

**THE
NEW ZEALAND**



**ARMY
JOURNAL**

No. 8

JULY, 1989

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Army Training Group
Waiouru.

The following are the latest dates for submission for inclusion in the issue shown:

July issue - 1 May
December issue - 1 October.

STATUS

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THE QUIGLEY REVIEW: AN UNBIASED REPORT?

by

Captain R.J. TAYLOR, MSocSc (Hons), RNZAEC

Captain Taylor is a graduate of Waikato University, where he studied Political Science and History. He was commissioned into 6 RNZIR in March 1986, and the following year enlisted in RNZAEC and Regular Force as Museum Curator. He is currently working on a Critical Analysis of the Quigley Review, upon which the following is based. The opinions expressed in this article are his own.

The 1980's have been amongst the most turbulent years in the history of New Zealand's armed forces. The problems posed by an ever-changing strategic environment have been exacerbated by the politicisation of the whole defence debate.

Since the beginning of the 1970's, the Pacific region has been steadily growing in strategic importance. Once a backwater to events in Europe, the Pacific Ocean has itself become a new theatre of competition between the power blocs.

Thus, the uncertainties of the South Pacific have forced New Zealand to give greater emphasis to her own region. This shift first became obvious in the 1978 Defence Review. By the time the next Review was written, 1983, New Zealand's forces were clearly orientated towards protection of our interests in the Pacific, and maintenance of the status quo in the region.

The armed forces themselves have long accepted this new geographical emphasis, and have acted positively to address and overcome the new challenges it has posed. They have not been helped in this, however, by the growing politicisation of defence issues.

Australia elected a Labour Government in March 1983. New Zealand followed suit in July 1984. Since both elections, defence issues have taken on a whole new prominence in both countries.

From the very outset of its tenure, the Lange Labour Government has shown considerably less maturity in the debate of defence issues than its Australian counterpart. Under Bob Hawke and Kim Beazley, Australia has recognised herself as a regional power with responsibilities to match, and responded accordingly. The result has been a more independent defence policy, which at the same time enhances Western security interests in the region.

The New Zealand Government, too, arrived at a more independent stance, but by quite different means. Through its refusal to allow American nuclear powered or armed warships into New Zealand ports, it effectively opted out of its ANZUS responsibilities, and thereby found itself alone.

For all the moralistic sentiment with which the New Zealand Government's anti-nuclear policy has been espoused and executed, it was always clear that its purpose was political. It served largely as a fop to those Labour supporters disenchanted with the effects of Rogernomics, and, to a lesser degree, as a diversion for the remainder of the electorate. Thus, Labour had turned defence into something of a political football.

Defence issues have always been easy to emotionalise. To the more gullible citizen, defence involves guns, and guns involve killing, and killing is bad, therefore defence is bad. Quod erat demonstrandum. New Zealand's peace groups have been aided in their publicising of their peculiar brands of morality and logic through financial grants, from Rainbow Warrior reparation money.

The demise of the ANZUS alliance, or rather of New Zealand's active participation within the alliance, caused a major policy rethink. The result was a series of reports, culminating in a full policy Review in 1987.

Even the title of the 1987 Review reflected the politics in the Government's thinking. While all previous Reviews had simply been entitled "Review Of Defence Policy", the 1987 offering was entitled "Defence Of New Zealand". This was done, no doubt, with due regard to those who oppose any overseas deployment by New Zealand forces, calling instead for our forces to only be used to repel attack against the mainland.

The 1987 Review largely confirmed prior defence planning, with one major difference. While New Zealand would continue to give her greatest attention to the South Pacific, and would accordingly maintain forces able to deploy rapidly, she would not do so in tandem with forces which would, or even could, use nuclear weapons. This, in effect, meant New Zealand would work towards all her traditional objectives (with the exception of the retention of the force in Singapore), but would do so beyond the ANZUS umbrella.

The implications of such a step are obvious. The Government quickly recognised that the objectives could only be met by either an increase in defence spending or a major reassessment of defence functions and expenditure, with a view to using the efficiencies gained thereby to meet the objectives from within the existing vote. That the former option was bound to prove unpopular within the Labour Party obviously made the latter more attractive, and the path eventually chosen.

