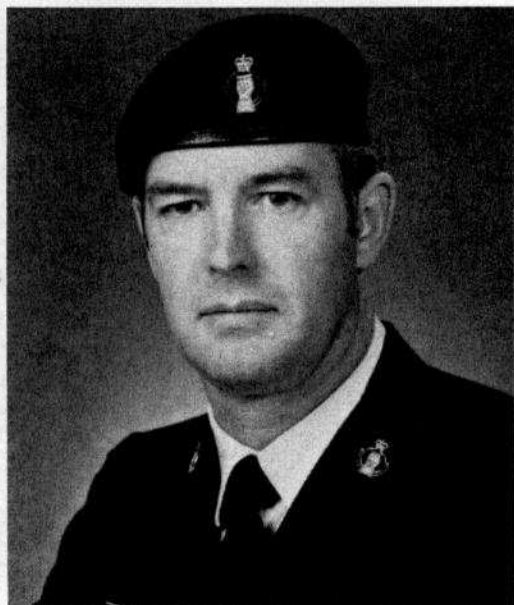
There are probably those who will say we have heard this before. It is true that over the years there have been policy statements made at the highest levels as to the necessity of supporting the Armed Forces but not always did any real additional support materialize. A very considerable factor in the history of the Reserves has been the vast amount of reorganization to which the Reserves (primarily the militia) has been subjected. It is interesting to note that all the various studies that have been made of the Reserve since World War II have emphasized five essential factors: regular force support, adequacy of training equipment, imaginative training, adequate financial remuneration and public recognition. It has been difficult in the past to achieve these requirements. The White Paper has now set forth a new order and positive action has been and is being taken to implement its provisions.

The future holds many challenges and opportunities for all of us. The "White Paper" and the proposals resulting therefrom are providing a blueprint for a significant milestone in the evolution of an integrated full time and part time army. Given the nature of the threat, and the enunciation of the Canadian Government Defence priorities, the future bodes well for the Corps. The potential acquisition of new equipment and the renewed emphasis on the Militia are issues long overdue. There is a cost as well as a long lead time in the current plans that must not be underestimated. Continued support and constructive discussion by all parties, Regular and Militia, are essential if the best solution is to be found.

W.A. Howard
Colonel Commandant

A handwritten signature in black ink, appearing to read "W.A. Howard". The signature is fluid and cursive, written over a white background.

Director of Armour's Foreword



It is indeed my pleasure to provide comments for the Armour Bulletin. This year's theme of training is timely considering army development initiated by the White Paper on Defence. In fact for those reviewing this document in future years, concepts and initiatives herein may be prophetic.

The face of the army and the Corps will change dramatically in the next fifteen years. Development of a Total Force is fundamental to the transformation which will begin in the next couple of years. This growth sets before us a training task which requires energy, initiative and strategy to ensure success. These qualities and abilities abound in the Corps and it is through forums such as the Armour Bulletin that the source is tapped. I encourage you, therefore, not only to read the contents, but to consider, discuss, analyze and constructively comment on them. The seeds of future training precepts are planted in publications such as this. It is only through proper cultivation that the ideas grow and develop. So much of this responsibility veritably belongs to the readers.

Perhaps it may be observed that a publication dedicated to training would be better served if a structure, in this case Army 2002, were provided. In fact, such a presentation, if it were available in a solidified form, would likely restrict ideas by establishing parameters. Such is not the aim in this case. More to the point is the generation of comment on training both now and in the future. It is from this rhetoric that critique can be provided, improvement can be suggested, and originality can be presented. From there it is the task of commanders and staffs to identify and develop ideas as they apply to specific issues. Your contributions are as always a cornerstone of the Corps.

*D.M. Dean
Colonel
Director of Armour*

A handwritten signature in dark ink, appearing to read 'D.M. Dean', written in a cursive style.

Managing Editor's Foreword



Although Volume 21 of the Bulletin has taken on a new look, it has and will continue to provide a forum for the expression of ideas from throughout the Corps and our brothers in arms.

The theme selected for this edition was "Training" and the following pages contain some excellent articles on the subject. In hindsight, however, we believe that the imposition of a theme has had the effect of stifling submissions on many equally important subject areas especially considering the transition that the Corps is presently experiencing. The designated theme has, therefore, been discontinued for the next edition. We do solicit your support, however. We would like to make the Bulletin a quality publication but it will only be as good as you the prospective authors are prepared to make it. We would prefer to have a flood of subject material rather than a trickle to select from — early submissions as always are encouraged.

I would like to acknowledge the efforts of Captain Marcel Richard in the preparation of this edition and to offer my appreciation to all of those who contributed articles, poems or regimental updates.

*K.L. Thornton
Lieutenant-Colonel*

A handwritten signature in dark ink, appearing to read 'K.L. Thornton', written in a cursive style.

CORPS UPDATE



Editor's Note: *This RCD SITREP is taken from a letter by LCol Meating to all ERE Dragoons. It summarizes the activities of the regiment in this past year.*

24 November 1987

Royal Canadian Dragoons SITREP

It has been a long time since my last communication with you. I was considering putting one in the mail immediately on arrival in Petawawa, but activities since then until now have been pretty hectic. Also, as I and everyone involved with Springbok-Coronet considered the culmination of the Operation to be the execution of Leliefontein 1987 celebrations in Petawawa, I decided to delay the production of this SITREP until now.

In this edition, I will provide you with information on the events of importance to the Regiment since the last letter. Specifically I will cover:

- Leliefontein 1987 in Petawawa
- Gunnery on Leopards and Canadian Army Trophy 87
- Boeselager Armoured Recce Competition 1987
- Departure from Lahr and European Affiliated Units
- Arrival in Canada and Training Jul — Oct 87

Leliefontein 1987. Not in chronological sequence but very topical is the fact that we have just completed our first celebration of Leliefontein in Canada in 18 years. With an overall aim of as much participation by old comrades and officers and men employed outside of the Regiment as possible, the Leliefontein 87 weekend (5, 6, 7 and 8 Nov) was a success by any measurement.

On Friday, we met about two hundred Regimental Association members who had travelled from across the country to join the festivities. They arrived throughout the afternoon and took advantage of the time to walk around unit lines and see how a recently transported Dragoon soldiered in today's Petawawa. They were given the opportunity to see our equipment and typical garrison training and to visit our archival display, where they searched for themselves in old scrapbooks or paperwork. They had fun, as did we helping them reminisce.

On Saturday morning the Action at Leliefontein was commemorated with a parade at 1000 hrs in bitterly cold but very bright sunny weather. All Dragoons who were in attendance were involved in the parade. The Reviewing Officer was our Colonel of the Regiment, BGen George Bell. The parade commander was BGen Clive Milner who showed us that he has not forgotten all of the drill manual in his present job in Kingston. On the right of the line for

the dismounted inspection and parade and leading during the march past was a very large contingent of retired and Association Dragoons. It was a great sight; outstanding bearing and parade presence by each and every one during inspection and especially during the march past. Truly a very fine and proud group of Dragoons.

An ERE contingent was present on parade under the command of LCol Dave Graham with CWO Sterling Mercer as his SSM. Somewhat smaller than the Retired/Assn guard, which was to be expected, the ERE group also performed well without benefit of rehearsal. I must admit to sharing LCol Graham's thoughts however: what a motley crew to parade with!

To round out the parade, I had C Sqn Gagetown fall in to the left of the ERE and to the right of the RCD Petawawa. The Vimy Band, which had been arranged for the weekend for us by Maj Al Hamilton (CFTSHQ Trenton) completed the troops on parade. I thank Maj Hamilton because I wanted the Vimy Band; its origins are in the disbandment of The RCD Band.

It was quite a sight; it was a very fine parade. Some of the guards were seven ranks deep. The Retired/Assn group were resplendent in their top coats, chest filled with pride and long rows of medals. The guidon was on parade with the Regimental family for the first time in a very long time; many had not seen the guidon since well before its move to Germany in 1970. The reading of the Action at Leliefontein by WO Levesque of Recce Sqn. The prayers before and after Last Post, silence and Reveille by a former Regimental padre (Stan Self, RCD Chap (P) 1964-65) and a current Regimental padre (Rheal Turgeon, RCD Chap (RC) 1987). The trooping of the Guidon to the music of some former RCD musicians in the Vimy Band. The march past under Gen Milner of all eras of the Regiment. A short military music interlude by the Band while the Regiment mounted its new charges and old charges —Cougars and Lynx respectively. A feu-de-joie by two troops of Cougars which was followed by the roll-past of the Regiment's F echelon.

Awards presented on the parade included the Eckhardt Trophy for the outstanding junior leader in the Regiment in 1987. It was won by MCpl Saunders of Recce Squadron. The ETSM Trophy for the outstanding support tradesman in 1987 was earned by MCpl Larouche of C Squadron

Gagetown. The Colonel of the Regiment's Sword for best Subaltern in the Regiment in 1987 was presented to Lt Rostek by Gen Pat Grieve. (Gen Grieve presented his personal sword to be used as the award in 1983). The annual Leleifontein Awards for the best Sergeant and MCpl in the Armoured Corps in 1986 were won by Sgt Robert of the Armoured School and MCpl Girard of the 12eme RBC respectively.

During the afternoon the Association held its annual general meeting. The meeting was very well attended; Bill White, at 93, was the oldest Dragoon present and one of the new troop leaders was easily the youngest Dragoon present.

To conclude the weekend, RC and Protestant church parades were held on Sunday morning, following which goodbyes were (in some cases tearfully) expressed. The familiar tune was: "until next year!". I consider the weekend to have been a tremendous success; the Regiment was welcomed back to Canada in true cavalry style and a better tone to the start of our service in Petawawa could not have been imagined.

Gunnery on Leopards and Canadian Army Trophy 1987. As I had indicated previously, gunnery training and preparation for Canadian Army Trophy was the Number One priority in the Regiment from end Nov 86 until the competition in Jun 87. This part of the SITREP will report to your the results of our efforts. I intend that this part of the SITREP be detailed because the results were important to us in Germany, are still important to us in Petawawa, AND it appears that if we don't blow our own horn no one else will!

As you are aware, the Regiment held its major annual gun camp in Bergen-Hohne 1-10 Apr 87. To ensure that no time would be lost during those ten days, the Regiment was also in Bergen end Feb to zero all tanks with the new Corps' zeroing procedures. This was necessary because between Aug 86 and Jun 87, all tanks were modified with the new parallelogram sight linkage and new traverse gear boxes. Had we not organized an extra week at Bergen in Feb, we would have taken 5 or 6 of the 10 day Regimental gun camp in Apr. So all 59 tanks were in Bergen fully ready to commence CAT training on 1 Apr 87.

All three tank sqns were submitted to AFCENT as being eligible to be selected as Canada's entry in the 1987 competition. At 1400 hrs 31 Mar CINCENT drew C Sqn as

our competing Sqn. One of the hardest things I had to do was tell Majs Moffat and Macdonald (OCs A and B respectively) that all of their preparations were well appreciated and in the interest of improving tank gunnery in the Regiment, BUT they were not the selected Sqn. There most definitely was disappointment. I think that on the other hand when I told Maj Hillier of C Sqn that he and his Sqn were it, there was initially an air of disbelief, followed by the realization that the next three months would be extremely busy and not only would they be preparing soldiers and families for Springbok-Coronet but gunnery and CAT would occupy them totally.

As A and B Sqn commenced continuation gunnery training culminated by internal competitions, C Sqn received the priority in ranges and gunnery instructor (who became known as COACHES and not IGs) assistance. By the end of Gun Camp, Maj Hillier, as Team Capt and his coaches had selected which two of their four troops would fire in the competition. It was also by 10 Apr that C sqn had identified, organized, trained and practiced its CAT support group, ie: gun mechs, FCS techs, spotters, swampers, drivers and the like. This support organization also included a significant first for the RCAC with the contracting by NDHQ of two professional sports psychologists, Drs Terry Orlick and John Partington, with past and present preparation experience of Canadian Olympic athletes. These two very fine gentlemen were contracted to assist me and Maj Hillier with the psychological preparation of the team, something the Germans had been doing for at least the previous three CAT contests.

Giant steps were also made in the procurement and use of tank and troop fire simulation systems in preparing for CAT 87, NDHQ and DCIEM Toronto made available the only copy prototype Canadian-developed (by DCIEM) LVIGS (Leopard Video Interactive Gunnery Simulator) to us for Jan through Jun 87. This piece of kit was outstanding in confirming the training of the gunners. We also borrowed, begged or stole time on any American training devices we could find in Europe between 10 Apr and the first week of Jun 87. We used the M60A3 UCOFT (Unit Conduct of Fire Trainer) of our affiliated 5/68 Armor Bn in Mannheim; we used a MILES equipped FMR of 4/8 Cav in Gelnhausen; and of significant importance we begged, bribed and clawed our way into some training time on

the non-NATO, purely US, congress-funded M1 Abrams 4 tank video interactive simulation facility known as SIMNET. While our crews had to learn how to fight the Abrams or the M60A3 to use the SIMNET and the UCOFT, the effort was worth it as it permitted us to confirm that our gunners were well trained and that our SOPs for dealing with multiple targets were workable and in fact were the best possible. The SOPs developed by Maj Hillier and his coaches led by the RGO, Capt Haindl, were from my perspective the reason our effort in the competition was as good as it was. All in all, the period between the selection of the team in early Apr and the competition was crammed with gunnery preparation which resulted in the almost complete absence of the team from their home in Lahr for ten weeks. Needless to say, this evolved into a keen sense of anticipation leading up to the actual competition which began on 15 Jun.

Results were outstanding — even more so in comparison with Canadian scores from previous years. Canadian best scores prior to 1987 were 18 target hits of 24 targets presented with 40 main armament rounds. This year the first troop hit 29 and the second 31. Thirty-two targets were presented with the exact same ammunition load (total 40) as in previous years. Statistically in 87, 33% more targets were presented and the two troops achieved 75% more hits than in any previous contest. Of significance and the reason we did so well is the fact that only a total of 6 targets between the two runs were double engaged; there weren't any triple engagements. The SOPs, or the troops' attack plan, for dealing with what was presented saved these rounds for later targets. To belabour the point and obviously the pride in the Regiment, the 87 CAT contest also introduced a new target presentation rule which made the SOPs critical to any team's success. Up to 8 targets were presented in two arrays with or without a time delay. In RCD One for example, the troop received a 5 target array on bound one and while dealing with it a further 3 targets appeared approximately 20 seconds after the first five. Because there were still no hit indicators in place for 87, and because for 87 puffs to indicate targets-up were eliminated, the SOPs were continuously put to the test. RCD Two had to deal with a 8 target, no delay array and a 6 and 2 delay array. Happy and satisfied the two troops, the coaches, the Sqn Comd, the Bde Comd and all Canadians at Grafenwohr were spent when the second troops' scores

were posted 17 Jun. We had virtually assured that CENTAG would regain the trophy which it had lost in 1985. 60 of 64 targets!!! AND the troops brought back 8 x 105 mm!!!

This demonstrated a tremendous improvement in gunnery results still using the same Leopard C1. Examining actual point scores and realizing that both troops fired early in the competition, results were 17,157 for the first troop and 18,062 points for the second troop. Of 24 troops competing, the Dragoons finished sixth and thirteenth. Of national contingents or teams, we stood fourth of ten. Considering the relative newness of equipment (American M1s, German Leopard IIs and British Challengers) our team met and surpassed my highest expectations. We beat all Challengers, all other Leopard 1s, 3 of 6 Leopard II teams and 7 of 9 M1 tank teams. In 83, there were a total of 4 second generation troops among the 20 that competed. In 85, 8 of 20 were second generation. In 87, only 6 of the 24 troops were FIRST generation, including RCD One (Tp Ldr, Lt Harry Angel; Tp WO, WO Albright) and RCD Two (Tp Ldr, Lt Peter Kouri; Tp WO, WO Larry Beaton).

I'll close off this burst of pride and satisfaction by indicating that the results would have been as positive had either of the other two non-selected Sqns received the nod. By freezing Sqn rosters, by drawing the representative contestants at random on 31 Mar, the standard of gunnery in the three Sqns had to be similar. A and B Sqn had developed similar SOPs to what was put on the Grafenwohr ranges by C sqn and their crews were equally well trained in anticipation of being the selected Sqn. The standard of tank gunnery in the unit was excellent — that is and will continue to be the aim of CAT.

Every man in the Regiment stood very tall among his peers in the other units of 4CMBG because of CAT 87. All of the disruption and inconvenience imposed on the team and the unit to be ready for CAT 87 was more than worth it.

Boeselager NATO Armoured Recce Competition. The RCD have competed in this very prestigious international competition since 1976. In 85 the unit team finished 20th in a field of 21 teams; in 86 the team was last among 22 teams. The 1987 event was held in Hessisch-Lichtenau, near Kassel Germany from 11 to 15 May 1987. Mainly to permit the soldiers to feel that they were as well prepared as they could possi-

bly be to tackle the competition, a tremendous amount of quality training was planned and conducted for the team of eight competitors. I directed that the unit would take athletes and make recce soldiers of them. We held Regimental wide tryouts with approximately 60 wanting to be selected to the team. After the tryouts in the fall in Oct/Nov 86, the Team Capt (Capt Jim McKillip) selected 18 who were posted to RHQ and the RHQ Recce Tp. In this setup, I could better influence and protect their training for Boeselager. They adapted very well, were an excellent RHQ Recce Tp and went in to Boeselager believing that they could win in the guest class and have a strong shot at the overall title. Including the host nation Germans there were ten countries entered. Of the nine teams in the guest class (British, Norwegian, Dutch, Turkish, Italian, French, Belgique, Canadian and American), the Dragoon entry finished second to the Americans. We were 3rd (behind two US teams) in guest class and 6th of 24 teams overall. An outstanding result, but a slight disappointment as we had beat the winning Americans in all pre-competition trials. We were the best trained of all teams entered; two mental errors cost us the championship. Eight events were included in the competition with our best showing in the 3.5 kilometer obstacle course where we had to fastest overall time by 38 seconds but lost by two seconds due to bonus points being awarded for returned (unused) grenades. All-in-all we were extremely competitive. I was very pleased with the results, as were the team members, the Bde Comd and the Col of the Regt, who had flown to Germany to be with us.

Departure from Lahr and European Affiliated Units. This next passage will inform you about how the Regiment said its good-byes to its home of 17 years and the many Regimental friendships which had been established.

On Sun 17 May, we bade farewell to the Oberbürgermeister and citizens of Lahr in a dismounted inspection and mounted parade. We paraded two tank Sqns (C Sqn being unavailable to parade because of CAT training) and Recce Sqn at 1700 hrs. The weather was outstanding and the event was very well attended because of day and time. The best estimate is that in excess of 3000 locals were present to say farewell to relatives, tenants and friends. The Col of the Regt and the Oberbürgermeister exchanged speeches and gifts after the inspection of the Regiment by Oberbürger-

meister Dietz. Then it was a very impressive roll past which earned favourable press in Lahr and the surrounding towns. The gift from the city of Lahr to the only Canadian unit to be honoured with the freedom of the city was a city flag. In addition to a framed print, the Regiment gave the city a Regimental flag. I and the Oberbürgermeister agreed to fly respective flags on 7 Nov annually.

In Jun after return from CAT 87, the RSM and I, along with the PMC of the Men's Rest Area were invited to the Georg Wimmer Schule for cafe and kuchen with the principal and teachers. The school, for mentally handicapped young children, had since 1981 been sponsored financially and with manpower for special activities by the Mens Rest Area. On learning that the Dragoons were leaving Lahr, the teachers wanted to say thanks for the unsolicited support the Dragoons had given them.

At a Farewell to Germany mess dining-in in the Black Forest Officers' Mess on 25 Jun all of our affiliated units expressed their regrets that the Regiment had to leave Deutschland and sought assurances that the strong inter unit ties could be maintained long distance. I felt that the sentiments expressed by the unit COs were very sincere and that their units, the officers and men, had cherished their relationship with the Dragoons over the years. Now in Petawawa, we are attempting to have NDHQ recognize the uniqueness of the situation and to permit small unit exchanges, at least during unit celebrations. We shall see.

The Comdt 4CMBG ordered me to put the Regiment on parade on short notice on 30 Jun. Without much fanfare, Gen Lalonde bid us good sailing on behalf of all ranks of 4CMBG. He was very complimentary about how well the soldiers had gone about their business in the very hectic times leading up to the first week of Jul 87. He thanked the Boeselager and CAT teams for their superb showings while managing the administrative burdens of readying themselves and their families for rotation within three weeks of returning to Lahr. He thanked Dragoons past and present for outstanding service to 4CMBG as its Armoured Regiment 1970 to 1987. Gen Lalonde concluded by presenting a bronzed Commander' Commendation to me on behalf of Dragoons everywhere. It is signed by every Commander 4CMBG 1970 to 87 (Gens Leonard, Chouinard, Grieve, Belzile, Vance, Fox, deChastelain, Evraire, Dangerfield and Lalonde).

The RCD officially left Lahr on 10 Jul. The CO, RSM and guidon party flew on that date. Those left in Lahr and Petawawa to become Hussars and Dragoons rebadged on Wed 8 Jul.

Arrival in Canada and Training Jul to Nov. The move was accomplished with relatively few problems. Our Guidon arrived in Ottawa on 10 Jul and was paraded for the first time in 30 years in Petawawa on 11 Jul within our new unit lines. Gen Bell met us at the airport and was present in Petawawa the next morning when two groups of Dragoons (the new — those who had rebadged from 8CH, and the repatriated — those who had returned as part of Springbok-Coronet) paraded under their Guidon, some for the first time. After the Sat 11 Jul parade, it was business as usual in Petawawa, as many headed off on summer block or disembarkation leave while others headed off to train the militia or cadets on summer taskings.

Our operational role has changed to Defence of Canada operations as opposed to assistance to NATO in North-West Europe. Our primary fighting vehicle has changed as well — from the Leopard C1 MBT to the wheeled Cougar tank trainer. Changes to our Regimental structure have resulted in a personnel strength of 455 — some 200 less than in Germany, organized into an RHQ, a Headquarters Sqn, two Cougar Sqns, and a Recce Sqn equipped with Lynx. C Sqn RCD Gagetown remains an independent Leopard Sqn with a strength of 126.

The Regiment, less Recce Sqn, deployed to the field for a training shake-out in the Borden/Meaford area North of Toronto 13 to 28 Sep. While not Hohenfels or a European RMA, this deployment demonstrated just how quickly the Dragoons could adjust to exercising with a new vehicle running on wheels instead of tracks. My aims were accomplished and I could realistically state that the RCD was operationally ready in Petawawa by the directed 1 October 1987 deadline. Recce Sqn, who had stayed behind in Petawawa to fulfill the many unit assigned taskings in support of such SSF directed activities as Ironman and OSONS Challenge, meanwhile was concentrating on qualifying 45 of their soldiers as parachutists at the Canadian Airborne Centre in Edmonton. 21 of these "airborne" soldiers form 1st Troop, which is completely jump qualified and tasked to support the Canadian Airborne Regiment in Defence of Canada tasks. In Oct Recce Sqn

exercised for a two week period in the Petawawa training area with a confirmation exercise in civilian country between Petawawa and Ottawa. It was obvious from the many inquiries from locals that the civilian countryside had not been used in many years.

Since our return from Meaford, the emphasis has been on gunnery and recce as we embark on new challenges — Ramshead and Merritt. Our first gun camp in Canada was held in Petawawa 23 to 29 Oct. The standard of Cougar gunnery confirmed my impression that the switch to a new vehicle, while not easy, was going well. Actually we found that the ranges here in Petawawa are excellent, albeit underdeveloped. We have a battle run which would be a good challenge to the Leos, let alone the three man Cougars.

Merritt will be held in Gagetown in Jun 88. Ramshead will be held in Wainwright in Apr 88. Both contests give focus to our training in the coming months. I expect good results which will be needed if any unit is to unseat 12RBC after their recent excellent performances. In fact, it is felt in most corners of the Corps that one has to be francophone to win. We are out to see if that is true. Wish us good weather, if not luck.

Obituaries. 1986/87 was not with sadness and to keep you who are out in the hinterlands informed, I must report the deaths of several Dragoons or Dragoons at heart.

WO Rubin Major passed away in early Jul 87.

Mr. Otto Girke, a Dragoon at heart and staunch supporter of the Regiment in Germany, passed away in late Jul 87.

Mrs. Jo Bell, the wife of the Colonel of the Regiment, passed away in Sep 87.

THEY WILL NOT BE FORGOTTEN.

Miscellaneous and Conclusion. The Regiment has been tasked to conduct Operation SNOWGOOSE 51 (Cyprus UN Tour) Mar to Sep 89 replacing the Straths who will go over in Sep 88.

If you have stayed with me this far, you will have read between the lines where I haven't bluntly stated it: the Regiment is in good shape. It has been a busy, trying year. It has been a very successful year and we intend to do everything in our power to make our first year back in Canada successful as our last in Germany. Here endeth the SITREP.

LCol R.G. Meating, CD

CORPS UPDATE



Une année bien remplie

Le 12^e Régiment blindé du Canada vient de compléter avec l'année 1987 un autre chapitre captivant de son histoire régimentaire.

Les membres du Régiment se distinguèrent auprès de la population civile dans la recherche d'un jeune garçon porté disparu sur la base de Valcartier. Après plusieurs heures, il fut retrouvé sain et sauf. Le Régiment fut ensuite amené à porter main forte à Sauvetage Canada dans les recherches d'une jeune fille portée disparue à Ste-Agathe-des-Monts. Elle fut retrouvée après plusieurs jours de recherches intensives.

Les prouesses du Régiment continuèrent avec les compétitions de tir et de reconnaissance du Corps blindé. Le Douzième remporta pour une première fois le trophée Merritt et pour une quatrième fois consécutive le trophée Ramshead. Quelle satisfaction!



Lors de la passation de colonel du régiment le MGen LaRose Col du régiment sortant remet le poste au Col Gaulin.

L'écusson du Douzième voyagea de plus à travers plusieurs pays. Une troupe de l'escadron D participa à un échange d'unités avec les Américains. Ils se rendirent à Fort Drum et Fort Hood où ils purent mettre leurs talents de tactiques de reconnaissance à l'épreuve. Sur un autre continent, les Douzièmes participèrent à un échange avec leur régiment jumelé de France, le 8^e Régiment de Hussards. Le voyage fut chargé d'activités qui ne pourront que resserrer les liens entre ces deux unités dans les années à venir.

Les parades au 12^e RBC étaient de rigueur cette année. Les membres de l'unité se virent à plusieurs reprises, soit par temps froid, chaud, ensoleillé ou à pluie battante, montés en parade pour les changements de commandant d'unité de SMR et de Colonel du Régiment. Le Lcol Caines remplaça le Lcol Bordet qui prit le poste de commandant de la zone de recrutement Québec. La base des Forces canadiennes de Lahr reçut l'influence du 12^e avec l'arrivée de l'Adjuc Maybee. Et enfin, le Régiment remercia le Mgén LaRose pour ses nombreuses années dévouées au Régiment en tant que membre, et aussi en tant

Le trophée Worthington retenu par le 12 RBC depuis maintenant 4 ans pour leur excellence en canonnerie.



Les troupes de chasse se préparent au déploiement de 1 EX NEZ ROUGE.

que Colonel du Régiment. Nos meilleurs voeux de succès!

Notre appui régimentaire, les vétérans du 12th CAR, tinrent leur réunion au manège de Trois-Rivières. Beaucoup d'histoires se racontèrent et les liens d'amitié se nouèrent davantage. Au plaisir de vous revoir dans deux ans!

Le Régiment, sous le commandement du Lcol Caines, se prépare à relever les défis qui se présenteront en 1988. Bon succès à tous! Adsum

Capitaine D.R. Charron



Le trophée Merritt remporté par l'escadron D du 12 RBC pour la première fois depuis la création du régiment.



Sous la pluie, le régiment défile une dernière fois sous le commandement du LCol Bordet lors de la parade de passation de commandant du régiment.

CORPS UPDATE



The Sherbrooke Hussars: 1987

The Sherbrooke Hussars began their 120th year of operations with a traditional New Year's Levee. The Hussars, for many years now, has been the only regiment in the Eastern Townships of Quebec to conduct a true Levee. Judging from an ever increasing attendance there is no doubt that it will be carried on for many more years to come.

A small scale winter training program for TQ-1 graduates and Worthington test preparation highlighted the winter training period. An Armour weekend, featuring presentations by the Director of Armour, Col Darrel Dean, the SSO Armoured, FMC, LCol Keith Eddy, and the Commanding Officer, 12 RBC, LCol Georges Bordet was also held. Most of officers from the four Secteur de l'Est armoured units benefitted from this insightful forum.

The annual GPMG qualification which was held on the weekend of 14-15 Feb will

certainly be remembered for a long time. With a temperature of -35°C and a 50 km/h wind, everyone had to be at their peak performance level to get rounds down range. With war stories being what they are, in fifteen years time, the temperature will be -50 and the wind 75 km/hr.

Collective Cougar and Recce training highlighted the late winter and early spring training period. Major John Murray captained Secteur de L'Est's Ramshead Competition team to a convincing win among the Armoured Corps militia units. A special thanks must go to the 12 RBC for their support in preparing the winning team. Special mention must be given to Lt Ron Cote, also of the Sher H, for his excellent job of leading the team.

During May the Regiment bid farewell to a true friend in RSS Captain Jean Lemieux. Jean was an inspiration to everyone at the Sher H and will be sadly missed. He is now working at FMC headquarters in St Hubert. Everyone wishes him continued success in his new employment.

The annual Sher H golf tournament, always a tremendous success, was once again won by former RSM Bob Oxford. Nipping at his heels for the second year in a row was the Honourary Colonel, Doug Bradley.

The Armour Concentration this year was held, for the first time in many years, in Gagetown. The Sher H benefitted from an excellent Cougar gun camp and battle run. In the troop competition the Sher H, under command of Lt Ron Cote, triumphed over three other Secteur de L'Est teams. Because of the time loss getting to Gagetown from Valcartier, the 1988 concentration will be held in Valcartier and in the Beauce. Next summer's concentration should be very interesting, with the Infantry working with the Armour at the combat team for the first time in the concentration format.

The fall training period saw the regiment active on many fronts with individual training being highlighted. Two Cougar and Recce exercises at the troop level and one Recce exercise at the squadron/regimental level were conducted with excellent success. The latter exercise was marred by the tragic accidental death of one of our finest



Sher H Bombing up for Secteur de L'Est competition at concentration '87



Sher H concentration. Winning troop with honoraries and commanding officer

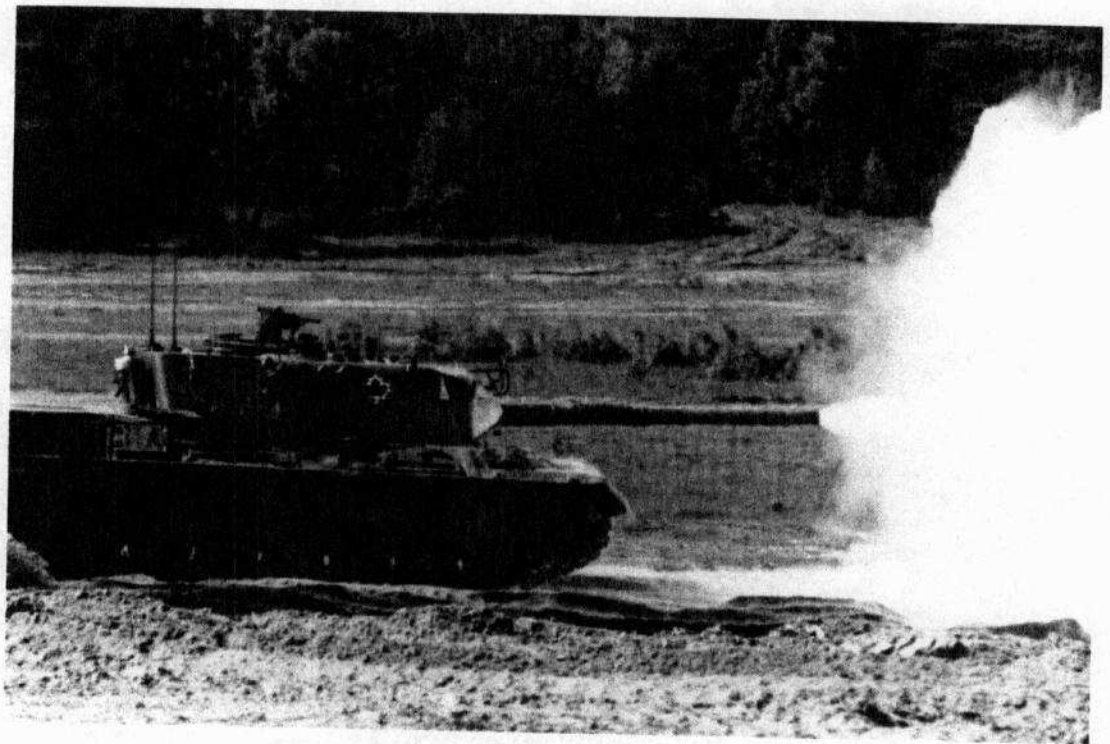
soldiers, Cpl Dennis Letellier. Dennis will long be remembered by everyone in the unit as being the personification of the perfect Militia soldier. He will be sadly missed.

The calendar year of the Regiment ended with its annual Christmas dinner. Once again it was extremely popular and was enjoyed by everyone in the regimental family.

The Sherbrooke Hussars, like all armoured units, has a busy 1988 training year ahead. With hard work and dedication by everyone it should prove to be a rewarding year.

LCol G. Connor, CD

Training To Win



The Psychological Training Program Implemented For CAT 87

Part I — Introduction

Background

In June 1985, the Canadian team competing in the Canadian Army Trophy for tank gunnery (CAT) placed last out of five national teams. Specifically the competing troops placed 18th and 20th out of 20 troops. In November 1985, a conference was held to determine the causes behind this disappointing performance. The question arose as to the possible future benefits of psychological training and as a result, a study was undertaken by the Directorate of Personnel Selection, Research and Second Careers (DPSRSC). The findings from this study determined that mental training was worthwhile. Two Sport Psychologists were contracted to develop and execute a mental training program for the CAT 87 team.

Aim

The aim of this paper is to present an overview of the Psychological training program implemented for the Canadian team competing in the 1987 CAT competition.

Part 2 — Discussion

General

The Mental Training program developed for the CAT team was based primarily upon two books, "Psyched: Inner Views of Winning", and "Psyching for Sports: Mental Training for Athletes". The program devel-

oped for CAT 87 had the following goals and objectives:

- a. developing mental imagery skills;
- b. goal setting, simulation and quality training;
- c. developing a pre-competition plan;
- d. developing a refocusing plan; and
- e. team building

This paper, as stated earlier, is not an exhaustive discussion on the mental training program implemented for the Canadian CAT 87 team. A thorough understanding of mental training will only be gained by reading the reference material.

One of the program objectives — team building — will not be discussed in this paper. Team building, or the development of harmony, morale, sense of uniqueness, is an intrinsic quality in any select body of soldiers. Therefore, team building will not be discussed.

Mental Imagery

One facet of the individual mental training program was the development of mental imagery skills. Imagery, put simply, is the process of visualizing yourself executing tasks or routines correctly. For example:

- a. a gunner putting his sight graticule on the exact centre of the target;
- b. a gunner using the proper technique for engaging moving targets;



- c. a commander properly engaging his targets of priority; and
- d. the troop leader handling an eight target array.

Olympic and world class athletes have extremely refined imagery skills. Imagery trains the mind and prepares it for competition. Visualization had many purposes and these included:

- a. familiarization with range 301;
- b. perfecting skills (consistency of lay);
- c. motivation (the perfect battle run);
- d. warm up before the battle run; and
- e. refocusing.

Imagery takes training and practice. Eventually the vividness and ability to control the image becomes highly developed. The level of skill developed by the Canadian CAT team was:

clarity of image	10 = crystal clear 0 = no image at all	7.8
how real the image felt	10 = real, just like I was doing it 0 = no feeling at all	6.9
imagery control	10 = very easy to control 0 = impossible to control	8.1

Goal Setting, Simulation, and Quality Training

The book "Psyched: Interviews of Winning" identified recurring elements that successful Olympic athlete training programs contained. These elements were the extensive use of goal setting, simulation training, and quality training. These three factors were incorporated in the Canadian CAT 87 team preparations.

Goal Setting. The training program for CAT 87 was broken down into a progressive series of goals. Goal setting divided the overall training scheme into manageable sections; it recognized problem areas and it helped chart progression and improvement. One goal for CAT 87 was the development of confidence in the equipment. The new zeroing procedures, the mechanical improvements, and the support from across the army, gave the CAT team the confidence they critically needed in the Leopard. The overall CAT team results of a 94 percent hit ratio, with no Leopard vehicle problems, showed that the crews were justified in their faith in their equipment. Some other goals (and the methods to achieve them), included:

- a. developing a workable attack plan or CAT SOPs (TELAFARE and SIMNET);
- b. handling arrays of eight targets (TELAFARE);



- c. consistency of lay (ALVIGS, TELAFIT, and UCFT); and
- d. knowledge of Range 301 (photos, videos, UCFT and SIMNET).

Simulation Training. One key to Olympic success was the simulation of the race during practice. CAT style battle runs were simulated on ranges and through the extensive use of simulators.

Training for CAT originally began during the gun camp of 17-24 December 1986 in Grafenwoehr FRG., when the Royal Canadian Dragoons did live battle runs on the eventual CAT Range, 301. While training for CAT 87, the CAT troops participated in over 70 CAT style battle runs on over five different ranges. These battle runs were of the following types:

- a. dry;
- b. coax;
- c. TELAFARE;
- d. MILES; and
- e. live.

Along with the battle runs, complete CAT conditions were simulated. These conditions included: proper voice communication used at CAT, the use of zeroing, waiting, inspection areas, and CAT target scenarios.

Simulators. One of the keys to the excellent performance of the CAT 87 team was the use of the Canadian ALVIGS and the American UCFT and SIMNET simulators. The ALVIGS allowed gunners to improve their speed and accuracy of lay, and it provided a warm-up before live battle runs. The use of UCFT allowed gunners

and commanders to practice CAT battle runs down their CAT lane engaging known and proposed CAT targets. The UCFT was the first step in the team familiarization with Range 301. For CAT, the greatest single tool for preparation was SIMNET. SIMNET simulated CAT completely, from the operator loading rounds, to the berm on bound two. SIMNET allowed complete crew and troop interaction on an excellent facsimile of Range 301. The quality of simulation was excellent and the reproduction of the terrain features was outstanding. Of greater importance was that SIMNET allowed coaches and crews to completely analyze and discuss every bound and target engagement.

Quality Training.

"It is of first importance that a soldier high or low should not encounter in war things which seen for the first time, set him in terror or perplexity."

Clausewitz

As in war, inexperienced tank crews have difficulty coping with the unique stress and distractions of CAT. In order for the CAT team to perform to its potential under stress at CAT, they were exposed to this pressure during training. This high quality training was in the form of the Kitty Cat competitions (pre-CENTAG Team work ups). These competitions enabled the crews to experience high levels of stress, thereby preparing them mentally and physically for CAT.

Pre-Competition Plan

The pre-competition plan in the broad sense was concerned with the activities prior to the troop's CAT battle run. In the immediate sense it dealt with the desired actions in the final preparations on the event day, ie. the actions at the zeroing range and the waiting area. The aim of the pre-competition plan was to produce the following conditions and states:

- a. highly trained crews;
- b. crews believing in themselves and their equipment;
- c. free the crews from negative distractions; and
- d. have the crews alert but not overcome by worry or anxiety.

The intensive gunnery training program and the Kitty Cat competitions produced highly trained tank crews. The gunnery training program will not be discussed here. Suffice it to say that the program produced

trained crews who believed in themselves and their equipment.

Distractions. One of the goals of the pre-competition plan was to free the crews from distractions so that they could focus on their job. From the massive Fest Tent to the crowds and flags at bound one, the CAT competition was an overwhelming experience. The CAT team was prepared as they had witnessed the crowds, the flags, the parties, and the hype in the two previous Kitty Cats. In addition, the team went into seclusion with their wives for two days during the week before the final competition.

Another distraction of CAT was the presence of high ranking visitors and the media. Brigadier-General Lalonde and Lieutenant-Colonel Meating shielded the team from unnecessary "pep talks" before the event. Also, the access of the media was carefully controlled so that they did not disrupt the normal routine.

Originally, it was not planned for the team to observe other battle runs. The theory proposed that if the opposing team had an excellent battle run, the morale and confidence of the Canadian team could be hurt. However, the results of the Kitty Cats proved that the Canadian team was in the same league as the best at CAT. Therefore, battle runs were observed in the attempt to improve the teams knowledge of the range and target location.

An unscientific test proved that drinking alcohol and high performance gunnery did not mix. The test consisted solely of the ALVIGS practice shoot results obtained from one gunner, before and the morning after he had consumed large quantities of alcohol. Accordingly, the CAT team was limited to two beers per night during the competition and total abstinence was imposed the evening before their battle run.

Personal Pre-Competition Plan. The overall aim of the personal pre-competition plan was to have the crews focused on their jobs, confident and relaxed. Each crew member developed a plan detailing their desired actions and thoughts at the following stages:

- a. action during the vehicle preparation;
- b. action during the move to the zeroing range;
- c. action at the zeroing range;
- d. action during the move to the waiting area;

action at the waiting area; and
action on the move to bound one.

For example, during the vehicle preparation, Loaders dry chambered all of the main gun rounds while gunners warmed up on the ALVIGS. In the waiting area individuals performed their final mental preparations. These thoughts included visualizing the perfect battle run, raising their confidence by the use of selected cues or reminders and the use of emotional and physical control techniques to remain calm and relaxed.

An integral part of the pre-competition plan was the complete rehearsal. The first Canadian battle run at CAT was scheduled to begin at 0930 hours, and to meet this and other specified timings reveille was ordered for 0400 hours. As this unusual reveille was never practised during training, a complete CAT rehearsal was practised to prepare the troop. The complete CAT sequence was rehearsed from the steak and eggs breakfast, to the final battle run. The rehearsal exposed unforeseen problems and identified members who needed extra time and coffee to become fully functional.

Competition Refocus Plan

The top American platoon throughout the Kitty Cat Competitions and the team who was the odds-on favourite to be the best at CAT suffered the following problems before their battle run:

- a. the troop leader's tank threw a track in the zeroing range;
- b. one crew put the wrong values in their fire control computer, necessitating the use of a different tank;
- c. one tank's complete communication system malfunctioned on the move to the waiting area; and
- d. poor weather — rain.

Their subsequent battle run was disappointing and it was primarily due to the aforementioned distractions. A refocusing plan was necessary to deal with the distractions and to get back on track quickly. In Grafenwoehr while conducting live battle runs, the use of a refocusing plan and concentration on hitting targets, was dramatically demonstrated. On two consecutive days, one Canadian crew (Canada 1C) experienced electrical turret fires while on a live battle run. Despite this danger, they continued the battle run, acquiring and hitting all their sector targets.