To the cynic, Defence may have seemed an easy target for the budgetary scalpel. Its members cannot form unions, do not control any vital industry, and therefore have virtually no political clout. Yet, in fairness, it must be noted that virtually the entire public section was facing the same scrutiny.

It would, therefore, have been unrealistic for anyone to expect Defence to be exempt from the changes which were being imposed upon the remainder of the public sector. Defence officials had themselves realised this, and were in the process of implementing managerial and administrative changes before the decision to conduct a resource management review was made. Thus, the Review in itself was not necessarily out of order.

Of greater significance was the Government's choice of the firm to undertake the Review, Strategos Consulting Ltd. Although Strategos has four

Directors, the bulk of the work on the Review was done by Derek Quigley, and it was his name that was to be most closely linked to it.

Quigley had already made a name for himself before commencing his Review. A barrister and solicitor, he had been a National Member of Parliament between 1975 and 1984. Promoted to Cabinet Minister of Finance, and Minister of Housing, Works and Development, and Tourism. Following a row with the then Prime Minister, Sir Robert Muldoon, over economic policy, Quigley resigned from Cabinet in 1982, and left politics at the next election.

Beyond several years service as a Territorial Officer, Quigley has had little grounding in defence or strategic thinking. Although, as a Cabinet Minister, he would have seen the processes of departmental activity at close range, it must be remembered that Defence is unlike any other department except, perhaps, Police.

This is because its operations are largely intangible, and the stimuli to which it reacts are often invisible. As a result, the general public knows little of defence planning and thinking, which accounts for the ignorance with which defence issues are debated, and the ease with which they can be politicised.

Although highly experienced in their own fields, Quigley's Strategos partners have even less knowledge of defence issues than he. Alf Kirk and Rob Campbell worked actively in the trade union movement before taking their economics and business skills into the business world, while Susan McAffer worked largely in the communications and public relations fields, and as a Ministerial press secretary.

Quigley himself defended the decision of the Government to appoint someone from outside the defence establishment, arguing that the Government had commissioned the report "... because many of the flaws in current structures were visible to the non-military eye". Nonetheless, the letter written by Quigley and accompanying the final draft of the Review makes no acknowledgment of any direct input made by anyone with a significant back-ground in defence, which in itself raises questions of credibility.

It certainly could not be denied that, politically, Derek Quigley was the ideal person to conduct a Review of Defence Resource Management. His National Party background would nullify any possible claim that the Government had selected 'one of its own' (a criticism which had been leveled at the Australian Dibb Report), or someone likely to be unfavourably disposed to defence spending.

This is not to suggest that Quigley consciously sought to produce a report favourable to the Government, or that he was personally biased against Defence. It would, however, be fair to say that those in the upper echelons of the Labour Government knew the Directorship well enough to know the general direction in which the report was likely to proceed.

The Review cost the Government \$2 million. In light of the increasing politicisation of the whole defence debate, it probably felt that it had got its money's worth. Whether or not the New Zealand public, on whose behalf defence forces are maintained and planning undertaken, or the defence forces themselves received the same value for money is another question entirely.

SURVIVAL OF THE FITTEST - A CONTINUUM OF TECHNIQUES
THAT WILL ENSURE ONES MARTIAL PROGRESS ONTO THE PERSONAL OBJECTIVE
WITH THE MINIMUM OF EFFORT FOR THE
MAXIMUM OF RESULTS (POWIP NO 6)

by

Mile Ignotus

Prelim Ops

The last volley from your overworked mentor was in the nature of a barrage from 4th Mediocre Bty, long and tedious, (like anything emanating from the dropshort fraternity), by contrast we intend to keep this issue down to a more manageable span. We have so far examined in detail a variety of TAORs that a MOS might find himself enmired in, Tac School, Defence HQ and of course the Volunteers, (a tribe we may yet have to re-examine). The last promise was to lift the lid on overseas postings particularly those Elysian fields of Singapore, but with the lads being shunted back from Orchard Rd to Camp Rd it is probably a little too cruel to expose them to too much ribaldry now that they have got so many other concerns on their minds, eg teaching mum to cook again would be a major priority.