The refocusing plan was at the troop and individual level. At the troop level, it was the development of SOPs to deal with every conceivable problem and distraction. Some of these problems included:

- a. delays in the waiting area, zeroing range and at bound one;
- b. vehicle breakdown before the battle run;
- c. vehicle faults while on the battle run;
 - (1) engine/transmission failures,
 - (2) misfire and stoppages,
 - (3) laser failure,
 - (4) fire control system (FCS), and
 - (5) communication failure;
- d. gunner missing a target; and
- e. using only three tanks.

The SOPs dealing with these problems were constantly practised during training, whether planned or not.

Personal Refocusing Plan. The personal refocusing plan was aimed at overcoming distractions which were within the individual's control. These distractions were broken down into two categories:

- a. those before the battle run; and
- b. those during the battle run.

Adverse weather and light conditions were beyond anyone's control. The CAT team was trained to disregard these ungovernable factors, and concentrate on their specific tasks. The CAT team trained in every conceivable condition; snow, rain, fog, dust and, poor light conditions; so that they were prepared for any condition at CAT.

Self Doubts. Worries and self doubt were controlled by concentrating on positive reminders. These were remembering their best battle runs, their previous performances and positive mental imagery.

The greatest distraction during a battle run was the missed target. At the start of training, a missed target would cause a crew commander (Canada 1B) to lose all his concentration. He became hesitant in his engagements and he stopped reporting. The development and success of his personal refocusing plan and the Canadian team's as a whole, was clearly evident at CAT 87. The gunner of Canada 2 having missed his first two targets (which were quickly serviced by Canada 2A), then refocused, and went on to hit all his remaining targets.

Personal refocusing plans involved the use of cue words. These words were mental signals to shift the individual's mental focus back onto the task and leave the distraction behind. Examples of these words were:

- a. "calm, calm, calm";
- b. "graticule on target";
- c. "wood line"; and
- d. "on my gun".

During the CAT competition, approximately half the team used their refocusing plan and for 73% of them, the plan was effective.²

Part 3 — Conclusion

The excellent Canadian team results in CAT 87 were due to a variety of reasons. The mechanical improvements, the extensive use of simulators, the new zeroing techniques, the extensive training program, adequate ammunition, support from across the army, and the implementation of a mental training program all contributed to the improved Canadian team standings.

The overall effect of the mental training program was rated by the CAT team as follows:³

	x *
effect on troop leaders and crew commanders	4.07
effect on team	3.63
effect on you	2.94
effect on IG's	1.71

* (rated on the 11 point scale which ranged from -5 = "hindered", "interfered", to 0 = "no effect", to +5 = "helped a lot".)

Therefore it was clearly evident that the Canadian team felt they had greatly benefited from the mental training program.

One distinct benefit of the mental training program was the use of the sports psychologists as conduits for information:

"The advantage of having someone outside the system available to interact with crew members became apparent in the individual interviews and small group sessions. Crew members freely shared concerns, and suggestions for improvements which most said they would be very reluctant to share directly with their supervisors. Most felt they would put themselves at risk by voicing a criticism to someone higher in the hierarchy (for example a criticism about procedure or a supervisor's behaviour). Because we were viewed as

being outside the system, and assured them that no individual names would be attached to any suggestions put forth, team members voiced both compliments and criticisms.⁴

Part 4 — Recommendations

The psychological training program developed and instituted for CAT 87 should be implemented again for CAT 89. The expertise and benefits of civilian sports psychologists suggests that they should implement the mental training program for CAT 89.

**H.A. Angel, Lieutenant
Troop Leader Canada 1 CAT 87**

FOOTNOTES

1. Orlick, T. and Partington, J. *Final Report — Development and Evaluation of a Psychological Training Program for Canadian Forces Tank Crews*, p. 44.
2. *Ibid.*, p. 41.
3. *Ibid.*, p. 43.
4. *Ibid.*, p. 31.

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2. Essays

- Sroule, Major C.J.N. *The Requirement for Psychological Training in the Canadian Army*

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Ideas for the Improvement of Realism in Squadron Gunnery Training

Part 1 — General

Introduction

Regimental training is aimed at the maintenance of individual and collective skills at squadron level. Opportunities for higher level collective training are primarily restricted to the RENDEZVOUS series of exercises. Effective battle simulation is limited by competing operational priorities and lack of resources. As a result, there is a requirement to examine gunnery training in relation to the threat to apply practical and economical methods to improve realism.

Aim

The aim of this paper is to propose ideas for the improvement of realistic gunnery training within current time and equipment limitations.

Scope

This paper consists of the following parts:

- a. **Part 2 — The Threat.** An assessment of the threat is made based on the probable strength and intentions of a Soviet Motor Rifle Battalion in the assault. The following factors are discussed:
 - (1) enemy strength in the assault,
 - (2) enemy formations in the assault,
 - (3) expected weights of enemy fire,
 - (4) enemy tactics in the assault, and
 - (5) the BCW threat.
- b. **Part 3 — Discussion.** Current gunnery training practices are discussed in relation to the expected threat. Recommendations to improve training are included. The following areas are considered:
 - (1) realistic target arrays,
 - (2) realistic target design,
 - (3) simulation of enemy fire,
 - (4) enemy weapons fire effects,
 - (5) realistic representation of enemy deployment, and
 - (6) realistic representation of the use of BCW agents.
- c. **Part 4 — Concluding Material.** This portion deals with practical application of selected recommendations made in Part 3. A summary of recommendations is included. The following topics are dealt with:
 - (1) squadron battle runs,
 - (2) target production,

- (3) target presentation, and
- (4) summary of recommendations.

Part 2 — The Threat

GENERAL

The phase of war considered in this paper is the Soviet attack against a defending enemy. This phase of war is one that Canadian units will face if war occurs in Europe. It also provides a workable framework for the following discussion. The Motor Rifle Battalion is used as the basis of discussion because it represents a typical Soviet unit that may be employed against our forces in Europe.

The Attack Against A Defending Enemy

The Soviet attack against a defending enemy will be employed when our forces are stationary or in a defensive posture. The Soviets employ two methods to accomplish this task:

- a. the attack from the march; or
- b. the attack from a position in direct contact.

The attack from the line of march is the preferred method. The Soviet force will deploy laterally into widening assault formations and will immediately launch an attack from a distance of approximately one kilometre.

The attack from a position in direct contact is considered by the Soviets to be a less desirable method. It is launched directly from a hastily prepared defensive position. The Soviets are most likely to use this form of attack when attempting to regain the initiative.

Either of these methods of attack may be delivered frontally, on a flank, or by use of an envelopment. A frontal or flanking attack will be the most likely to be delivered off the line of march and will be directly applied against a defending force. An envelopment would involve the efforts of large formations and would not likely be employed against any grouping smaller than a battle group.

Enemy Strength in the Assault

A Motorized Rifle Battalion has three motorized rifle companies and will normally have a tank company attached. The tank company will number up to 12 tanks. The assaulting infantry will attack with up to 33 BTR 60/70 or BMP. The BMP equipped troops will be able to apply a great deal of fire with the BMP mounted 73mm guns and AT-3 Sappers. BTR equipped troops have less organic firepower with turret mounted

14.5mm KPVT machine guns. Soviet tank units which form part of the Group of Soviet Forces in Germany (GSFG) will be primarily equipped with T-64 MBTs. These vehicles are equipped with an automatic loader, integral entrenching device and a 125mm smoothbore main gun.

A battalion attacking in the first echelon would probably be supported by at least a battalion of artillery attached to it and it will often be used for direct fire support.

Enemy Formations in the Assault

A Motor Rifle Battalion normally attacks with three reinforced companies in a single echelon. Advance elements, such as the vanguard company, which have been delayed by our forces will form part of the assault. Tanks will appear first, closely followed by BMPs or BTR 60/70s. The assault echelon would be followed by ZSU 23-4 air defence guns and 2S3 122mm self propelled guns. The assaulting force will be travelling line abreast with a distance of 50 to 80 metres between vehicles. A normal frontage of an attacking battalion can measure one and one half to two kilometres.

A company attack frontage may measure 500-800 metres. There will be very little apparent fire and movement at this level. They will appear in line and assault in unison.

Expected Weights of Enemy Fire

Air and artillery preparations will be employed against our locations that have been pinpointed by the enemy. If the attack is being controlled at regimental level, the preparation may last as long as 50 minutes. As mentioned above, a first echelon battalion will be supported by a battalion of 18 122mm guns from the regimental artillery group. These guns will move with the manoeuvre elements and could be used in a direct fire role if ranges permit. Other artillery assets may be allocated from division and army resources dependent on the mission. The divisional artillery group can add 54 122mm guns and 18 BM-21 rocket launchers. Air resources may be allocated in the form of fighter ground attack aircraft or attack helicopters. It is clear that the object of any Soviet assault will be subject to a high degree of suppression by supporting fires.

Enemy Tactics in the Assault

An attack can be expected to be delivered either frontally and on a flank. The tactical options available to a battalion commander are limited. He can adjust the size

of his reserve, usually a platoon, or he may opt to use his entire force in the assault. His principal option is to adjust the depth of his attack by echeloning his forces. He may attack with two companies in the first echelon and one company in the second echelon. The second option is to employ a single echelon composed of three companies. When two echelons are used, the distance between echelons could measure one to three kilometres.

The BCW Threat

The Soviets are capable of using BCW agents and delivering them by artillery, rockets or aircraft. Nerve agent will be the most likely threat when conventional weapons have failed to achieve desired results. Nuclear weapons may be used when Soviet forces have been seriously delayed by conventional forces.

BCW agents, chemical agents in particular, severely limit the ability of both the attacker and the attacked to carry out sustained mechanized operations. The Soviet army is not configured for a protracted war and must achieve its objectives within a limited time. Therefore, the use of BCW agents is not a desirable option when objectives can be taken by conventional means. A Soviet commander may employ BCW agents under the following circumstances:

- a. if the defending force has a significant conventional superiority or is in an exceptionally strong position;
- b. if his own forces have been contaminated and he wishes to limit the capabilities of his opponents in a similar manner;
- c. if he wishes to pin down or limit the mobility of enemy forces he intends to bypass or overrun; and
- d. if an enemy force has imposed a prohibitive delay on his advancing elements.

If our defence is successful it is certain that the Soviets will use BCW agents to regain the initiative. If we have confidence in our ability to stop the Soviets, the use of these agents should be considered to be an integral part of the Soviet combat operations.

Part 3 — Discussion

Realistic Target Arrays

Targets are normally laid out to present challenging gunnery problems. Arrays normally involve targets arranged in a defensive posture. These methods do not meet

our training requirements for the following reasons:

- a. we will be defending, not attacking, under the most probable European scenario;
- b. the enemy will be attacking in mass and large numbers of targets will be a normal situation;
- c. the enemy will be attacking in relatively predictable formations with limited tactical options; and
- d. the enemy attacks will be applied to the flanks as well as frontally.

The aim of target array design should be to represent the most likely enemy threat. The following recommendations should be considered:

- a. the scenario for range practices and battle runs should accurately reflect the defensive and blocking tasks that would naturally fall to Canadian units employed as CENTAG reserve;
- b. target arrays should represent the enemy in assault formation with correct spacing and frontages;
- c. the minimum grouping of targets should be a company (9-10 targets per array) in number. This array is the smallest that would convey an accurate idea of mass; and
- d. target arrays should be arranged to reflect assaults from different directions (within arc limitations).

Realistic Target Design

The targets currently employed for range practices are symbolic representations of various categories of weapon systems. The symbols have not been amended for a great length of time and do not accurately reflect the appearance of Warsaw Pact equipment. The following limitations exist with the current target inventory:

- a. there are no target designs to represent recon vehicles (BRDM), wheeled APCs (BTR 60/70), infantry fighting vehicles (BMP), air defence guns (ZSU 23-4), or self propelled guns (2S1, 2S3, ASU 85). All of these categories of equipment neither precede or form part of an assaulting force and should therefore be included in target arrays; and
- b. the colour and size of targets do not necessarily conform to the equipment they are intended to represent.

The prime criterion for the design of individual targets should be to create realistic representations of Warsaw Pact equipment. The targets should take advantage of simple graphic and structural design to facilitate mass production. The following recommendations should be considered:

- a. target designs should be reviewed and amended to reflect the current variety of weapon systems that exist in the Warsaw Pact inventory. Older systems that will not be found in the assault elements of Soviet units, such as the anti-tank gun and the MG nest, should be deleted;
- b. all target designs should be camouflaged in a monochrome matt green paint scheme. Black should be used as a second colour to make the target identifiable as a specific type of equipment; and
- c. targets should closely approximate the size of the equipment they are intended to represent. This has been applied to a degree by generally increasing target size. However, the specifications of each equipment type should be reviewed to enhance realism.

Enemy Weapon Fire Effects

The enemy will employ all the means at his disposal to destroy, blind and suppress our weapons systems. The effects of that fire should be represented during battle runs and combined arms live fire training. The main problem involved with this aspect of gunnery training is that quantities of pyrotechnics are very limited and are not usually available for all stages of gunnery training. The usual result is that no effort to simulate battle conditions is carried out. The following recommendations should be considered:

- a. the effect of smoke and fire can be achieved by using a series of used oil drums filled with waste oil. The amount of oil used should be small to provide a limited amount of obscuration. The aim should be to condition crews to expect visibility problems as a result of enemy action;
- b. the impact of enemy projectiles may be simulated by the use of squib charges. These charges could be laid and detonated by engineers acting in support of a gun camp; and
- c. a "danger close" exercise should be arranged with the artillery as a normal part of refresher training. This sort of training would familiarize crewmen with the actual effects of artillery fire.

Realistic Representation of Enemy Deployment

As mentioned above, target arrays should be arranged in assault formation. This formation will be the most probable one that our forces will first encounter the enemy. The following recommendations should be considered:

- a. the target array should be formed in echelons with two platoons of tanks leading, two companies of infantry following within 50-100 metres and support elements echeloned 100-500 metres behind the infantry; and
- b. if range conditions permit, a second echelon company should be located 1000-1500 metres behind the lead elements.

Realistic Representation of BCW Agents

The enemy can be expected to use BCW agents against Canadian units if his offensive efforts have failed. The following measures are recommended:

- a. BCW ensembles should be ordered and worn for as many range practices as possible;
- b. experienced crews should carry out at least one battle run under TOPP high conditions; and
- c. BCW conditions should be considered when creating scenarios for live fire exercises.

Part 4 — Concluding Material

General

This part deals with practical applications of the procedures discussed in part three. The applications are described in either narrative or diagrammatic form. A summary of recommendations is included.

Squadron Battle Runs

Currently, battle runs are carried out in a manner that emphasizes offensive operations exclusively. However, offensive operations will form only a part of what will be a war of defence. Consideration should be given to developing and carrying out live fire exercises that practice the use of armour in covering force and defensive operations.

In the absence of pop up target systems, retrograde movement should be conducted in a manner that would conceal target arrays from manoeuvring forces. The "red check fire" concept of clearing main guns between bounds should be employed to

ensure safety. The following sequence of activity would be observed during a bound:

- a. the control vehicle orders the troop to go to "action";
- b. the order "Adopt Turret Down" is given by the control vehicle. The troop would move into turret down positions and immediately load the main gun;
- c. the following activities take place in the turret down position:
 - (1) the crew commander searches his own sector with his binoculars and then scans his partner's. The Troop Leader designates centre of arc,
 - (2) the gunner lases his range bands and specific targets. He reports all targets observed, and
 - (3) all crew commanders report targets observed in their sectors;
- d. on the order "Adopt Hull Down" the troop moves into hull down positions and engages targets;
- e. on the order "stop" the troop ceases firing and clears guns. The troop then reverses into turret down positions;
- f. on order, the troop will jockey back, keeping their guns within arcs and move to the next bound. In this case the movement is to the rear. Movement is restricted to routes that minimize observation of the next target array;
- g. the troop halts in line abreast formation in the low ground below the next bound, awaiting the arrival of all four vehicles; and
- h. on the order "Adopt Turret Down" the troop moves to turret down positions on the bound and immediately loads the main gun. At this point the process described above would be repeated.

Target Production

It was recommended that targets should be realistic representation of Warsaw Pact equipment. Examples of these types of target appear at the end of this article.

Target Presentation

It was recommended that target arrays should be arranged in a Soviet style assault formation. An example of such a target array appears at the end of this article.

Target arrays that are composed of realistic representation of enemy equipment in tactical formations can be applied to dry training as well as live fire practices. Troop

leaders can employ target arrays of this nature for the following purposes:

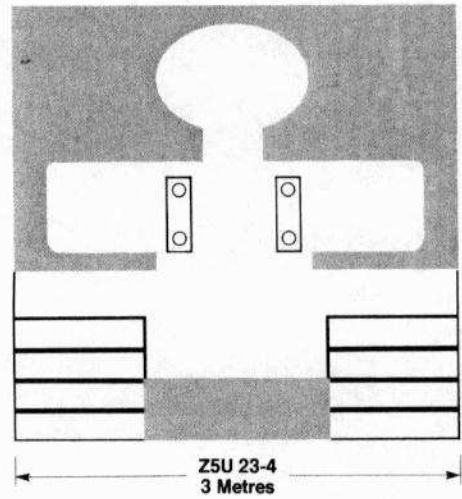
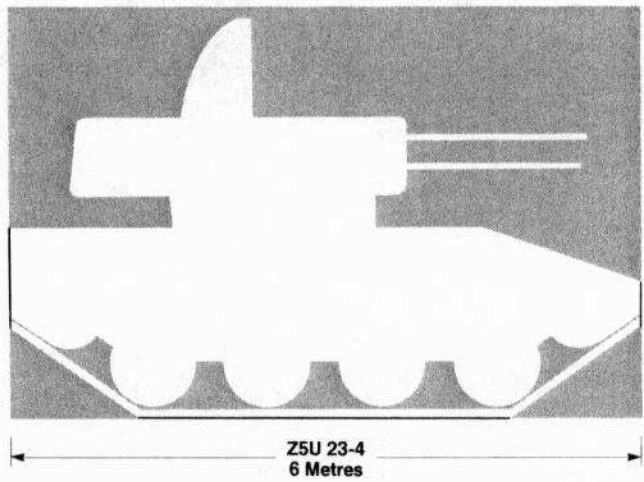
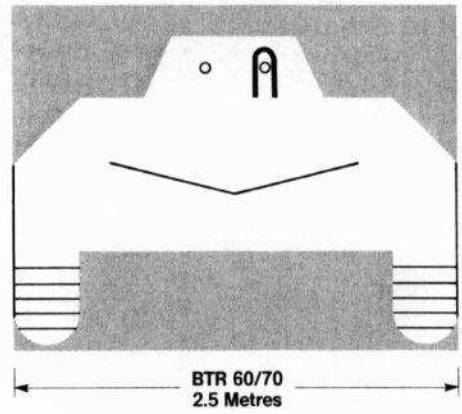
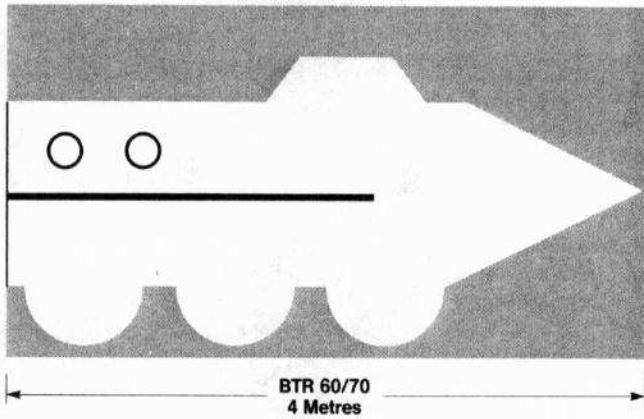
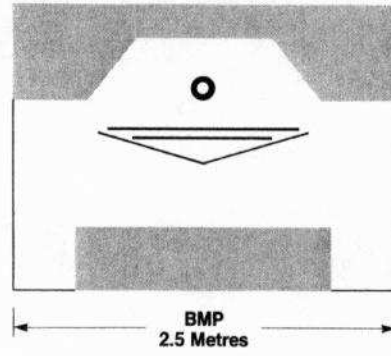
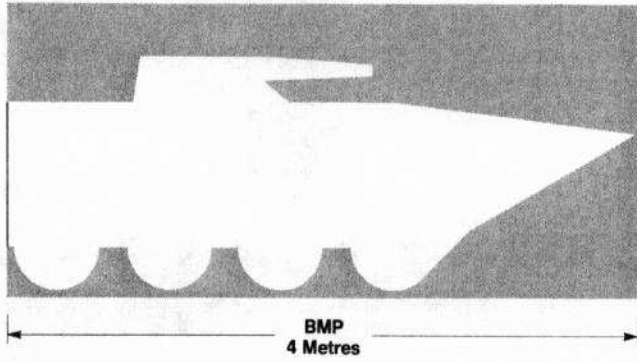
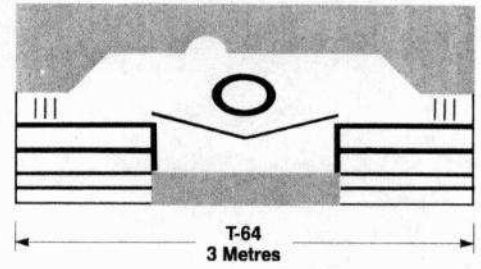
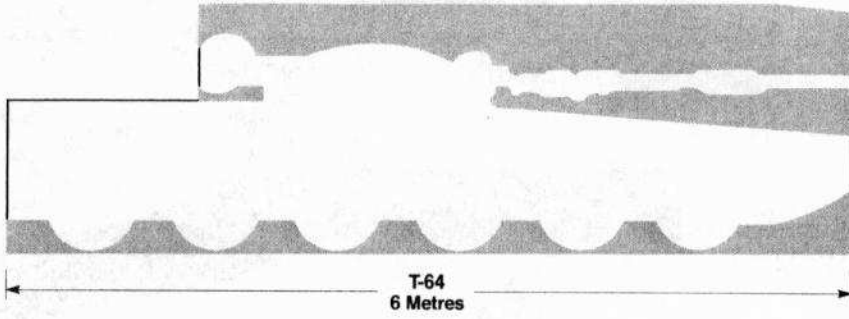
- a. recognition of enemy equipment;
- b. range estimation;
- c. detailed explanations of enemy tactics; and
- d. the conduct of troop discussions on how to deal with enemy tactics and the development of meaningful standard operating procedures.