So this episode is more a pot pourri of handy little survival hints that moi has gleaned by hard experience from many years of fighting the peace and keeping the in tray as void as a marrieds wallet at "Happy Hour". The inspiration was derived from a brief foray into the Dorset Mess after a gruelling day at AGS trying to fatnom out the implications of the latest amendment to the Army Restructure, (the pressing need to save six one star posts being hugely evident), so there was an imperative need for level headed thinking and steady application of a cranial lavage of G&T to get the neurones suitably aligned. With Geordie at action stations and the timely arrival of a few MOS including Hugo Fanning a productive session developed.

It was later in the evening, when the living in drones had long since scuttled back to their cabins and the supper trays had been demolished, that Fanning said "I say Miles why haven't you included in that drivel of yours a few words of choice advice to the military neophytes on how to survive the every day vicissitudes. After all most of us spend the first part of our service trying to learn the ropes and with all these Thrusters, who won't help you, and

specialists, who can't help, to say nothing of the Turkeys who couldn't help themselves, a fellow needs a few suggestions that will keep his tail pipe off the burner". Ever a sucker for punishment your scribe has once again clutched the opportunity to allow a little light filter into the nugatory gloom that most you young tyros operate in. For this small service I expect little thanks, save perhaps a little assistance with the Bar Bill that is showing blowout proportions yet again.

When soldiers are not undertaking their normal business, ie leaning on their bayonets to induce the six inches of penetration into the brisket of the Queen's foe for the day, they spend much of their term filling in time. Between RFLs, Boot Runs, PT and sunny days on the range, their lives are occupied by exercising their communication skills. We all should be aware that what is said is often not what is meant and there are certain key phrases that have a hidden agenda all of their own, depending from which quarter they are incoming from. Now it is critical for your own peace of mind for you to be able to interpret the subtle nuances of meaning that accompany much of the dialogue you will have with both your superiors and subordinates. A failure to detect the warning sounds will be akin to a grunter not recognising the awful clack of an AK47 going from safe to auto and will lead to much grief if not flame out of the career plot.

Listed below are a few time tested phrases that will pass your way, learn them, and where necessary use them. Hory old vets won't need to be told this, or if they do, they must be awfully thick. No, this issue is meant for the consumption of by the fresher members of the Officer Corps; those whose names appear between pages 20 and 27 of the Stud Book, unencumbered by irrelevant dross such as ANZIM, MITO, MNZIPS, tem or tssoc. So all those above the rank of Lt can close this page with some thankfulness and refer instead to some more turgid cant that doubtless they will be able to find elsewhere in this slim journal. From below you will be greeted with all the artificial pleasantries but be aware that every phrase can have a barbed meaning such as:

"With all due respect Sir!" - means with absolute disrespect sir you are a prize Charly.

"I am only a LCpl but" - means I am only a LCpl but I know a bloody sight more about doing this job than what you do so why don't you 'go away' and let me get on with it.

"Thats pretty radical thinking sir" - everyone else in the unit right down to the regimental goat is against it.

"We are right behind you on this one sir" - behind is the operative word, well behind and seeking any excuse to be out of it.

"When we were in Tampin/Nui Dat/Fiji/Shoal Water Bay we did it this way" - I am too old/tired/lazy/thick to learn anything new so forget it.

"Have you got the authority to do this?" - Hey! my career could be on the line here.

"Surely this is a job for the engineers/gunners/infantry" - why don't you stop trying to act out your Tac School fantasies of conducting frontal assaults and get back to your job of managing the 800 Man Mess, after all if this job was any good they wouldn't be offering it to us.

"We would appreciate it if we could have an answer at your earliest convenience" - get off your fundamental and get it sorted.

"Everything is looking good in the 'Q' Account sir" - I am posted next week and by the time the Auditors get here it will be you carrying the can.

"Can I have a moment Sir, I have got a wee problem with the Account" - this is gonna be bigger than the Equiticorp crunch.

"Have you considered all the implications Sir?" - like my probable courts martial if I let you do this.

"I must apologise Sir" - I must apologise, you are not half the idiot I am for not realising you were one in the first place.

"Officers don't normally do this Sir" - and nor will you unless you want to look a right prat.

From above there will continue to be some subtlety that will require interpretation eg:

"I have got just the project here that a smart young fellow would love to get his teeth into" - this will mean either:

a. I have got a project I can't understand but if you do it right I will be taking the credit and if you do it wrong guess who will be taking the blame laddie,

or

b. I have got a project here that is really going to screw you Sunny Jim.

"I intend to give you as much experience as I can in this post" -if I can get you doing all the work my short iron game can only improve.

"Look, you have been buzzing about all over the place up until now. I really feel it's better for your career that you don't go on Long Look but rather settle down and get to grips with the real NZ Army" - I have finally been nobbled for the Grade II and while I am spending the next six months grafting my Service Paper you will be covering for me doing my job.

"I will only be making an informal visit so don't go to any bother" - There had better be a Quarter Guard, a full grog locker, a staff car for the missus to go shopping in, tickets to the Te Awamutu Races, an audience with the Maori Queen and all of my mates in for dinner if you want to survive the next PAB, sunshine.

"I have read your paper and there are some very interesting concepts" - I have read the covering letter, the rest is too hard.

"Its good to have you back from AGS/LF Comd/Def HQ and we have got an exciting programme ahead for you" - well Smarty for the next six months you can write off every weekend as you are going to be either Orderly Officer or I/C the TF training.

"It's an important part of your education" - to be controlling officer for the Cpls Club and the Investigation starts Friday.

"Things were tougher in my day, we didn't get the opportunities you young shavers have been given" - I have had four overseas tours, four rehab loans, three mercs and a volvo. Tough titty that you will be lucky to make a Tasman Reserve.

"Ah yes I remember your father well, he was my CO in '65" - Well isn't this going to be fun having Daddy's little boy to pluck the wings off.

"Have you considered the opportunities that could open up for you with an ERE appointment?" - your face doesn't fit Buster. The next stage out of town will have you on it or under it.

"I must say that it's with some regret I have to tell you" -Them's the breaks.

Once the aspiring MOS has absorbed all of the above plus any extras, he should be able to cope with the daily cut and thrust. He will only then need to remember to apply a few of the more relevant Principles of War in Peace (POWIP), that I have alluded to in the past, to be able to approach the daily grind with some sanguinity. As a refresher, I have regurgitated the more critical ones for your edification.

POWIP NO 1

"IF YOU ARE GOING TO GET INTO TROUBLE THEN MAKE SURE YOU ARE IN REALLY DEEP AND, (MOST IMPORTANT), TELL EVERYONE ABOUT IT".

The profession of arms is by nature a hazardous one, though in peace the physical threats are limited to the grievous bodily harm you may suffer at the annual WOs & Sgts vs the Offrs Rugby. However the potential to get into trouble is ever present and sooner or later you are going to make a cock up of some proportion that will have you front and centre, better be prepared for it. Now it may go against the grain, but there is no point in getting into minor difficulties. Many a career has been ruined by the failure of an unfortunate to complete a 59 check or some similar trivia. On the other hand, once the situation really gets out of hand and develops into a PR problem, then you will be amazed as to the dramatic change your superiors will have. From being the most zealous of inquisitors, "I am going to get to the bottom of this so help you God", to a mellowing "I am sure that there is a reasonable explanation and we should be able to square this away to the Commanders satisfaction". The RNZAF have this sort of thing down to a fine art. They are always bouncing their expensive metal tubes into terra firma at hideous cost to the public account yet the Knucks invariably steam away from the inquiries with hearty congratulations and a quick keg on the bar.

The key to surviving these incidents would appear to be to ensure that no human life is actually lost, (coroners are unfriendly about this to say nothing of snivelling NOK types that always seem to appear when least wanted). The

other essential is that the damage incurred should be something in excess of ten grand or so. Better still, up around a hundred thousand mark, which will ensure your later notoriety as well as scare off the investigation. The early warning to your superiors that the lumps were about to hit the propeller will have ensured an early transfer of responsibility (and guilt), in their direction. This is most important as any attempt to conceal the cock up will only concentrate the guilt, therefore blame, and therefore PUNISHMENT onto your own trembling shoulders.