Summary of Recommendations

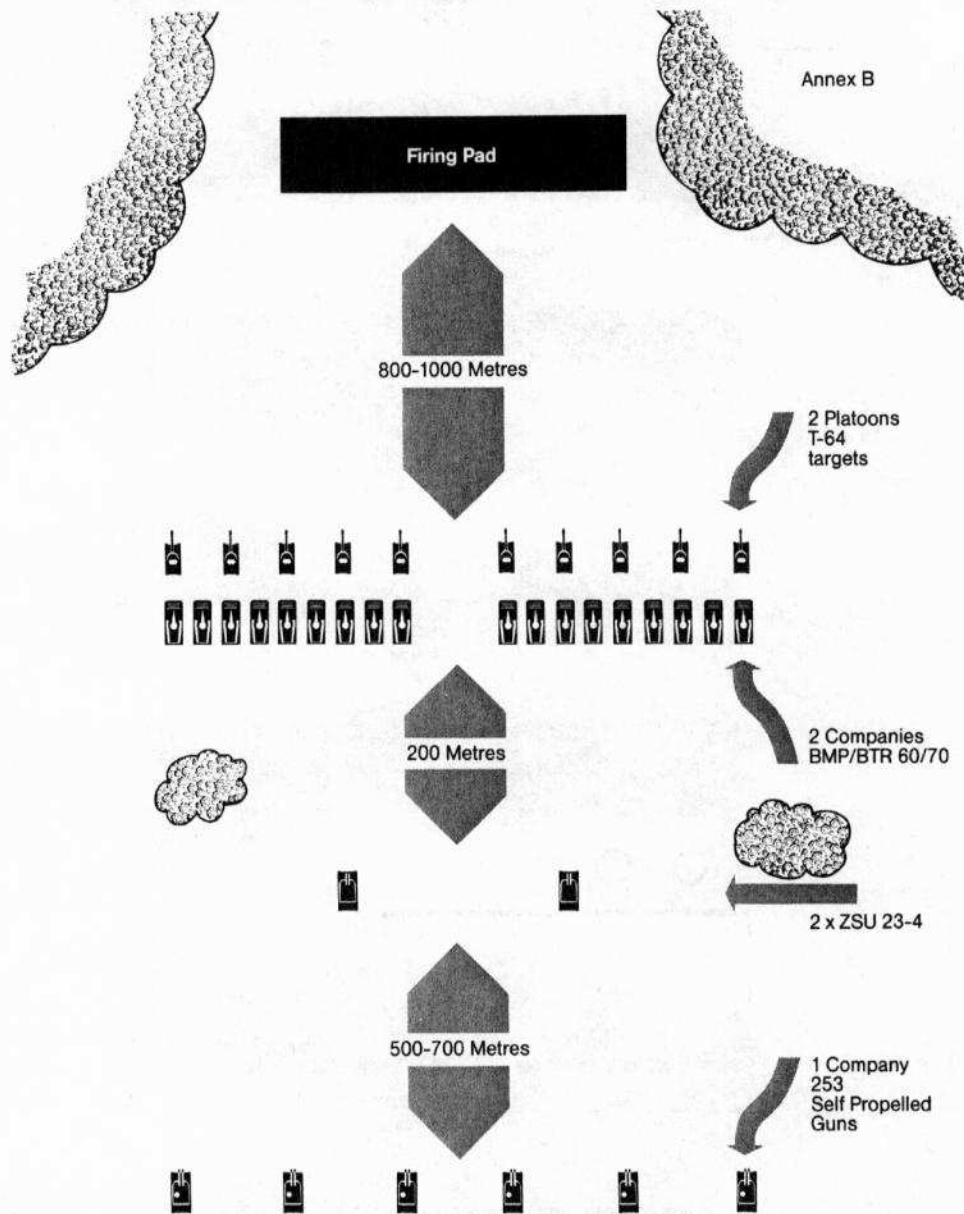
The following is a summary of all recommendations contained in this paper:

- a. the scenario for range practices and battle runs should accurately reflect the defensive and blocking tasks that would naturally fall to Canadian units employed as CENTAG reserve;
- b. target arrays should represent the enemy in assault formation with correct spacing and frontages;
- c. the minimum grouping of targets should be a company (9-10 targets per array) in number. This array is the smallest that would convey an accurate idea of mass;
- d. target arrays should be arranged to reflect assaults from different directions (within arc limitations);
- e. target designs should be reviewed and amended to reflect the current variety of weapon systems that exist in the Warsaw pact inventory. Older systems that will not be found in the assault elements of Soviet units should be deleted (the anti-tank gun target and the MG nest target should be deleted);
- f. all target designs should be camouflaged in a monochrome matt green paint scheme. Black should be used as a second colour to make the target identifiable as a specific type of equipment;
- g. targets should closely approximate the size of the equipment they are intended to represent. This has been applied to a degree by generally increasing target size. However, the specifications of each equipment type should be reviewed to enhance realism;
- h. the effect of smoke and fire can be achieved by using a series of used oil drums filled with waste oil. The amount of oil used should be small to provide a limited amount of obscuration. The aim should be to condition crews to expect visibility problems as a result of enemy action;
- j. the impact of enemy projectiles may be simulated by the use of squib charges. These charges could be laid and detonated by engineers acting in support of a gun camp;
- k. a "danger close" exercise should be arranged with the artillery as a normal part of refresher training. This sort of training would familiarize crewmen with the actual effects of artillery fire;
- m. the target array should be formed in echelons with tanks leading, infantry following within 50-100 metres and support elements echeloned 100-500 metres behind the infantry;
- n. if range conditions permit, a second echelon company should be located 1000-1500 metres behind the lead elements;
- p. BCW ensembles should be ordered and worn for as many range practices as possible;
- q. experienced crews should carry out at least one battle run under TOPP high conditions; and
- r. BCW conditions should be considered when creating scenarios for live fire exercises.

Annex A



Proposed Target Layout Static/Range



The Suitability of the Canadian Forces Training Program for Armour Officer Candidates



General

For several years the Armour School, along with the remainder of the Corps, have been voicing dissatisfaction over the quality of officer trainees arriving at CTC for phase training. Criticisms have been aimed principally at the Canadian Forces Training System and centred around whether or not it understands the requirements of the Combat Arms and is sending suitable, adequately prepared candidates to CFB Gagetown. Recent high attrition rates during Armour phase training have fueled arguments that candidates graduating from the Canadian Forces Officer Candidate School are poorly prepared for the rigours of phase training. The recent addition of Second Language Training (SLT) prior to classification training is felt to have aggravated these problems and added new ones to the process.

Aim

The aim of this paper is to discuss the suitability of the present system for training Armour Officer candidates prior to their arrival at the Combat Training Centre for phase training. Only officer candidates entering under the OCTP and DEO programs will be examined.



didates, regardless of element or classification. The course assesses leadership potential and skills at a basic level and screens out only those who are clearly unsuitable for further training. Total attrition is 20-25% on average. The Directing Staff are from a mixture of elements and classifications, with only a relatively small percentage (approximately 35%) coming from the Combat Arms.

CFOCS graduates officer candidates who are for the most part well motivated towards future training and are proud of their achievements during BOTC. They are well indoctrinated into military life, have good dress, deportment and drill and possess basic leadership skills.

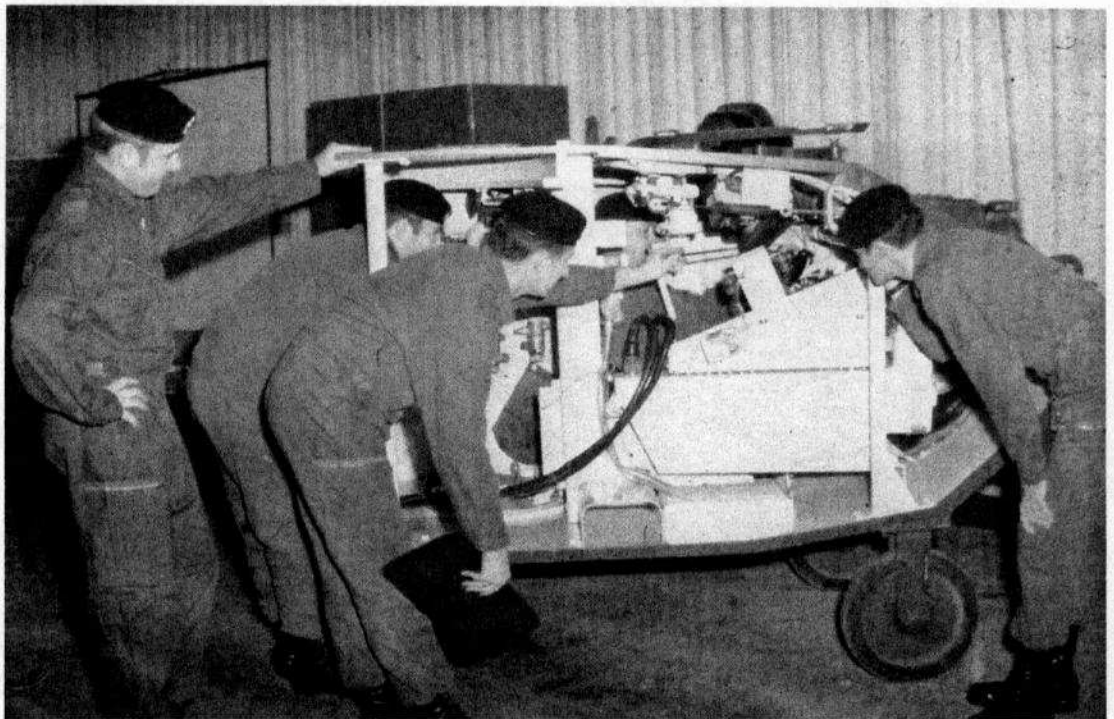
Many armour personnel feel BOTC does not serve the needs of armour training and the Corps. It is felt that OCdts are coddled at CFOCS and are unprepared for the



Basic Officer Training Course

Under the present system officer candidates first complete a 13 week Basic Officer Training Course at CFOCS. The course is designed to indoctrinate potential officers into the military, and develop their basic leadership skills prior to their classification training. Throughout the course they receive instruction on a variety of subjects including Military Skills, General Service Knowledge, Regulations and Military Writing. The standards are common for all can-

rigours of phase training. As a result, upon arrival at the Armour School for phase two, there is a repeat of military indoctrination in order to bring the candidates up to the level required for the Combat Arms training. As it is common training for all officers in the CF, no thought is given to how candidates will perform during future training. Training at CFOCS does not take into account how rigorous classification training will be and the selection of suitable candidates is left entirely up to that classification. Candidates receive limited information on Armour train-



ing and their classification prior to their arrival at CTC even though they have probably attended the Combat Arms Officer Selection Board. That which they do receive comes in the form of a classification briefing given by an Armour staff member at CFOCS midway through the course. As BOTC is very fast paced they have little time to reflect upon the information they do receive. As a result, upon arrival at the Armour School they experience severe culture shock after the comparatively pleasant surroundings of CFOCS and undoubtedly question their motivation towards careers as Armour officers.

Second Language Training (SLT)

After BOTC all officer candidates now undergo six months of SLT at CFB St Jean. The aim of the course is to provide them with the first half of a language training package designed to make them functionally bilingual. It takes place prior to classification training and has a secondary aim of maintaining a reasonable level of General Military Training. The trainees are supposed to receive instruction in drill, have inspections and undergo professional development training.

The implementation of this training has created several problems pertinent to Armour phase training. The requirement for officers in the CF to be bilingual is clear. All officers should be aware of the importance of a second language and must be given

the opportunity to learn it. What is not clear is when the language training should take place. Having it prior to classification training causes several problems. Upon completion of BOTC the officer candidates are well motivated towards an Armour career and eager to get on with their classification training. Despite understanding the importance of learning a second language, the vast majority are not interested in SLT at this point in their careers. Therefore, their motivation is seriously lacking and the success of SLT is very limited. Only a very small percentage of the students achieve a functionally bilingual profile after six months.

Another problem is the delay prior to commencing phase training. As phase two is conducted only twice a year (in Jan and Jun) a candidate could be in the training system for over a year prior to commencing phase two and up to two years before graduation from phase four. A large percentage of Combat Arms candidates enter the training system in September. Their progression to graduation under the present system, if commenced in September 1988, would be as follows:

- a. BOTC — (Sep-Dec 88);
- b. SLT — (Jan-Jun 89);
- c. Phase II — (Jun-Aug 89);
- d. Phase III — (Apr-Jun 90); and
- e. Phase IV — (Jun-Aug 90).



This system necessitates an eight month OJT period between phase two and three. This, combined with the six months on SLT will seriously affect the officer candidates attitude and motivation. They will have difficulty seeing the light at the end of the tunnel and this will have an impact on attrition rates. The extended periods between "hard" training may cause trainees to forget considerable amounts of previous training. This will necessitate additional review and overlap between courses which is time consuming. The period of OJT at the Armour School awaiting training is undesirable for a variety of reasons. Gainful employment for trainees is at a premium and activities to occupy them taxes school resources. Also, these periods of inactivity may cause trainees to "lose their edge" and have a detrimental effect on motivation.

During SLT candidates have no contact with, and receive no further information on, their classifications. This causes uncertainty and creates a sense of isolation. Also, past courses indicate that the GMT portion of the SLT course is poorly thought out and ineffective. Candidates receive some drill, but almost no other military training or professional development.

Proposed Solutions

Firstly the policy on SLT must be changed. Armour candidates should undergo language training later in their careers. If they did so during their first ERE tours they would better appreciate the value of SLT, be motivated towards the training and be more likely to use their new language skills during ERE postings. Also, the training process would be shortened by six

months and much of the OJT period would be eliminated, ensuring the candidates are fresh and motivated towards phase training. In addition, money would not be spent on training candidates who would be lost due to attrition during phase training. This consists of a considerable number of candidates in the combat arms.

Secondly, the issue of BOTC should be addressed. Ideally, the Armoured Corps should undertake responsibility for Basic Officer Training to ensure its specific needs are served. A short selection course to indoctrinate, teach, and assess leadership skills could be tailored to fit in with phase training. It would be more economical in training time and the corps would be assured control over the training process and the quality of officer trainees entering Phase Two. It would eliminate the uncertainty surrounding armour training while in the CFTS. The arrival in Gagetown for the commencement of Phase Two would be less traumatic than under the present system. The burden of manpower and resources would, however, make it difficult for the Armoured Corps to conduct this training alone. As the needs of the Corps are similar to those of the other Combat Arms, a combined course could be set up and conducted by CTC with input of manpower and resources from the three schools.

Conclusion

At present, the needs of the Armoured Corps and, indeed, all the Combat Arms are not being met by the training process for officers in the CFTS. Attrition is high and the quality of candidates arriving in Gagetown is in question. This is directly attributable to the reasons outlined in this paper. Most significantly, the training process takes too long and the Corps does not have adequate control over the entire training process of its officers. The solutions outlined in this paper would remedy the situation to a large degree. The most important solution being the revision of the SLT policy for officers in training.

Captain L.P. Maybee
The Royal Canadian Dragoons

Simulators and Gunnery Training



- References: A. US Army pamphlet — U-COFT Trainer
B. Perceptronic Manual No. PTUM 001-1250-86-4 08 Apr 87
C. DCIEM Operators Manual for the LVIGS

Background

In June 1986, the Royal Canadian Dragoons started preparations for the Canadian Army Trophy 1987 (CAT 87) gunnery competition. This NATO contest consisted of one team from Northern Army Group (NORTHAG) and one team from Central Army Group (CENTAG). Each team contained twelve tank troops for a total of twenty-four competing troops. The NORTHAG team had troops from the United States, Great Britain, Germany, the Netherlands, and Belgium. The CENTAG team had troops from the United States, Germany, and Canada.

This year's competition was the first time that the Royal Canadian Dragoons were able to employ six simulators while training the CAT 87 team. The event comprised of a three bound battle run with a total of thirty-two targets conducted at the CENTAG controlled range in Grafenwoehr, West Germany. Each bound had various target limitations as follows:

- a. a maximum of eight targets at any one bound;
- b. targets were between 700 and 2000 metres;
- c. a maximum of three targets on the move;
- d. a six, seven or eight target array usually contained delayed targets, ie. six targets would pop up followed by two more targets twenty seconds later;
- e. targets stayed up for forty seconds;
- f. targets were not indicated, ie. puffed; and
- g. two groups of ten falling plates were presented to each troop between bounds one and two, and two and three, as machine gun targets.

Aim

The aim of this paper is to describe how simulators contributed to the training of the CAT 87 team, and how these simulators might be employed during unit gunnery training.

Approach

To successfully present this topic, the following sequence will be taken:

- a. factors which led to the employment of simulators during training;
- b. description of the training sequence and when each simulator was employed;
- c. a description detailing how the Indoor Miniature Range (IMR), TALAFIT, TELFARE, Leopard Videodisk Interactive Gunnery System (LVIGS), Unit-Conduct of Fire Trainer (U-COFT) and Simulation Network (SIMNET) were applied during training; and
- d. recommendations on when and how the simulators mentioned above can be employed in a unit gunnery training program.

Why Use Simulation?

The CAT 87 rules dictated the need for some simulation during training of the CAT team. Specifically, each competing tank crew was limited to a maximum of 134 main armament rounds from 1 October 1986 until 15 June 1987. The rules also placed the competition range out of bounds to all competing tank troop members from 1 January 1987 until 14 June 1987. In addition, the Royal Canadian Dragoons were limited by training budgets to a set amount of training ammunition. The 1986/1987 ammunition allotment was used for three Regimental gun camps and one gunner's course gun camp. The amount of available ammunition was stretched even thinner as all three tank squadrons were entered onto the list of eligible CAT 87 squadrons, from which one would be selected by CINCENT on 1 April 1987.

Another critical factor was the availability of ranges. Normally, the Royal Canadian Dragoons conducted annual and gunner's course gun camps at NATO Training Area Bergen. These gun camps occurred annually, which left the CAT team limited range time. Further investigation revealed that the regiment had little experience firing at Grafenwoehr ranges, and specifically lacked experience firing on range 301, the CAT 87 competition range. All of these factors led to the need for simulation.

The requirement for simulators in the CAT 87 training plan became evident as the year progressed. Specific limiting factors were overcome as follows:

- a. the lack of real ammunition was compensated for by employing all six simulators (and simulator "bullets") mentioned above;
- b. the lack of range experience was overcome through the use of the U-COFT and SIMNET; and
- c. the lack of range time was eventually solved when the regiment was able to use extra range time at NATO Training Area Bergen, and share range time with other CENTAG units in Grafenwoehr.

Similar limiting factors exist at Canadian based Regiments, and simulation can solve these problems to improve the quality of unit gunnery training.

Training Schedule

In an attempt to fully appreciate how each type of simulator played an important part in the preparation of the CAT team, a

brief outline of the training schedule will follow.

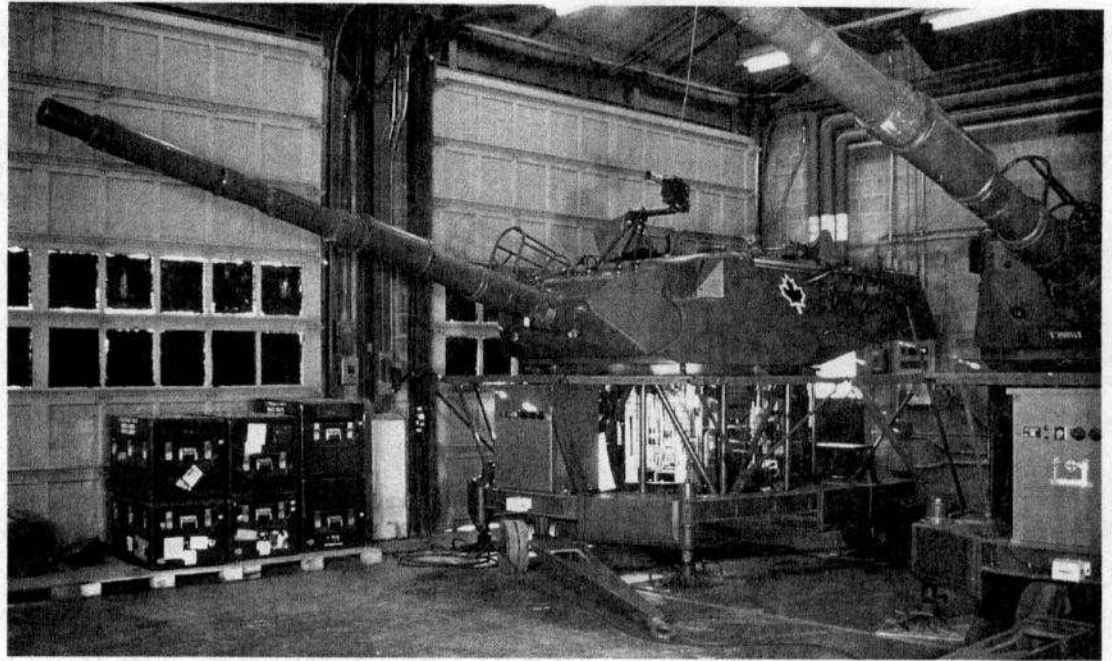
Gunnery training commenced in November 1986 with the IMR and refreshing of basic gunnery skills. Reviewing and improving the engagement SOPs also commenced at this time. The LVIGS was also introduced during this month. This culminated in open range practice in Grafenwoehr December 1986 on ranges 301 and 119.

January and February 1987 saw the IMR and LVIGS being employed by all squadrons to maintain and improve gunnery skills. At the same time, a specialist from Defense and Civil Institute for Environmental Medicine (DCIEM) gathered data from gunners on how stress was related to their performance. At the end of February 1987, the regiment proceeded to NATO Training Area Bergen to commission all tanks.

March 1987 was the most intensive gunnery time period when squadrons used the IMR, LVIGS and modified SOPs prior to 1 April 1987. On this date, the single squadron was chosen to compete for CAT, and the remaining squadrons continued with an annual squadron gun camp at NATO Training Area Bergen.

From April to June 1987, the CAT squadron conducted the following training:

- a. 1-10 April — TELEFARE and main armament battle runs at NATO Training Area Bergen;
- b. 14-17 April — use of IMR, LVIGS and TALAFIT at CFB Lahr;
- c. 18-23 April — TELEFARE and main armament battle runs at NATO Training Area Bergen;
- d. 24-28 April — first CENTAG practice CAT competition "Kitty Kat 1" with teams from United States and Germany (on range 117 at Grafenwoehr West Germany);
- e. 30 April-2 May — IMR, TALAFIT, and LVIGS training at CFB Lahr;
- f. 3-8 May — TELEFARE and main armament battle runs at NATO Training Area Bergen;
- g. 9-14 May — U-COFT training with 4/8 Cavalry in Gelnhausen West Germany;
- h. 18-21 May — TALAFIT, IMR, and LVIGS training at CFB Lahr;
- j. 23-30 May — second CENTAG CAT (at Grafenwoehr) practice competition "Kitty Kat 2" with teams from United States and Britain (last main armament firing



practices before the competition). This was followed by three days of SIMNET training at Grafenwoehr;

- k. 30 May-3 Jun — TALAFIT, IMR and LVIGS training at CFB Lahr; and
- m. 6-9 June — SIMNET training at Grafenwoehr.

Indoor Miniature Range

The IMR was a very effective simulator, especially during the early portion of training. The IMR was equipped with the Leopard LASER Rangefinder Simulator that allowed the use of the IFCS and LASER rangefinder. This simulator allowed tank crews to relearn sequences of action inside the turret, target acquisition, corrections and fire orders. As training continued, the IMR became an instrument that maintained a level of basic single crew gunnery skills. The IMR did not allow the fire team, or the troop, to work together, as the building could not house more than two tanks side by side. In addition, the building lacked adequate heating, which led to mechanical breakdowns of the Leopard LASER Rangefinder Simulator. This led to IMR down time that hindered the training program.

The IMR was the only full Leopard C1 trainer available which allowed crews to practise all of their gunnery skills on one simulator. The CAT crews conducted approximately twenty training sessions on the IMR in preparation for the competition. The IMR provided a necessary step in the training of the CAT team, and a unit's IMR should be used throughout the training year.

TALAFIT

The TALAFIT is a simulator which provides the gunner with a mechanically produced target picture than he can engage using the IFCS during lasing and estimated techniques. The crew commander does not see the target through any of his sights. Even though the technology use in the TALAFIT is old, the simulator played an important part in training the CAT team. Initially, the TALAFIT was used to retrain and/or confirm gunners in sequence of engagements. Laser on, it was used to aid in the selection of gunners, and finally as a warm up for CAT gunners prior to main armament battle runs. Squadrons found that the readouts on azimuth, elevation and times were useful as they could compile accurate data on gunner's gun laying abilities, gunner's consistency of gun laying skills and the speed at which these skills were performed. In total, the CAT crews employed the TALAFIT approximately twenty times in preparation for the competition.

The raw data that the TALAFIT provided the gunner allowed him to closely analyze his strong and weak abilities. Once the gunner, his crew commander, and gunnery instructors had studied the results from the TALAFIT, further training could be scheduled to practise techniques that had been forgotten. Incorporating the facility to obtain data on gunner's performance is a necessary requirement of future simulators. Unit gunnery training will benefit from the hard copy results that simulators such as the TALAFIT and LVIGS provide. Regimental

Gunnery Officers (RGO) and Battle Captains (BC) will be able to readily monitor gunner's training progress and to adjust timetables to emphasize weak areas.

TELEFARE

The TELEFARE is a .50 calibre machine gun that is mounted on top of the main armament just in front of the mantlet. With the device mounted and zeroed, the tank crew can engage targets using the proper sequence of engagement and then fire one .50 calibre round. The TELEFARE sub-calibre training device helped in developing through CAT SOPs. The beauty of this training device was that .50 calibre ammunition was plentiful, thus the use of the device was unlimited. Mistakes made during training battle runs did not result in the costly wastage of 105mm ammunition. In addition, the SOPs could be tested and retested many times against all possible problems such as communication, main armament or engine failure. Even though the trajectory of .50 calibre and TPDS ammunition do not match, the path of flight of the .50 calibre round clearly marked which target the tank crew would be engaging with main armament, which allowed the coaches to properly debrief each battle run. This training simulator made each main armament battle run very successful, as all minor problems were ironed out during TELEFARE training runs. CAT troops conducted approximately 28 TELEFARE battle runs each. This combined with twenty main armament battle runs allowed the CAT team to maximize training and range time.

Further benefits of the TELEFARE, such as smaller templates and similarities between the trajectories of .50 calibre and HESH ammunition, make this simulator even more valuable to a Cougar Regiment. This type of simulator is the logical simulation step between electronic indoor simulators and the open range.

LVIGS

The LVIGS is a table top part-task trainer that allows Leopard C1 gunners to engage targets which are presented to them on a video screen. The system exercises all aspects of the IFCS, and the crew commander can obtain a printout of the gunner's performance during any engagement.

The LVIGS was used for various training sessions throughout CAT training as follows:

- a. to ascertain if stress was related to gunner's performance;
- b. to maintain gunner's skills; and

- c. to prepare gunners immediately prior to main armament and competition battle runs, ie. a warm-up.

During the assessment of gunner's performance on the LVIGS, the data pointed to areas of basic gunnery skills that required work on the part of all gunners. These basic skills had to be mastered before CAT gunnery skills could be taught. Specifically, the sequence of lasing, tracking, pressing lead-lock, relaying on the centre of mass and then firing was not followed in the majority of cases. In this author's opinion, this simple but important result proved how invaluable simulators were in quickly pointing out weak areas. This will continue to be the case in the future.

The LVIGS proved to be the best LEOPARD simulator to train gunners. This fact only became apparent once the LVIGS was employed. Previous simulators did not produce printouts of a gunner's performance. Without a printout, crew commanders and gunnery instructors could not concretely determine gunner's biases such as forgotten techniques, bad habits, or disputing commanders or gunnery instructors experience. Once these biases were discovered, proper retraining could occur. In addition to providing a printout, the LVIGS allowed the crew commander or gunnery instructor to visually monitor the gunner's actions as the gunner's seat and controls are not crowded into a small space. CAT crews used the LVIGS approximately 35 times during the entire CAT training cycle.

Certain training missions (scenarios) that the LVIGS contained were very difficult and proved to be very challenging to the CAT gunners. These difficult scenarios were used by some gunners to warm up their skills on the gun controls and brought them individually to an extreme high point (edge) before completing a main armament battle run.

The LVIGS became an essential part in the training sequence of the CAT team. As with the TALAFIT, the LVIGS gave the gunners results of their performance on the simulator. This information would be very useful to the RGO and BC to plan effective gunnery training based on weak areas. An LVIGS for the Cougar (or CVIGS) should be developed to allow Cougar crews to benefit from this type of simulator.

U-COFT

The M-1 U-COFT provides simulation of target acquisition, vehicle identification, and

target engagement. Computer generated scenarios allow real time engagements of T-72s, BMPs, HIND-D, trucks and troops. The crew commander's and gunner's station is fully represented in this simulator.

The regiment was very lucky to obtain time on the M-1 U-COFT in Gelnhausen, West Germany. General Electric, the manufacturer of the simulator, had created a computer disk which generated images of each one of the battle run lanes and bounds of the competition range, range 301. The graphics were realistic thus allowing the CAT crews to experience the competition range for the first time in summer conditions. This simulator was the first chance that the CAT crews had at training on range 301 and the crews conducted approximately five simulated battle runs. This training time would become very valuable as the competition date came closer and closer. It is left, however, that the LVIGS could perform the same function at a fraction of the cost.

SIMNET M-1

The SIMNET M-1 was made available to the regiment on two occasions. The facility was located at Grafenwoehr and had only just been installed in February 1987. The simulator contains all four positions in the M-1 tank, however not all functions or controls that are in the M-1 were contained in the simulator. Rather, the SIMNET contains only those functions and controls needed to fight the tank. As all CAT crews were familiar with the M-1 tank from their experiences on the U-COFT, little time was required to train the crews to properly use the simulator.

From the initial useage, this simulator allowed the CAT troops to conduct a battle run on the competition range. The simulator was an interactive troop network that allowed each tank in the troop to view the actual terrain 360 degrees around him and the tank(s) beside him. The CAT coaches were able to control the number and location of targes that were presented to the troop on each bound. This, along with the realistic computer generated graphics, allowed each CAT troop to complete approximately fourteen simulated battle runs on the competition range. During the debrief after each simulated battle run, the troop was able to analyse how they attacked each array of targets using te SOPs. If problems came to light, the troop could develop a better SOP which ensured that every target was engaged, usually only once.

The excellent training runs that were obtained on the SIMNET are difficult to accurately describe in this paper. The best description are the comments that all crew members made during the range safety briefing that occurred on range 301 the day before the start of the competition. After training on the SIMNET, of which graphics accurately simulated the competition range, the crews said "they had already been on this range", when in fact it was their first exposure to the range in summer conditions. Due to the realistic SIMNET battle runs that the CAT troops participated in, this simulator proved to be invaluable and the best simulator to culminate all training in.

The SIMNET was the best simulator for the CAT team. During training it was not employed to its fullest, as tactical skills can also be practiced on this simulator more easily than gunnery skills. If this simulator could be employed by Canada-based units, its uses would go beyond practising gunnery skills.

Conclusion

Simulators played an important part in training the CAT team. Each simulator that was employed throughout the training ensured that the crews were trained to their best abilities. The ideal sequence of simulator employment should be IMR, LVIGS/TALAFIT/U-COFT, SIMNET, TELEFARE/SCDT and then proceeding to main armament. Of all simulators used, the SIMNET proved to be the ideal and still has untapped potential.

Presently, Canada-based units must ensure that their IMRs are properly maintained and ensure their frequent use. The Sub-Calibre Training Devices (SCTD) for the Cougar (TELEFARE equivalent) must be employed to allow a logical training sequence to occur. The CVIGS (the LVIGS Cougar equivalent) and SIMNET will be key steps to improving gunnery training in the future. Simulators should be procured as a total system (ie. IMR, SCTD or TELEFARE, CVIGS or LVIGS, and SIMNET), as simulation guarantees that the expensive and scarce bullets (76mm to 105mm to 128mm) will be fired accurately and efficiently. Live rounds will be quality rounds.

The CAT 87 results reflected how successful the entire crew, squadron and unit training program was, and that simulators played on integral part in that success.

Captain P. Haindl

American NCO Development

What makes an American Tanker...
A Tanker?

We Canadian Black Hatters are aware of the trials and tribulations of training and also the formal courses required so that we can eventually call ourselves TANKERS, be it the driver of the Charlie call sign of a troop or the Regimental Sergeant Major. What some of us may not be aware of is what measures the massive armour force to our south take to prepare their tankers for the ever present threat.

Rank Structure

Before we commence, let's have a look at the United States Army enlisted rank structure:

ENLISTED GRADES			
GRADE	NCO		SPECIALIST
E - 9	COMMAND SERGEANT MAJOR		
E - 9	SERGEANT MAJOR		
E - 8	FIRST SERGEANT		
E - 8	MASTER SERGEANT		
E - 7	PLATOON SGT OR SGT 1ST CLASS		SPECIALIST 7
E - 6	STAFF SERGEANT		SPECIALIST 6
E - 5	SERGEANT		SPECIALIST 5
E - 4	CORPORAL		SPECIALIST 4
E - 3	PRIVATE 1ST CLASS		
E - 2	PRIVATE 2		
E - 1	RECRUIT 1 (NONE)		

In The Beginning

Not unlike our own system, the recruits potential is evaluated by a recruiter where the young man, who must have a minimum high school education and be at least 17 years old, takes a battery of tests and if he measures up, will find himself on a bus destined for Fort Knox, Kentucky to the 1st Armour Training Brigade where he will commence his OSUT (One Station Unit Training). At Fort Knox, our young recruit will



undergo 13 weeks of basic training which includes BAT (Basic Armour Training).

When the bus again returns for our young friend, he will be ready to perform his duties as a tank driver/loader either on an M60A3 or M1 tank. (This publication restricts the disclosure of the number of yearly graduates; however, as an indicator, the Armour Center houses approximately 12 barber shops.) One newly adopted concept for basic trainees is the EIAP (Excellence in Armour Program). This program is designed to identify, early, any individuals who are quick to grasp technical knowledge and also possesses leadership traits. Individuals who meet these requirements will be identified in weeks 8 through 13 of their basic training course and will be given additional technical training (gunnery) and also some basic leadership training. These fortunate few in the ET (Excellence Tract) will emerge from Knox in a position to very quickly accept the positions as TC (Tank Commanders).

It is interesting to note that this concept of quick potential recognition was introduced during the Viet Nam era where the need for section leaders/tank commanders was great. The program has only recently been re-adopted.

We now have our tanker performing his role at one of many armour battalions in the continental U.S. or abroad. It will be at his unit where he will undergo OJT (On Job Training) under his tank commander to acquire his gunnery training.

Maintaining Proficiency

Before we promote this private through the ranks to command sergeant major, let's touch a few bases that enable the system to press a soldier into keeping current and proficient at his skill level.

All soldiers E1-E7 are required, on an annual basis, to undergo an SQT (Skill Qualification Test) and, on a semi-annual basis, a TCGST (Tank Crew Gunnery Skills Test).

The SQT is administered through the Department of the Army. This test consists of a 125 question written exam to evaluate the soldiers overall trade knowledge, be it; rate of fire of his coax to military map symbols.

The TCGST, which is locally administered, is an 18 station practical test of the soldiers ability to carry out duties pertaining to tank gunnery skills, ie.; boresight the main gun, strip and assemble any tank mounted weapon.

These two evaluation tools not only keep commanders at all levels aware of the standard of their troops, but also maintains the crewmans proficiency in tasks and skills he might otherwise neglect on a day to day basis.

Career Progression Courses

Now that we have E4 Jones working in a unit with a firm grip on his trade and a better understanding of how his career will progress, let's take a look at some of the mile markers he must cross to achieve his ultimate goal.

PLDC (Primary Leadership Development Course), equivalent to our Combat Leaders Course, consists of 4 weeks of theoretical study and practical application of leadership skills. This course caters to the grade of E4 and is conducted at many units in the U.S. and abroad.

BNCOC (Basic NCO Course), equivalent in progression level to our 6A, is administered at Fort Knox, Fort Hood and 5 other U.S. locations, as well as Hohenfels Germany. Here the E5 is taught, practiced and then evaluated on the skills he will required to become a tank commander.

ANCOC (Advanced NCO Course), we can relate this course to our 6B. To be successful at this level is a big step for the NCO as it prepares him for the platoon sergeant (Tp WO) slot in the unit. It is only administered at Fort Knox and is conducted over a 15 week period. It is interesting to

note that at this level the Sr NCO receives 3 weeks of intensive gunnery training. For FY 87, the course load Army wide is forecast at 10,000 +.

1st Sergeant Course, which is on line with our TQ7, involves 8 weeks of training at Fort Bliss, Texas, and for troops in Europe, Munich Germany. Our former recruit is now making room for the much sought after diamond in this chevrons and he will have approximately 15 years in service.

Sergeant Major Academy. This course is not only a course designed to teach the potential sergeant major the leadership and administrative duties of a battalion sergeant major, it is a 6 month accompanied posting. The candidate's wife will also attend classes at Fort Bliss to introduce her to the fineries of military social life. Apparently, if the candidate is single, a spouse can be signed for on arrival.

There we have the enlisted members career progression in a 25 year long nut shell.

As you can see, the American system is not totally foreign to our own. There are some aspects, however, which may, on first glance, seem alien to our way of doing business. To mention a few:

Until recently, the Basic NCO Course through to the Sergeants Major Academy could be accredited through correspondence courses. Now, only the First Sergeants and Sergeants Major Academy have that capability.

Secondary MOS (Military Occupational Skill). Each soldier, E6 and above, whether he be crewman, infantry or clerk, must possess a secondary trade. The advantage to this is apparent when we look at medical reclassifications or emergency battlefield replacements.

The unit First Sergeant (SSM) need not come from an armour unit to be employed in one. You may find your head honcho at the NCO level of an armour company coming from an infantry position. They feel that the first sergeant/master sergeant of any trade shares the administrative and managerial skills required to perform his function no matter what his trade classification.

Summary

As time progresses, our close association with the American forces draws even closer. With the many exchange programs, unit and sub unit training exchanges and, of course, with our shoulder to shoulder

contact in Europe, we owe it to ourselves to know and understand as much as we can about our allies to the south.

If the Corp feels that a follow up article on the "Australian" system is in order, this

author may be persuaded to accept one more memorable exchange tour.

**P.J. Wonderham, MWO
Senior Instructor
U.S. Armour School**

War Games:

An operational training tool

Introduction

Without a doubt, the battlefield of the next major conflict will be an intense and complex environment, influenced dramatically by advances in technology which may require the use of unconventional tactics. The combat arms officer, who is expected to be an expert at tactics, must continually hone his skills as a leader of men and an effective manager of resources. Accordingly, every opportunity to train must be exploited in order to enhance these skills. War games allow the peacetime practice of tactics and should therefore be considered an important training tool.

Background

Historically, war games have existed since the conception of the simple yet popular games of Chess, Shogi and Go several millenniums ago. Only until recently, however, has there been serious attempts to add realism and integrate war games with military training. Christopher Weikmann in 1664 made the first attempt at adding realism to Chess by introducing his version called "the King's Game" in which there were fourteen different kinds of pieces, and each had its own particular movement. In 1710, King Louis XV's card game, called "Le jeu de la guerre", was considered the first to use wargaming as a training aid. This enabled French military students to understand the basic principles of war. Helwig went further in 1780 by incorporating military mathematics into his game called "War Chess", which educated officers in the science of besieging fortresses. But the first true "modern" war game was developed from von Reisswitz's "Kriegspiel" in 1824. The game used scaled models on sand tables that accurately depicted battlefields, and required for the first time, umpires to perform arbitration. More recently, Germany, limited by the Versailles Treaty in 1918, relied heavily on war games to train its officer corps and made extensive use of these games during World War Two to rehearse large scale operations. After 1945, war games became increasingly popular and

made a definite impact on military doctrine, training and equipment purchases in most modern armies.

Current Applications

Present exposure to serious wargaming within the Canadian combat arms is very limited. There have been attempts to introduce graduating armour officer candidates to a simulation called "Contact", which uses micro-armour at the combat team and battle group level. Although this simulation was initially well received, its use became intermittent because of training schedule constraints. Regardless, the simulation addressed an audience which was too inexperienced to draw conclusive lessons and there was no follow-up when the new officers arrived at their units. Other well known war games for Canadian land forces are integrated with formation level command post exercises, such as RITE SIMPLE, RITE DOUBLE, and FINAL DRIVE. They are conducted regularly, but with an aim of exercising the various staffs from battle group to division, realism in low level tactics and in accurate combat resolution is therefore not required. In essence, there are few war games which are applicable specifically to the requirements of combat arms officers.

Capabilities

The fact that makes a war game distinctive is its ability to break down into measurable figures most aspects of combat and bring them all into concert. The player can then readily see each element's potential in relation to opposing forces, the situation, the terrain, the weather and any other influential force on the battlefield. Usually after several battles, the player develops a good understanding of the capabilities and limitations of a particular element. Another advantage is that war games have the ability to introduce certain aspects of combat which are difficult to practice and experience on exercises. For example, war games can quantify and integrate Nuclear, Biological, and Chemical operations, air support, and even such abstract conditions as morale, confusion and refugee displacement, into any scenario. Since these elements are part of modern warfare, they

must be incorporated into scenarios to completely appreciate their influence on any given situation, even though their potential is based on conjecture. There is usually a trade-off between "realism" and "playability", though. Most commercial war games tend to steer toward playability to appeal to the hobbyist, and certain aspects are necessarily inaccurate for security reasons. However, today's war games are sufficiently detailed and accurate to enable the player to draw important lessons.

Educational Aspects

War games can be effective training tools in many ways. First, they can simulate virtually any kind of operation and at any level of command. Presently available on commercial markets is a wide variety of games that range from sniper warfare to global nuclear war and the emphasis in each game is different. Some simplify combat and movement in order to emphasize the problem of command. Other games have very detailed combat resolution with the intent to achieve more realistic results, and all war games generally have adjustable skill levels to accommodate special requirements from the player. Secondly, war games promote problem solving and the decision making process by introducing new and difficult situations to the player. These require accurate assessments and critical decisions which may otherwise be costly in time of war. Thirdly, war games encourage estimate making and planning from players. This is especially beneficial in preparing the player for the required high standard in estimates on the FOE programme and at CLFCSC. Fourthly, they develop personal tactics and strategy. There is presently very little opportunity for a leader to see which tactics work and which don't when realistic results of combat are difficult to achieve. The impact of lessons is more effective when learned through trial and error. And lastly, war games can be a means of evaluation for commanders at all levels. Commanders can, while keeping in perspective the limitations of war games, have the opportunity to observe his subordinates making assessments and decisions within a controlled environment.

Training Intergration

The ideal is not to replace current training methodology with war games but to complement it. One possible option is to use them during officer professional development sessions at the unit level. Participants would receive a scenario, make an estimate of the situation and prepare a plan

before beginning play. Then, during play they would see whether or not their plans would have been successful during combat resolution. Directors or umpires might introduce at opportune moments unpredictable events into the battle to generate reaction amongst the players. The possibilities are limited only by the participant's own creativity and imagination. The war game is in essence the soldier's laboratory, a place of study, where he can dissect the battlefield and understand each element's potential individually and collectively. In the end, war games are fiction, and the player must always keep this in perspective if training value is to be achieved.

Conclusion

In short, war games present another option to the combat arms officer in helping him better conceptualize and understand the choreography of forces on the battlefield. Although they are efficient and cost effective, they are not a means of training by themselves. Lieutenant General Richard D. Lawrence of the US Army and President of the National Defense University summarized that "wargaming helps overcome the barrier that so often separates theory from applications, because the student can test the theories by applying them to "simulated" situations and observing the results"¹. Finally, the potential of war games must be acknowledged and supported for them to be effective operational training tools for combat arms officers.

¹LGen Richard D. Lawrence, USA, "Playing the Game", *Defense* 86 (January 1986), p 22.

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Capt. J.I.M. Beauvais

Introduction

Il est à prévoir que le théâtre des opérations du prochain conflit majeur se situera dans un environnement intense et complexe. Il sera énormément affecté par la nouvelle technique qui pourrait exiger l'utilisation de tactiques non-conventionnelles. L'officier des armes de combat, qui se doit d'être un expert au point de vue tactiques, doit continuellement développer ses qualités de meneur d'hommes et de gestionnaire de ressources. C'est pourquoi, toutes les occasions de s'entraîner doivent être exploitées afin de perfectionner ces compétences. En temps de paix, une des façons de s'entraîner peut se faire par l'entremise des jeux de guerre et ces derniers peuvent donc être considérés comme un important support à l'entraînement.

Évolution

Historiquement, les jeux de guerre existent depuis l'apparition des premiers jeux tels que les échecs, le Shogi et le Go qui furent créés il y a quelques millénaires. C'est seulement depuis peu que des efforts sérieux ont été faits pour apporter plus de réalisme aux jeux de guerre et les intégrer à l'entraînement militaire. En 1664, Christopher Weikmann fut le premier à inclure plus de réalisme aux échecs en introduisant une version appelée « The King's Game ». Ce jeu avait 14 pièces différentes et chacune avait son propre mouvement. En 1710, sous Louis XV est apparu un jeu de cartes appelé « Le jeu de la guerre » qui fut considéré comme la première application des jeux de guerre pour l'entraînement. Ce jeu permettait aux étudiants militaires français de comprendre les principes de guerre. Helwig alla plus loin en 1780 lorsqu'il inclua les mathématiques militaires à son jeu appelé « War Chess » qui enseignait aux officiers l'art d'assiéger une forteresse. Cependant, la première application moderne du jeu de guerre fut faite en 1824 avec le « Kriegspiel » de Reisswitz. Le jeu consistait en un champ de bataille réduit à l'échelle sur un carré de sable et nécessitait l'intervention d'arbitres. Plus récemment, les Allemands, qui étaient limités par le Traité de Versailles de 1918, se sont fortement servis des jeux de guerre pour entraîner leurs officiers et pour répéter les grandes opérations pendant la Deuxième guerre mondiale. Après 1945, la popularité des jeux de guerre augmenta sensiblement

et ils influencèrent énormément la doctrine, l'entraînement et l'achat d'équipement dans la plupart des armées modernes.

Applications contemporaines

De nos jours dans l'armée canadienne, les armes de combat utilisent peu les jeux de guerre dans leur programme d'entraînement. Il y a eu des tentatives faites pour initier les officiers candidats de l'arme blindée à un jeu de simulation appelé « Contact » et qui utilise des modèles réduits de véhicules blindés au niveau d'équipe de combat et de groupe de bataille. Au départ le jeu fut bien reçu mais, à cause du temps restreint, il n'a pu être appliqué avec efficacité. De plus, le jeu s'appliquait à un groupe n'ayant pas suffisamment d'expérience pour tirer des conclusions et le suivi des nouveaux arrivants à l'unité n'était pas continué. Au Canada des jeux de guerre furent développés pour les exercices de poste de commandement de l'armée tels que RITE SIMPLE, RITE DOUBLE et FINAL DRIVE. Ces exercices sont organisés régulièrement mais avec comme objectif d'entraîner les différents états-majors du niveau de groupe de bataille à celui de division. Le réalisme tactique aux niveaux inférieurs et la résolution détaillée des combats n'est donc pas nécessaire. En fait, il y a peu de jeux de guerre qui rencontrent les besoins des officiers des armes de combat.

Capacités

Ce qui rend distinct le jeu de guerre c'est sa capacité à décomposer les aspects du combat dans des termes mesurables pour ensuite les regrouper. Le joueur peut facilement voir le potentiel de ses éléments en relation avec celui de son adversaire, ou encore avec la situation, le terrain, la météo ou tout autre facteur pouvant influencer le déroulement du combat. Habituellement, après plusieurs batailles, le joueur développe une bonne compréhension des possibilités et des limitations de ses éléments. Un autre avantage qu'apporte les jeux de guerre est qu'ils peuvent introduire certains aspects de la guerre qui sont difficiles à représenter en exercice. Par exemple, les jeux de guerre peuvent quantifier et intégrer, dans n'importe quel scénario, les opérations nucléaires, biologiques et chimiques, l'intervention des forces aériennes, et d'autres aspects aussi abstraits que le moral, la confusion ou encore le mouvement des réfugiés. Étant donné que ces éléments font parties intégrantes des conflits modernes, il doivent donc être inclus dans les scénarios de façon à bien comprendre

leur influence sur une situation donnée, même si leur potentiel est basé sur la conjecture. Cependant, il y a toujours un compromis entre le réalisme et le déroulement du jeu. Plusieurs jeux de guerre disponibles dans les commerces sont plutôt axés sur le déroulement du jeu de façon à attirer les adeptes qui s'en servent comme passe-temps. Certains aspects du jeu sont nécessairement imprécis pour des raisons de sécurité mais les jeux de guerre d'aujourd'hui sont suffisamment détaillés et précis pour permettre au joueur d'en tirer des leçons importantes.

Points d'apprentissage

Les jeux de guerre peuvent être un très bon moyen d'entraînement pour plusieurs raisons. Premièrement, ils peuvent simuler toutes sortes d'opérations et ce pour presque tous les niveaux de commandement. On rencontre sur le marché toute une variété de jeux de guerre partant d'une mission de tireur d'élite et allant jusqu'à un conflit nucléaire mondial, avec des notions bien précises pour chaque jeu. Certains ont simplifié les phases de mouvement et de combat pour mieux se concentrer sur les problèmes de commandement. D'autres auront des résolutions de combat très détaillées pour apporter plus de réalisme. La plupart des jeux de guerre ont plusieurs niveaux de complexité pour répondre aux exigences des joueurs de tout calibre. Deuxièmement les jeux de guerre permettent de développer le processus de résolution des problèmes et la prise de décisions en introduisant des situations variées et plus difficiles. Ceci nécessite de la part du joueur un bon esprit d'analyse ainsi que des décisions réfléchies, qui autrement pourraient entraîner la catastrophe en temps de guerre. Troisièmement, les jeux de guerre encouragent l'appréciation de même que la planification. Ceci peut s'avérer très profitable pour les candidats inscrits aux examens de la Force Mobile ou pour ceux sélectionnés sur le cours de l'École d'État-Major de Kingston. Quatrièmement, les jeux de simulation permettent à l'officier de mettre en pratique différentes stratégies et tactiques. Actuellement les officiers ont très peu de chances de visualiser les résultats de l'application de leur plan lorsque le combat n'est pas régi par des règles précises. Les jeux de guerre sont donc un merveilleux outil car ils permettent à l'officier d'apprendre efficacement à travers ses expériences et ses erreurs. Et finalement les jeux de guerre peuvent être à la disposition des commandants pour évaluer et contrôler leurs subordonnés. Ceci peut se faire à par-

tir d'un scénario préétabli auquel chaque participant sera soumis et à partir duquel il devra réagir de façon conforme.

Intégration dans l'entraînement

L'idée principale n'est pas de mettre en cause les méthodes d'entraînement d'aujourd'hui mais plutôt de chercher à les compléter. Une application possible serait de les utiliser lors des sessions de développement professionnel des officiers données à l'unité. Des ordres seraient émis à chaque participant avant le début de la partie pour qu'ils aient la chance de faire leur appréciation de combat et de préparer leur plan. L'avantage du jeu de guerre serait de leur permettre de voir si leur plan aurait été viable ou non à partir des résolutions du combat. Les directeurs et les arbitres de la partie pourraient introduire dans la bataille, à des moments opportuns, des incidents inattendus de façon à provoquer une réaction chez les joueurs. Les possibilités du jeu ne sont limitées que par l'imagination et la créativité des participants. Le jeu de guerre est en quelque sorte pour le chef un laboratoire ou encore un banc d'essai où il peut analyser logiquement un champ de bataille et prendre conscience du potentiel des éléments, individuellement et collectivement. Pour terminer, il est bon de souligner que les jeux de guerre comprennent une bonne dose de fiction et que les joueurs doivent garder cela en perspective si l'on veut obtenir un entraînement valable.

Conclusion

En résumé, les jeux de guerre offrent aux officiers des armes de combat un moyen alternatif pour mieux comprendre et mieux percevoir la relation qui existe entre les divers éléments sur un champ de bataille. Même s'ils sont efficaces et économiques, les jeux de guerre ne sont pas une fin en soi. Le Lieutenant-général Richard D. Lawrence de l'armée des États Unis et président du National Defense University conclut que les jeux de guerre nous permettent de franchir le fossé qui sépare très souvent la théorie de la pratique, parce que le participant peut appliquer la théorie à une simulation et en observer les résultats¹. Finalement, les avantages du jeu de guerre doivent être reconnus et développés pour qu'ils contribuent à perfectionner les compétences professionnelles des officiers des armes de combat.

capitaine J.I.M. Beauvais

Eclectic Ramblings on Exercise Prairie Viper



The penultimate event of the recent Rendezvous 87 concentration for me was the opportunity to take my squadron to CFB Suffield and participate in Exercise Prairie Viper at the FMC Field Firing Centre (FFC).

The aim of the exercise was to conduct combat team and battle group live-fire training in all phases of war. There is little doubt that Exercise Prairie Viper was the most ambitious live-fire training conducted by the Canadian Army in many years. The size of the exercise safety organization, the many resources allocated to the participating battle groups and the large amount of ammunition available all testified to the emphasis that the Army was placing on this activity.

Each participating battle group spent six days on the prairie with five days actually devoted to live-fire exercises. In typically Canadian fashion we started at about day six of the sixteen day British training schedule. Various British exercises were adopted in whole or in part to create Exercise Prairie Viper. The pace of the training was such as to provide adequate time to adapt to the required safety regulations and develop standard operating procedures (SOPs).

The training was progressive and moved logically from troop and platoon level exercises to combat team level exercises. Each arm had one exercise that permitted limited but very valuable special-to-arm training.

Before arriving at the FFC we studied back numbers of the British Army Training

Unit Suffield (BATUS) annual training report to discover what suggestions were made on how to improve a unit's conduct of operations during the various exercises.

Grudgingly I must admit that the Cougar proved to be a workable vehicle with which to conduct the training at the FFC. The major drawback of the vehicle is that one fails to achieve the sense of mass and shock action during the assault, that is created when utilizing a main battle tank (MBT). This has a subtle psychological impact on both the crewmen and the infantry on the ground.

There is no doubt that the rate of advance from the attack position to the objective would have gone much faster with a trackmounted combat team.

The other big limitation utilizing Cougar for live fire training rather than a MBT is that during the assault the intimate support "tanks" could not move ahead of the infantry when they were firing small arms. This had the effect of slowing the armoured thrust once the "enemy" was being decisively engaged. This limited the ability of the "tanks" to position themselves to meet the anti-tank reserve or to begin engaging depth enemy positions. The objectives at the FFC were deep and wide and depth positions were sometimes missed initially because the armour was forced to creep along with the infantry.

One had to remain aware of the false perceptions of how things are done that can arise through the accommodation of a less than adequate training vehicle.

As always many old lessons were relearned and, as with any good training, new ideas were spawned. I had the opportunity to command eight quick attacks, participate in two battle group attacks and fight a night defensive battle. This admittedly limited experience did leave me with some thoughts, however, that I shall offer for the scrutiny of the learned readership of this publication.

The first problem that will be discussed is really generic to the use of the AVGP and centres on the difficulty of having the "tanks" arrive on the objective coincident with their dismounted infantry. A fact of life is that it takes forty to eighty seconds for a Grizzley mounted platoon to dismount and dress (put on fighting order, collect weapons, etc) before commencing their assault on the enemy. This results too often in the "tanks" creeping too far in front of their infantry with the result that neither arm has any support from the other.

Any amount experimentation to achieve the desired synchronization resulted in either unacceptable bunching of vehicles in the attack position or in the infantry being subjected to a very harsh ride during their approach to the dismount point in an attempt to close up to the intimate support "tanks". An SOP was finally worked out with some resulting success. The intimate support "tanks" working with the Grizzley APCs would stop their advance on the order of the infantry commander to let his troops dismount. The Cougars would then engage targets with both main armament and machine guns in what can only be described as a "mad minute".

The infantry dismounted under the protection of the heavy weight of fire being put down by the "tanks" and once organized they began the process of fighting through the objective with their intimate support "tanks" in close proximity.

Another modification to the above drill was to have the Cougars fire their smoke grenade dischargers when they stopped. This did not prevent the armour from initially acquiring and engaging targets but it did provide extra cover to the infantry. In addition the FOO would mix smoke amongst his last few fire for effect rounds and this smoke, coupled with that fired from the fire base, gave the assaulting infantry good

cover during the awkward process of debusing from their Grizzleys.

The use and effectiveness of smoke was certainly rediscovered at the FFC. It helped to have the smoke ammunition to fire, a place to fire it and tactical problems presented that required its use. Situations arose that demanded the use of both artillery and "tank" smoke and within the combat team SOPs developed for its effective employment.

I found that one had to think about what tactical problems were likely to be encountered during a particular exercise and what the combat teams' probable posture could be on the ground at the moment of contact. This allowed the distribution of smoke rounds to troops likely to form a fire base. Normally SHQ carried the bulk of available smoke rounds with the battle captain holding the majority of these rounds. The 76mm smoke round was modestly effective and was utilized for indicating targets and for providing quick smoke cover. I used smoke fired from the fire base to mark objectives and found that once the manoeuvre force was deployed in a low lying attack position after an often convoluted approach march it was most reassuring to have the fire base utilize smoke to help guide the attacking force on to the objective.

The tactical scenarios presented sometimes provided the need to fire battle smoke and to use troop smoke shoots to mask the recee of obstacles and defiles.

Artillery smoke quickly came to be relied on as the exercise progressed and an SOP was developed whereby smoke was mixed with the last rounds of the "fire for effect".

It was rediscovered that the time it normally took for the registration of the guns allowed adequate time for the combat team to get sorted out in the attack position and issue all necessary orders. I continued to issue "H-hour not before" instructions in my radio warning order after consultation with the FOO produced an estimate of the time it would take the guns to register. The artillery were very flexible in responding to H-hour once set and I normally established the H-hour once in or near the attack position. This prevented the necessity of changing H-hour if someone was found to be having difficulties.

The fire planning process itself did not change but the guns were more flexible as to when the fire plan was to be executed.

It was most encouraging to watch the combat team evolve into a coordinated group during Exercise Prairie Viper. It was amazing how the requirement for lengthy radio orders quickly diminished as SOPs became understood and confidence in each arm developed.

Many parts of the standard quick attack orders format were often not required. It was found that the problem of choosing a proper line of departure on the often featureless prairie was difficult at the best of times. Normally the forward edge of the attack position became the unstated but understood line of departure for the combat team. This implies, of course, that the FOO is in a position of observation so as to control the fire plan and ensure that the minimum safe distances were not violated.

The control of fire was another area that was exercised during the various field problems at the FFC. "Tanks" placed in the fire base soon realized just how long they may be expected to sustain supporting fire. The battle captain had to tightly control the troops allocated to the fire base to ensure that the proper weight of fire was applied at the critical moment of the assault and that the targets were engaged in the right engagement sequence.

The quantity of ammunition expended by a fire base can be quite large and the combat team commander had to keep resupply foremost on his mind. It became very obvious early on in the training just how exposed one feels during an assault when there is a lack of effective suppressive fire coming from the fire base because they have been allowed to expend their ammunition through imprudent fire control. Troop leaders likewise learned the necessity of controlling the fire of their individual troop vehicles. It was often the case that the junior crew commanders tended to have a higher expenditure rate of ammunition with the result that the troop would sometimes be forced to reallocate ammunition. This caused obvious delays and only had to happen once before the troop leaders began to take their ammunition states much more seriously.

The squadrons' operational status remained very high throughout Exercise Prairie Viper. The maintenance resources of the squadron and the Regiment were thoroughly tested. The big bonus of training at the FFC was that it forced the crew to think of their vehicles as true gun platforms. On dry field exercises it is not as important if the gunnery systems are not fully functional

and the game goes on with little noticeable difference. The harsh conditions on the prairie coupled with the demands of continuous live firing forced the crewmen to work hard at keeping their vehicles maintained and therefore capable of moving and engaging targets. This seems too simplistic to be mentioned, but to gain the most benefit from the FFC experience it was necessary to have the maximum number of Cougars moving. The crews did not want to be left out of what was a unique and most stimulating training experience.

Another invention developed at Suffield was the "mega-leaguer". The old BATUS Reports consistently criticized troops for bunching and parking too close together in their leaguers. My combat team adopted an SOP one hundred meters between "tanks". This produced an adequate protective ring around the myriad of infantry and support vehicles who formed the combat team and its echelon. It is admitted however, that one troop leader who was assigned to close the back of the leaguer did request to be granted credit for his 2 x 10 miler after he had made the trek to SHQ!

The Field Firing Centre concept must continue and it is suggested that with the army committed to a divisional force in Germany in 1989 the necessity of holding a Rendezvous type exercise may be made redundant. It may prove more beneficial to hold a yearly Field Firing Centre at Wainwright and Suffield with battle groups participating every second year.

I could not have ended my squadron commanding on a higher note and it is hoped that the random thoughts related above stir conversation at at least a few happy hours.

¹LGen Richard D. Lawrence, USA, «Playing the Game», *Defense 86* (January 1986), p 22.

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La reconnaissance: en perte de... reconnaissance

Généralités

En août 1986, la concentration blindée (reconnaissance) du Secteur de l'Est (M) regroupant les quatre (4) unités blindées du SE(M) et qui devait produire deux (2) escadrons de quatre (4) troupes ne réussit qu'à mettre un seul escadron de cinq (5) troupes sur pied. Les raisons: manque d'officiers et de sous-officiers supérieurs pour diriger efficacement les troupes et de personnel pour combler les postes de l'escadron de service.

En août 1987, à la BFC Gagetown, l'unique escadron de reconnaissance réussit à rencontrer 50% de ses objectifs d'entraînement, par manque de personnel encore et parce qu'on a cru le nouveau jeep Ittis suffisamment tout-terrain pour négocier hors-route. La plupart du temps, les véhicules attendaient d'être « récupérés » dans les ornières de léopards par un échelon débordé, en regardant les convois américains monopoliser les routes. Dure expérience pour le moral des troupes...

En octobre/novembre 1987, pendant le FTX du District No 1 du Québec, la seule unité de reconnaissance du Secteur de l'Est (et du District) est employée comme ennemi, aide à l'entraînement, pour les fantassins et Cougars du Royal Canadian Husars. Au lieu de se replier au contact, on lui demande de « tenir » les positions de blocage avec les artilleurs et sapeurs du génie, comme de vulgaires fantassins soviétiques...

Situation

Ces divers scénarios, combien familiers à plusieurs, illustrent bien un des problèmes majeurs auxquels fait face la reconnaissance: son emploi par les états-majors supérieurs et son entraînement. La reconnaissance n'existe plus dans nos manœuvres et exercices. Et la Force régulière n'est pas mieux servie alors qu'elle ne dispose plus du matériel ni du personnel qualifié pour assurer le maintien de l'expertise dans ce domaine.

La publication en juin 1987 du Livre Blanc sur la Défense longtemps attendu parle de nouveaux équipements. On projette d'acheter quelques trois cent chars de combat entre 1990 et 1994. Un nouveau véhicule de reconnaissance devra attendre 1995 pour voir le début du processus du choix. Il ne sera certainement pas disponible aux unités avant 1997. Que se passera-t-il entre temps? Y aura-t-il à ce moment des unités capables encore de faire de la reconnaissance?

Pour tenter de mieux comprendre l'étendue du problème de la reconnaissance, examinons ce qui se passe chez les six (6) unités de reconnaissance du Corps Blindé. Les escadrons de la régulière ont probablement certains des mêmes problèmes.

Problème de personnel

Le dernier cours d'officiers de reconnaissance (RESO Phase III pour la milice) a été complété à l'été 1980. Depuis, les candidats-officiers reviennent de la Phase III avec la qualification AVGP (Cougar) et la Phase IV est orientée principalement sur le char de combat. Pour le programme Méthode (ou Volet), il y a encore moins d'entraînement pratique et tout est fonction du Cougar ou du char, même s'il n'existe pas dans la milice.

Ceci veut dire que les derniers officiers qui ont eu la chance de se qualifier reconnaissance sont maintenant de vieux capitaines ou de jeunes majors, s'ils sont encore dans le système. Pour la régulière, il s'agit d'un moindre mal car il n'y a qu'un escadron « reco » par régiment. Les unités de milice n'ont pas de choix que d'entraîner leurs officiers elles-mêmes, avec les ressources disponibles en temps, matériel, budget et personnel, tout en poursuivant l'entraînement des troupes.

Pour les sous-officiers, la situation n'est guère meilleure car le dernier cours QM-3 Reco a été donné pendant l'été 1985, les suivants ayant été annulés par manque de candidats (!) et/ou d'instructeurs (!?). Nous voici donc avec un certain nombre de futurs sergents qui ne seront jamais promus pour la reconnaissance et demeureront encore longtemps caporaux-chefs. Les statistiques de toutes les unités de la milice mentionnent une grave déficience au niveau de nombre de caporaux-chefs, de sergents, d'adjuvants, etc... Peut-on relier les deux facteurs?

Avec le problème des officiers juniors et des sous-officiers supérieurs, il devient clair que les autres cours Reco en souffrent. Qui donc va entraîner les candidats au QM-2 Reco, nos chefs d'équipages si importants et même nos QM-1, si nous n'avons pas les chefs et les instructeurs qualifiés?

Problème de matériel

La majorité des unités de milice sont pauvrement équipées, ce n'est pas nouveau. Nous avons appris à faire des miracles d'improvisation. L'arrivée du Ittis a enfin solutionné le problème d'un parc de véhicules trop vieux et à bout de souffle.

Nombre d'unités n'ont maintenant pas assez de chauffeurs qualifiés et de chefs d'équipage pour tous leurs véhicules. Le reste par contre n'a pas beaucoup changé.

Les nouveaux véhicules sont arrivés sans installations radio et il a fallu attendre pour opérer enfin avec des communications. Même maintenant, les installations manquent pour tous les radios disponibles. Les installations doubles pour les chefs d'escadrons sont encore un rêve, à moins de priver un véhicule de son installation. Choix difficile... Même les installations pour les PRC-25 manquent.

Oublions le cas des supports pour GPMG qui viennent d'être annulés pour raisons de sécurité et qui ont déjà trop tardé. Depuis longtemps la milice est habituée à imaginer qu'elle fait un entraînement réaliste... Même les radars PPS-15 manquent pour donner un entraînement régulier aux groupes qui ne savent même plus tout ce qu'elles devraient déployer.

Problème de doctrine

Dans les SOH (Staff Officer Handbook), les escadrons de reconnaissance se sont vu dotés de troupes de mortier, de soutien et d'observation. Oublions la dernière pour la milice puisqu'il n'y a ni NOD, ni Statlight Scopes, ni PPS-15 en suffisance pour jouer le jeu. Oublions aussi la première par manque de matériel d'entraînement et de qualification (pour la milice surtout).

La troupe de soutien par contre (ancienne troupe d'assaut pour ceux qui ont le vocabulaire militaire moins récent) était plus facile à former. Voilà donc un QM-2 Troupier de soutien adopté et organisé pour diminuer le nombre de candidats au QM-2 Reco. En été 1984, le Centre d'Instruction de la Milice (CIM) Valcartier commence le premier cours en puisant les instructeurs au 12e RBC car il n'y a pas d'instructeur milicien. En 1985, même arrangement. En 1986 cependant, il y a quelques instructeurs miliciens qui ont (ou n'ont pas le choix entre leur qualification personnelle et enseigner aux QM-2 Reco et QM-2 Soutien. Beaucoup de dispersion...

La troupe de soutien est enfin formée. Mais aucun chef ne peut la commander (quelle qualification faut-il? Blindé, infanterie ou génie?) et personne ne sait exactement comment l'employer sur le terrain. Pour une fois, la machine a été vite... Trop vite!... Il suffit de retirer la tâche opérationnelle pour que le projet tombe à l'eau.

Problème d'entraînement

Bon gré, mal gré, l'escadron de reconnaissance réussit à rassembler deux troupes de sept véhicules (à deux par véhicule à cause des chefs d'équipage) et se préparer à s'entraîner. Que lui faut-il? De l'espace en quantité suffisante pour se déployer (deux troupes couvrent facilement cinq à huit kilomètres de front et une cinquantaine de kilomètres dans une journée), de l'ennemi si c'est possible et un contrôle supérieur pour entraîner le PC.

De l'espace, beaucoup de bases militaires en ont; mais il faut le partager avec d'autres et se restreindre souvent. Les terrains civils sont mieux car on ne les connaît pas toujours par cœur comme les bases. Il y a cependant beaucoup d'autres problèmes inhérents tels circulation civile et propriétés privées.

Le contrôle supérieur peut prendre deux formes: un PC régimentaire qui sait déjà tout ce qu'il faut savoir et essaie tant bien que mal de paraître réaliste, ou un PC de Brigade représenté par une autre unité (c'est normalement les scénarios des exercices de district). Malheureusement, les autres unités en savent moins que rien sur la reconnaissance, son emploi, ses capacités et limitations et sa façon d'opérer. Ce sujet ne fait pas partie du programme des officiers d'infanterie qui croient trop souvent que « les chars soutiennent l'infanterie »! tout simplement. La reconnaissance est donc souvent ignorée et laissée seule avec elle-même ou mal utilisée dans des tâches qui ne sont pas les siennes.

Conclusion

Avec l'introduction en 1980 du Cougar, la reconnaissance a été passablement ignorée et ses moyens coupés: plus de cours d'officiers de reconnaissance de moins en moins de cours pour les sous-officiers... Même au niveau des quartiers généraux de district et de secteur, on a pris l'habitude d'ignorer le problème car après tout la reconnaissance s'est toujours débrouillée...

En fait, la reconnaissance ne se débrouille plus et son agonie se prolonge, faute d'une décision rapide. Après avoir débranché tous les systèmes de service, on s'étonne encore que le malade continue d'exister et on espère que le ciel fera quelque chose, dans un sens ou dans l'autre. Privées de la possibilité de former correctement à l'école nationale ses officiers et sous-officiers, les unités de reconnaissance doivent former leurs troupes et garantir leur

tâche opérationnelle comme elles peuvent, avec seulement leur bonne volonté et beaucoup, énormément d'espoir.

La question se pose actuellement: y a-t-il une place pour la reconnaissance dans le Corps Blindé canadien? Pouvons-nous permettre d'entretenir un métier blindé différent du char, avec toutes les implications que cette décision comporte au niveau formation, entraînement, équipement, etc?. Avons-nous besoin de six (6) unités de reconnaissance pour l'armée canadienne forte de peut-être trois (3) divisions? Avons-nous les moyens de convertir des unités «Reco» en unités «Cougar»?

Voilà beaucoup de questions qui en soulèvent et en cachent beaucoup d'autres à mesure qu'on commence à y répondre sérieusement. Cet exposé démontre simplement la complexité du problème de la reconnaissance et de son statut dans le Corps Blindé. Six (6) unités de la réserve attendent une décision qui concerne leur avenir très immédiat. Doivent-elles envisager dès maintenant de se «convertir» au Cougar ou continuer à entretenir l'illusion pendant encore quelques années?

**Maj Gagné
Comad Régiment de
Hull**

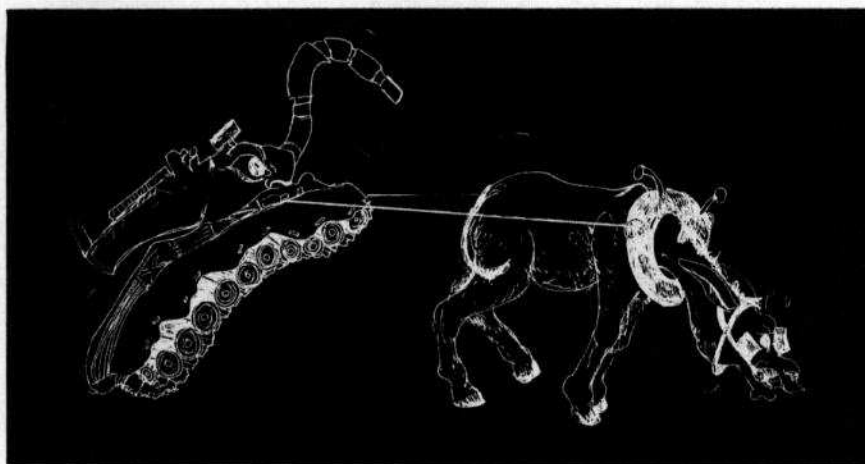
Will the Tank Go the Way of the Horse?



A common consequence of war is the rapid development of new weapons to meet specific tactical requirements. The British tanks which first rumbled into action at Flers-Courcelette on September 15, 1916 were a classic example of this. The tank was invented to solve the tactical problem of the moment — in this case the stalemate of trench warfare dominated by the fire superiority of the machine gun and the stagnation of mobility. Though the first tank action was no great success, it paved the way for swift developments in tank design and tactics. Since that first engagement the tank has taken its place as a key weapon of modern warfare with virtually all nations that maintain defence forces. Today, despite massive changes in war technology, the

tank maintains its role as the dominant conventional battlefield weapon.

The modern battle tank with its qualities of strength, mobility and striking power, has been compared to weapons of yesterday, like the two-wheeled chariot and the war elephant. During the Middle Ages the dominance of calvary reflected a successful unification of mobility and striking power. The armoured men on horseback evolved, contributing defensive capability to the combination. Leonardo da Vinci devised an armoured vehicle driven by the muscle power of eight men. Even schemes for propulsion by sail were tried. The invention of the steam engine brought designs for steam-powered armoured vehicles in the



new armoured division, envisaged by Guderian.⁸

In the inter-war years there was much written about armour doctrine, notably by Basil Liddell Hart on the strategic potential of the tank. In his paper "Mechanized and Armoured Formations" he advocated versatile mechanized forces made up of tanks, armoured infantry and self-propelled artillery. Ironically it was the creation of the German panzer divisions which put Hart's ideas into practice.⁹

The word *Blitzkrieg* translates literally into lightning war. It was that lightning war that made the Germans successful in Poland in September 1939, France in May/June 1940, the Balkans in April 1941 and then Russia in the summer of 1941. The campaign in Poland was the first demonstration and proof in war, of the theory of mobile warfare by armoured and air forces in combination. When the theory had originally been developed in Britain, its action had been depicted in terms of the play of lightning. From now on, aptly but ironically, it came into world wide currency under the title of "Blitzkrieg" — the German rendering. The German successes in the first two years of the war had a profound influence of the development of armoured forces everywhere. It forced all nations to adopt similar tactics.¹⁰

The growing importance of tanks and other armoured vehicles was reflected in soaring production figures. Operationally the war was a series of great armour conflicts, of which the deep penetrations into Russia and the War in Africa were two of the most important. The turning point for German armour, if we can call it that, would have been the costly failure of their offensive against the Kursk salient in July 1943. The Germans never again possessed suffi-

cient resources to mount another really large scale offensive. However, their armoured forces continued to render a very valuable service, but only in local counter attacks or in blocking Soviet armoured thrusts. For the Germans, the large-scale offensive operations in which armoured forces demonstrated their full capabilities were not to be seen again. The absence of sweeping armoured drives did not mean that the importance of armour had diminished. Armour maintained its position as the most effective combination of striking power and mobility on the offence and defence. The issues of major operations on both sides were still largely decided by the fortunes of tanks and mechanized corps.¹¹

Following the Second World War the fortunes of the tank in Western armies suffered a decline. In an atmosphere of general euphoria to which was joined the mystical belief in the power of the nuclear weapon, armoured divisions were disbanded at an alarming rate. In contrast, the Soviet Army continued to attach great importance to its armoured forces. Not only were they maintained in strength, but in marked contrast to the American policy, the proportion of armoured formations was greatly increased in relation to the rest of Soviet Army. The Soviet emphasis on armour and the realization of the need for an alternative to the undue reliance on American atomic bombs for the defence of Western Europe, led to a reappraisal of armoured forces in the West. This reassessment in the West was greatly assisted by the invasion of South Korea in 1950, when a few battalions of North Korean manned Soviet tanks disproved the exaggerated claims about the obsolescence of armour. As a result, in the late forties and early fifties, armoured forces in the West began to revive. The value of tanks used within versatile mechanized forces was again recognized by the Western armies and particular attention was attached to them as an antidote to the Soviet armoured forces, in keeping with the maxim that the best defence against a tank is another tank.¹²

Since the Korean War, there have been four major conflicts where the modern technology of war has been put to the test. They are: the Arab-Israeli War, the Indo-Pakistani Wars, Viet Nam and the Falklands crisis. I will only consider the first two because in the jungle theatre of Viet Nam the tank only saw limited use and the Falklands War was primarily an infantry operation.

The continuous nature of the quarrel between the Arabs and Israelis has

provided a ready-made testing ground for the tank and other war technology. The Sinai campaign of 1956 offered little of value since the outmoded machines and dated tactics that were used did little to change the art of tank warfare. The 1967 campaign however, was far more important since it provided the arena for the first large-scale collision of Western and Soviet tanks of modern design.

The Six Day War was essentially a clash between the classic Soviet concepts of defence and the Israeli version of Guderian's Blitzkrieg. What strikes one most forcibly about the Six Day War was its crushing speed of execution. In four days of fast moving desert combat Israeli armour inflicted a decisive defeat on the numerically superior Egyptian tank formations. The Egyptian army was routed so completely that the Israelis could turn about and defeat in turn, the armies of Jordan and Syria. In this campaign we have to be careful what conclusions we draw because in essence the battle was won by a disciplined, technologically skilled nation that was able to defeat a well equipped but badly led army which apparently lacked the educational and social framework to fight a machine-age war. Nonetheless, the war underlined the effectiveness of tanks in the hands of confident and skilled crewmen.¹³

A pattern similar to that of the Arab-Israeli Wars emerged when Pakistan and India clashed in 1965 and again in 1971. The war in 1965 provided experts with a unique opportunity to assess the respective qualities of one Western tank against another as Pakistani Pattons tangled with Indian Centurions. Sterile tactics on both sides blunted this contest, and produced a short savage war of attrition in which neither side possessed the resilience to pursue matters beyond an indefinite conclusion. The unsatisfactory truce resulted in an uneasy full, and open conflict erupted again in 1971. This time India was able to defeat Pakistan in a short and vicious battle.¹⁴ It is best described in this article from the London Sunday Times, published on 19 December 1971:

*It took only twelve days for the Indian Army to smash its way to Dacca, an achievement reminiscent of the German Blitzkrieg across France in 1940. The strategy was the same, speed, ferocity and flexibility.*¹⁵

From these two conflicts I can draw one important conclusion, that is, the survival of the idea of Blitzkrieg. This idea born in Lid-del Hart and made manifest by the Ger-

mans under Guderian is one that is still essential in the modern battlefield. The speed and tactics of the Blitzkrieg are only made possible by the use of strong armoured formations.

The 1973 Yom Kippur War was the first time the Anti-Tank Guided Missile (ATGM) was used on the modern battlefield. At that time there was a widespread feeling that within a decade the tank would cease to exist as a major factor in land combat, because of its vulnerability to this new, relatively simple, and widely-employed threat. All countries and particularly the U.S. were caught up by the potential offered by the ATGM. The U.S. even went so far as to develop and field two tank systems, the M-551 and the M-60 A2 tank, both of which relied principally on the Shillelagh missile as the main anti-tank round. In 1973 the West was exposed to the Russian ATGM, the Sagger. On the first and second day of the war, the Israeli Army suffered heavy casualties when they committed tanks alone against an in-depth, well-prepared defense employing ATGM's at long ranges. After this costly lesson, the Israeli Army quickly went to the combined arms team, and the ATGM's were no longer a significant threat to properly employed Israeli armour.¹⁶

The Bekaa Valley Campaign in June 1982 added further evidence to the argument that the tank is here to stay. The most potent anti-tank weapon employed in the Bekaa Valley was the standard 105 mm tank gun firing a new Israeli-designed, armour-piercing fin-stabilized discarding sabot round (APFSDS), which entered production in 1977. The Israelis found that the new APFSDS round easily penetrated the frontal armour of the Syrian T-72. The superb performance of the new Israeli tank round stands in stark contrast to the virtual irrelevance of other anti-tank weapons. Little was heard of ATGM's in the Bekaa Valley fighting though both the Israelis and Syrians maintain large inventories. This battle lends to the conclusion that the best anti-tank weapon remains another tank.¹⁷

The nuclear explosion at the end of the Second World War marked the beginning of a new era of nuclear power which has come to exert an increasingly important influence on all military developments, including that of armour. Under the conditions of a missile and nuclear war, the armour of a modern tank protects the crew from the light radiation of the nuclear blast and significantly weakens the penetrating radiation. Because of its weight it easily

withstands the impact of the shock wave which arises the moment of the blast and the armour serves as protection against shell fragments and bullets. It can also operate in contaminated areas "hatches down" for extended periods of time. In essence, therefore, the tank is not only a powerful offensive weapon, it is also a mobile shelter, protecting its crew from the harmful elements of the nuclear blast and standard weapons fire.

An increased emphasis on mobility has evolved in both NATO and WARSAW PACT armies due to the impact of the nuclear age. There is doubt that the next conflict will involve intercontinental ballistic missiles, but it is very likely that tactical nuclear weapons will be used. Because of the blast effect of nuclear weapons, battle formations must be dispersed so as to limit the destructive effects of the nuclear weapons. With formations scattered over larger areas of ground, they must be able to move over greater distances more rapidly. Since mobility is one of the major characteristics of armour, this doctrine ensures the continuance of armour as a weapon of the future.

It is claimed that a nation with a strong defence force, which includes a dominant tank arm, might deter a prospective aggressor from launching an attack — and second thoughts could be a persuasive element in preventing the fatal escalation to total nuclear war. Thus, the tank retains a position of prime importance in today's battlefield despite the effectiveness of modern anti-tank weapons. In combined arms operations the tank will continue to play a decisive role as long as its three principal characteristics of firepower, protection and mobility are employed correctly.

Capt P.J. Atkinson; RCD

Footnotes

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CTC Trials and Evaluation Section Armour Trials Update

With much of our equipment currently in service behind the technology curve, the Army, supported by the White Paper, is preparing to field new equipments which will help restore our fighting edge. Some of this kit is quite exciting, some of it is quite mundane but all of it will impact substantially on how we in the Armoured Corps conduct our business. The role of Trials and Evaluation Section in all of this is as a last stop before the field to check that the equipment fielded is both useful and usable.

The section consists of a Combat Arms major, three captains representing Armour, Infantry and Artillery, as well as, a chief or master warrant officer qualified master gunner.



The major armour related trials conducted over the past year include:

- a. C8 Conference Verification and Stowage;
- b. Track Width Mine Plough (TWMP); and
- c. Armour Moving Target (AMT).

C8 Conformance Verification and Stowage

During the last week of the winter of 87, First Troop C Sqn, RCD ably assisted in a rigorous test of eleven of the initial C8 carbines produced. The transition from the SMG was easy to make and the weapon performed very well. Because the C8 has minimal recoil, the troopers really enjoyed firing it. Consequently, accuracy scores were very high.



Armour Moving Target

The problems experienced with the C8 were minor and the recommendations made were of the nature of fine tuning a well proven design. We asked that the width of the front blade sight be reduced to allow better aiming at 200m and that the sharp edges on the automatic/safe limit stops of the selector lever be filed smooth. The plastic magazines gave us a few problems — especially the detents on the base plates which tended to snap off during stripping and assembling. The philosophy of the plastic magazine is a good one. With a metal magazine, small dents and deformations can cause it to malfunction. When the enemy drops in to visit the hide, it is a bad time to realize that your magazine is broken. At least with the plastic magazine, it will visibly break before deforming so you will know to replace it.

Because the C8 is longer than the SMG, we evaluated several different carriage options. The C9 Prosling was unanimously selected as the most comfortable, yet operationally effective sling. It allows the weapon to be slung tight against body allowing crew tasks such as replenishment and maintenance to be performed. When needed, a simple tug on a strap releases the weapon and gives the firer full freedom to fire. Hopefully, some C9 slings will find their way on to the C8s when they are issued.

With a longer weapon, finding spots to stow it inside the tank becomes difficult. This problem, when coupled with a historical review of personal weapon storage in AFVs, led to a recommendation that if the crew is to be equipped with four C8s, then for most operations only two weapons should be mounted inside the vehicle. The other two should be mounted outside on the turret roof. This is similar to the arrangement on Israel's Merkava. The new bracket is comprised of a butt cup and a spring loaded muzzle trap. This holds the weapon securely yet allows quick access. In simulated emergency dismounts, crews were a full 10 seconds quicker when they stopped only to take the two exterior weapons.

Track Width Mine Plough

With the introduction of the TWMP, the Corps has gained a very effective tool for dealing with hasty minefields. No longer do we have to sit on the edge of a minefield and depend on someone else to open the way across. Developed by Israeli Aircraft Industries' RAMTA, the TWMP is a reliable, mechanically simple and robust piece of



equipment. When raised, it does not degrade the mobility of the tank any more than the dozer blade does. Drivers do require some time to get used to ploughing though. Our driver was quite confident after about three 1000m runs in various soil conditions. The other people who need training are the crew commanders and tactical commanders both of whom must learn how to use this new tool. Crew commanders in particular must learn how to intelligently chose their route through the minefield to avoid small dips and hills which can effect ploughing depth.

Armour Moving Target

A new type of target was recently put through its paces out in the Gagetown training area. It was the Armour Moving Target, a product of CATS, a subsidiary of ATCO of Calgary. It consists of an IBM XT based computer control system and three full size styrofoam T72 shaped targets. Remotely controlled tracked vehicles carry the targets around the range. Each target is capable of remote joystick control or of following beside a wire line (WDI) route laid out ahead of time by a targeting party. The targets are very realistic both in looks and in actions. They are suitable for both live fire and tactical training.

The equipment that we just finished evaluating was only at the prototype stage. Now that the concept has been proven, the design will be altered to enhance the system's mechanical robustness.

Improvements

A number of improvements to both Leopard and Cougar have been generated by such agencies as DLR, DCMEM and DLAEEM. Some new items under evaluation at T&E currently include Leopard hydraulic bump stops, AVGP wide tires, and the cargo net retaining.

The hydraulic bump stop replaces the conventional volute spring bump stop which keeps the roadwheel arm from bottoming out against the tank hull. The hydraulic bump stop promises a smoother ride by gradually absorbing the shock transmitted upwards from the roadwheel arm in the same manner as the recoil buffer absorbs the recoil of the gun on firing.

AVGP wide tires are a new tire designed by Michelin for use on the AVGP as well as the US Marines' LAV 25. It is designed to carry more weight at a lower pressure. When at cross country running pressure, being an inch and a half wider than the cur-

rent tire, the tire has a much bigger footprint. This means that the Cougar should be able to go more places than it can at present. One of the problems in general with AVGP tires is that the conventional tires are seldom deflated from road travelling pressures to cross country pressures because the length of time the process takes. The new tires are no quicker.

The cargo net retaining is a little web net designed to make the loader's life a little bit safer. Strung between the turret ring and the roof, just in front of the radios, the net is designed to keep all of those things that we stash in behind the radios from bouncing out and doing damage to the loader while the tank is manoeuvring cross country.

Upcoming

On the horizon is a comparison trial of an electric turret drive for the Leopard against an upgraded hydraulic system; another look at the ventilated respirator system (a filtered forced air system for tank crews); modified XC4 masks; Canadian manufactured track pads; new night vision goggles; NOD (LR) (the new man portable thermal imaging sight); and of course, the trial of MBT contenders for the Tank Project. Since Trials and Evaluation is practically the last stop in the procurement cycle before the field, it will not be long before you will have a chance to see for yourself what the equipment discussed is like.

Capt I.N. Glenn

HISTORICAL

An Officer's Code

His Majesty the King has done me the honour of conferring upon me a Commission as an Officer. This is the greatest honour that can be conferred upon any man. It places me in a position of authority and responsibility in the service of my King and Country in the most ancient and honourable profession in the world.

Realizing that the faithful performance of my duty is a privilege and not a task, it appears that the most pressing business in my life is to show my appreciation and try to attain some measure of worthiness. Therefore, I will adopt the following code:

"I will always, in public and private, in uniform and out of uniform, so conduct myself as to command respect for the Country and for the profession which I have the honour to represent."

"I will regard and treat all my superiors with the deference due their profession, their age and their greater experience."

"I will regard and treat my subordinates with the courtesy and respect which is peculiarly due to every person who cannot defend himself against discourtesy and disrespect."

"I will never adopt any course of action for the purpose of obtaining personal distinction. If I am ever so fortunate as to be commended I will remember that this is the result of opportunity and of having been observed. I will remember that, given the opportunity, any other officer might have deserved commendation: I will remember that many other officers have deserved commendation but have been unfortunate in not having had their work observed."

"In my conduct with any civilian I will remember that I am dealing with one of my employers and that I must try to show him that I am a faithful servant in the highly responsible position in which he has employed me."

"I will always and unceasingly strive to live up to that condition of my profession which demands at the same time the deepest humility and the highest pride; that is, the requirement that I obey the orders, explicit or implied, of my superiors — immediate and ultimate — without question, argument, comment or hesitation, giving all my energy to the solution of the problem set before me."

"I will command the respect of my subordinates for my Country, my profession and myself by setting an example in this matter at all times and in all places. I will eliminate complaint from the speech and thoughts of my subordinates by refraining from complaint myself."

"I know that I shall, from time to time, fail in my attempt to live up to all the requirements of this code. Nevertheless, I will not allow myself to be discouraged, but will always try with all my might to adhere to it in letter and in spirit, and so, in some measure, become worthy of holding His Majesty's Commission and the privilege of performing my duties."

(From the Alberta Military Institute Journal, 1925)

What Became of the Canadian Cavalry



If asked about the origins of the Armoured Corps, most people would say that it is descended from the cavalry. While it is true that the Corps has strong links with the cavalry that is not the whole story. If you look at the lineage of the 22 regiments serving in the Corps today you will find that only 8 have a "pure" cavalry background. The other 14 are of a mixed descent. There is not doubt that the Corps is the stronger for the inclusion of infantry, artillery, machine-gun and armoured car "bloodlines" but that leaves open the question what became of the cavalry?

In the years leading up to the Second World War there was a lot of talk, but little action, concerning the mechanization of the Army. In cavalry circles there was some reluctance concerning the idea of converting the horsemen to a new role, and when the first armoured units were created in 1936, none were from the cavalry. Ironically, many cavalry units were disbanded or converted to other arms in 1936 but none were mechanized. When the war began several cavalry regiments were converted to motorcycle units, it being easier to picture a horseman astride a motorbike than crewing a tank. Eventually the requirements of the war resulted in a need for large numbers of tankers and the cavalymen moved

on to their new trade. Interestingly, it was not until the war was over that the Canadian Cavalry formally disappeared, its role being assumed by the Royal Canadian Armoured Corps.

The attached list shows the cavalry regiments as they existed between the wars. It is not a comprehensive list since there were quite a few relatively short lived units that appeared and disappeared during this time. This raising and disbanding of units resulted in regiments changing their numerical designations. For example the 10th Queen's Own Canadian Hussars was disbanded in 1913. The 25th Brant Dragoons were redesignated the 10th Brant Dragoons in 1920 in place of the QOCH. Just to keep the situation complicated the QOCH was reactivated in 1928 and thus we ended up with two 10th Cavalry Regiments. Similar situations existed elsewhere and at other times.

The numbering of regiments basically follows their seniority. As a new regiment was raised it was given the next number on the list. It is also related to the forming of the various Military Districts (MD) across the country in 1855. MD No. 1 in South-Western Ontario had one cavalry regiment on establishment known as the 1st (from the District No.) Regiment of Cavalry. It later

became the First Hussars. Likewise MD No. 8 in New Brunswick had the 8th Regiment of Cavalry a unit now known to us as the 8th Canadian Hussars.

A complete listing of all units would be long and complicated and of interest only to the scholar. I trust that the information provided here will help the casual reader to see for himself just what happened to the cavalry.

Capt. M.R. McNorgan

The Canadian Cavalry

Original Title, Year Raised, Location	Current Status
The Royal Canadian Dragoons 1883	Royal Canadian Dragoons
Lord Strathcona's Horse (Royal Canadians) 1901	Lord Strathcona's Horse (Royal Canadians)
The Governor General's Body Guard 1855, Toronto, Ont	The Governor General's Horse Guards
IV Princess Louise Dragoon Guards 1872, Ottawa, Ont	disbanded 1965
1st Hussars 1872, London, Ont	1st Hussars
2nd Dragoons 1872, St Catherines, Ont	converted to artillery 1946
3rd The Prince of Wales' Canadian Dragoons 1875, Peterborough, Ont	converted to infantry 1936
4th Hussars of Canada 1875, Prescott, Ont	amalgamated Princess Louise Dragoon Guards 1936
5th Dragoons 1877, Cookshire, P.Q.	amalgamated 6th D.C. Royal Canadian Hussars 1901
6th Duke of Connaught's Royal Canadian Hussars 1879, Montreal, P.Q.	The Royal Canadian Hussars Montreal
7th Hussars 1903, Bury, P.Q.	The Sherbrooke Hussars
8th Princess Louise's New Brunswick Hussars 1848, Rothesay, N.B.	8th Canadian Hussars (Princess Louise's)
9th Mississauga Horse 1901, Mississauga, Ont	amalgamated Governor General's Body Guard 1936
9th (Grey's) Horse 1908, Wingham, Ont	disbanded 1936
10th Brant Dragoons 1909, Brantford, Ont	amalgamated 2nd Dragoons 1936
10th Queen's Own Canadian Hussars 1856, disbanded 1913, re-raised 1928, Quebec, P.Q.	disbanded 1936
11th Hussars 1903, Richmond, P.Q.	amalgamated 7th Hussars 1936
12th Manitoba Dragoons 1903, Verden, Man	disbanded 1964
13th Scottish Light Dragoons 1904, Waterloo, P.Q.	disbanded 1936
14th Canadian Hussars 1910, Swift Current, Sask	disbanded 1968
15th Canadian Light Horse 1905, Calgary, Alta	The South Alberta Light Horse
16th Canadian Light Horse 1905, Yorkton, Sask	converted to infantry 1941
17th Duke of York's Royal Canadian Hussars 1897, Montreal, P.Q.	amalgamated 6th D.C. Royal Canadian Hussars 1958

Original Title, Year Raised, Location**Current Status****18th Canadian Light Horse**

1911, Rosetown, Sask

converted to artillery 1936

19th Alberta Dragoons

1908, Edmonton, Alta

disbanded 1965

20th Border Horse

1908, Pipestone, Man

amalgamated 12th Manitoba Dragoons
1936**21st Alberta Hussars**

1908, Vegreville, Alta

amalgamated 19th Alberta Dragoons 1936

22nd Saskatchewan Light Horse

1908, Battleford, Sask

amalgamated 16th Canadian Light Horse
1936**23rd Mounted Rifles**

1908, Vegreville, Alta

redesignated 21st Alberta Dragoons 1908

24th Regiment (Grey's Horse)

1908, Wingham, Ont

redesignated 9th (Grey's) Horse 1921

25th Brant Dragoons

1909, Brantford, Ont

redesignated 10th Brant Dragoons 1920

26th Stanstead Dragoons

1910, Coaticook, P.Q.

converted to artillery 1936

27th Light Horse

1910, Swift Current, Sask

redesignated 14th Canadian Hussars 1920

28th New Brunswick Dragoons

1911, St John, N.B.

disbanded 1936

29th Light Horse

1911, Rosetown, Sask

redesignated 18th Canadian Light Horse
1920**30th British Columbia Horse**

1911, Vernon, B.C.

The British Columbia Dragoons**31st Regiment (British Columbia Horse)**

1911, Merritt, B.C.

converted to artillery 1939

32nd Manitoba Horse

1912, Robin, Man

amalgamated The Fort Garry Horse 1936

33rd Vaudreuil and Soulanges Hussars

1912, Rigaud, P.Q.

disbanded 1914

34th Fort Garry Horse

1912, Winnipeg, Man

The Fort Garry Horse**35th Central Alberta Horse**

1913, Red Deer, Alta

disbanded 1921

36th Prince Edward Island Light Horse

1901, Charlottetown, P.E.I.

**The Prince Edward Island Regiment
(RCAC)**

horses could be brought forward to bring the guns out of action. Although the infantry were able to extricate themselves, the artillery was forced to render their gun useless by removing the breach mechanism and therefore lost and entire battery of 105mm guns.

The division regrouped in the area of Villiers aux Erables and spent the night of 30/31 March 1918 resupplying and preparing for the forthcoming counterattack to retake the high ground overlooking the Avre river.

The cost of this engagement to the German forces were as follows:

122 Fusillier Regiment — 7 dead,
26 wounded

238 Field Artillery Regiment

- Wounded
 - 2 officers
 - 24 men
 - 11 horses
- Dead
 - 1 officer
 - 5 men
 - 26 horses
- Missing
 - 4 men

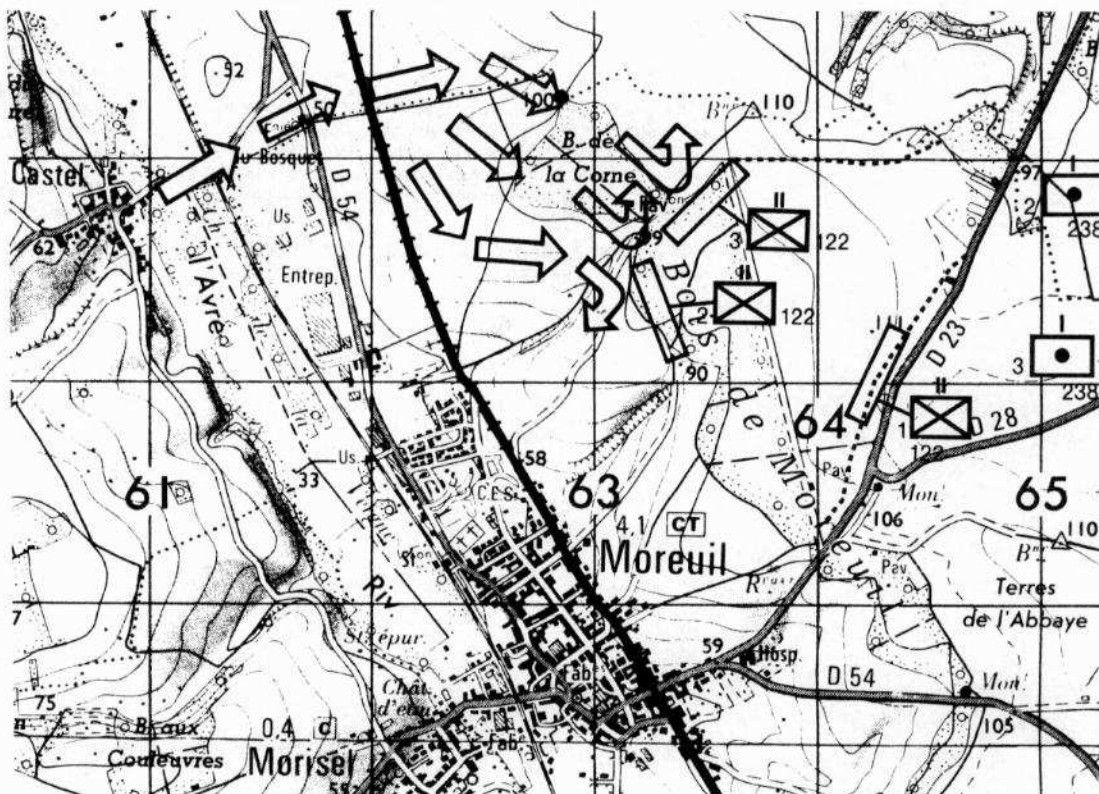
479 Infantry Regiment — not available

The name Moreuil Wood means different things to different people. To any Strathcona worth his salt, it evokes thoughts of Lt Flowerdew and the posthumous VC won for gallantry against the German enemy on 30 March 1918. The RCD and Fort Garys too, celebrate this battle for the heroics dis-

played by officers and men of both regiments. The sacrifices made by these soldiers is irrefutable. Their heroic actions are a matter of record. It is, however, interesting to take a new look at what has become for many of us a familiar battle. To see this hard fought action through the eyes of the German units there, allows us to realise that what we perceive to be absolute fact, can be easily disputed when the whole picture is known. Which account is the real story of the battle of Moreuil Wood, will never be known. The records contradict one another in several important areas, and those survivors still alive have had the veils of time soften the images once so clear to them.

In completing this article, there are a number of institutions whose assistance must be mentioned. First and foremost, the staff of the German Military Library located in Freiburg for their patience and knowledge. It was here that we located the Regimental histories of the German units at Moreuil Wood. Secondly, the staff of the state archives of the Province of Baden-Wurtemberg, who braved the dust covered shelves to locate the war diaries of the 122 FR and the 238 FAR. It is unfortunate that the war diary of the 479 IR is no longer available to us. If it exists at all, it is in Leibzig, East Germany, as this was a Saxon unit and not affiliated with the province of Wurttemberg.

Captain S.A. Martin





**Armour Bulletin Writer's Guide
Guide à l'intention des écrivains du Bulletin
des Blindés**

Subjects/Sujets

We are interested in all subjects relating to Armour affairs that would be of interest to Armour personnel. This would include articles on R&D, personnel, equipment, training, tactics, and history.

Nous nous intéressons à tous les sujets relatifs au Blindé qui pourraient être d'un certain intérêt pour le personnel Blindé comme des articles sur la recherche et le développement, sur le personnel, l'équipement, l'instruction, la tactique et l'histoire.

Style/Style

In that a readable article is preferred, fit the style to the subject matter. Articles should be double spaced, typed on one side of the paper. Articles should normally not exceed 2,000 words. Only material of an unclassified nature should be submitted. Articles will be published in the official language in which they are received.

Nous préférons les articles qui se lisent facilement, et dont le style soit adapté au contenu. Tous les articles doivent être

tapés à double interligne et d'un seul côté de la feuille. Les articles ne devraient pas compter au plus 2,000 mots. Seuls les sujets de nature non classifiée peuvent être présentés. Les articles seront publiés dans la langue officielle dans laquelle ils nous sont présentés.

Illustrations/Illustrations

Art work-sketches, black and white or colour photographs, maps, line drawings, diagrams, etc. enhance the attractiveness and understanding of an article. They must be sharp and of high contrast. Washed out, grey, fuzzy and greatly enlarged photos reproduce poorly. Do not submit photocopies.

Tout travail artistique (croquis, photographies en noir et blanc ou couleur, cartes, dessins au trait, diagrammes, etc) rehausse la présentation et la compréhension d'un article. Le matériel utilisé doit être nettement découpé et faire contraste. Les photos délavées, grises, imprécises et très agrandies ne se reproduisent pas bien. N'envoyez pas de photocopies.

Next issue submission deadline

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88. 12. 1



nineteenth century, but no efficient weapon technology emerged. It took the trench stalemate of World War 1 to force imaginative minds to develop the armed and armoured vehicle which we know today as the tank.¹

The first armoured force, forty-nine tanks, was sent to France in September 1916. They were to spearhead the assault of the 4th Army in the final phase of the Battle of the Somme. Breakdowns prevented all but thirty-six tanks from reaching the starting point. The machines were employed against enemy strongpoints in widely scattered groups of two or three. In this first action, tank crews won a number of local tactical successes. In several places enemy determination melted away as the tanks moved slowly across no man's land. It was obvious that a new dimension in terror warfare had been created by this engagement.²

One important dimension these new machines added to the war, was the boost they gave to the men's morale. All troops who were involved with the tanks were enthusiastic in their praise. The enthusiasm is evident in this description of an engagement by a war correspondent in *The Times*:

Five tanks went down and on arrival they found machine guns firing from the upper storeys of the houses. Ordinary houses in French villages are not solid in construction and are built chiefly of timber and plaster. When the tanks came up and saw the fire coming from the upper windows, they simply put their noses down and butted into the houses. They took ten houses in succession in this way, tumbling walls, roofs, machine guns and Germans altogether about their own ears, and coming out after each disappearance as white as millers, with their bodies wreathed in joists and other architectural details. Then our boys were able to go in and finish the job.³

Modern armoured warfare techniques were first seen in November 1917 during the early hours of the British attack at Cambrai. Unannounced by artillery preparation, over three hundred tanks rolled forward over open ground leading an assault six miles in width against the German lines. The Cambrai attack was planned and executed under Major-General J.F.C. Fuller's command. He was later to become one of the most prominent spokesmen for the armoured weapon. The success at Cambrai had proved the tanks effectiveness.⁴

The tanks continued to experience success as they spearheaded attacks along the whole front. Notably, the Battle of Amiens on August 8th, 1918, which was the major victory for the allies. The Battle at Amiens has been called the 'Black Day of the Germany Army'. Very few Germans were killed by tank fire at Amiens, but as a morale-breaker the tank was superb. Although the Germans were able to stabilize the front after Amiens and contain the Allied advances, the morale of the Germans was broken. This was largely attributed to the effect of the tanks. What I have said is echoed in this statement of General A.W.H. von Zwehl, a German Military Historian, after the war: "I consider that we were not beaten by the genius of Marshall Foch, but by General TANK... a new weapon of war."⁵

In many of its later aspects World War 1 had evolved as a tank war, even though the cease-fire came before the true potential of the tank could be properly demonstrated. Had General Fuller been able to implement his Plan, 1919 Western Europe would have witnessed the deployment of tanks and aircraft on an unprecedented scale.⁶

Almost as soon as the Armistice had been signed, the vast production of British tanks was stopped. Instructions were issued that no more tanks were to be completed except the two new medium types presently under construction. The reason for this lay, as so often, in the reluctance of the Treasury to spend money of defence. The government reluctance to spend adequate money on defence resulted in the loss of the British lead in tank design which was never regained.⁷

Although there were several new tanks designs which came out in the inter-war period, as a general rule progress in the area of tank technology as far as the allies were concerned was very slow. On the other hand, unknown to the allies, the Germans had negotiated a secret deal with Russia to do tank experiments within Russia. According to the Treaty of Versailles the Germans were prohibited from possessing tanks. German armour made great progress as a result of their pact with the Russians. Under the direction of General Heinz Guderian the Germans had a clear conception of what they wanted to do with tanks, and as a consequence they selected a few standard designs and produced plenty of them. They were not the best designs in the world, but properly used they were good enough as the instruments of the