POWIP NO 2

"90% OF THE TIME YOU SPEND DEALING WITH SOLDIERS PERSONAL PROBLEMS WILL BE SPENT ON 5% OF YOUR PEOPLE".

Oh so true. Every unit will have at least one soldier who will continually be on your doorstep with yet another disaster to report. If single, your lad will be chased by debt collectors or worthies from the MOT and nary a day will not go by without the SSM doefully reporting yet another economic or social midden your lad has got himself into. If married, then the delights of undisciplined progeny, runaway wives and threats of molestation will come into your orbit.

In these circumstances "Branding for Export" can often be the easiest course to follow and the removal of your bete noir to WTD or some similar doom is the recommended course to follow. Efforts to persevere with these cataclysms are definitely not cost effective. Be fair, allow your lads to have at least one tragedy and show them some sympathy, but, once you start hearing the dreaded phrase "Pte/Cpl/Sgt/Lt McTurk wants to see you on another private matter sir" get the wheels turning and him out, (try and arrange for the little darling to be sent 'off into the care of one of these "Military Executives" we all keep meeting and who constantly bray on about their personnel management skills).

POWIP NO 3

"THERE IS NOTHING REALLY NEW TO LEARN IN LIFE, JUST A HUMUNGOUS NUMBER OF LESSONS THAT HAVE BEEN FORGOTTEN".

Painfully you will find that an examination of every bright idea will have an echo somewhere in the dead files. Just try and maintain a look of eager enthusiasm when the latest convert to "devolution" or "self paced assessment" starts prositetyzing within your AO, that is if they happen to be of senior rank. Any cretin of junior status is to be dealt with severely, the very minute they start purveying any sort of twaddle that has more than two syllables and occupies more than a paragraph of explanatory notes.

POWIP NO 4

"REPUTATIONS WILL BE LOST QUICKER THAN THEY CAN BE MADE".

Also painfully true. Make the most of your time as a young hoon about the place and demonstrate all the joi de vivre your mess bill can stand, whilst the muscles are trim and the sap still rising. Make your name as an all round hard player and hard stayer with the ability to bounce off a morning BFT onto an all ranks rugger game followed by a Reggy Dinner that ends with a gate crash of the local Nurses Ball. On return to the chalets at 0600 hrs, at the helm of a commandeered road roller and with the Hospital Matron as co-pilot,

you should still have the stamina to knock back a bottle or so of Moet at breakfast and will be down at the Gymnasium for a quick sub eight minute RFL by 0830 hrs. Now this sort of performance is what all young subbies are trained for, the problem is that as they mature and age some forget that the spring is no longer in the step, the eight minutes of RFL has drifted back to 10.30 plus and cracking 50 one armed press ups seems to have lost it's allure. These are important warning signs, your life will be much easier once you realise you are past it, maintain the reputation by all means but don't get trapped into proving it. Verily I say unto you, there is nothing more pathetic than some aging warhorse plunging into inter coy rigger where all he gets is a thorough hiding for his pains. Leave that sort of aggro for the young and the witless.

POWIP NO 5

"TROUBLE SELDOM ARRIVES UNACCOMPANIED".

No doubt about it, when the RQMS reports a missing M59 burner unit this will not be the only piece of grief in your Kingdom and in quick order other little trials will impact in your area. The missing burner will doubtless then lead to a rations scam which will necessitate the unit clerk being recalled from leave. This will then unearth the fact that this worthy has travelled to Whangarei courtesy of someone elses TF Free Travel Warrant and no doubt the Customs will be on your back demanding to know why the unit's mascot, a motheaten goat with a hyperactive libido, has had a starring role in a video they have just confiscated from the padres hut -oh dear me life can become tedious at these times.

POWIP NO 6

"APPLY THE MINIMUM EFFORT TO GET THE MAXIMUM RESULTS".

In the words of our immortal Hugo Fanning, "The reason why we have all this admin poop to do in peacetime is because the firm wants to keep us occupied and out of trouble, (hence the public eye). Once we actually get on active service we can throw all these vols and other crud straight out the back of the Herk as soon as we get past the 12 mile limit". One must admit there is a ring of truth in that statement. A man can spend far too much effort fighting the in-tray, and many do. This is not necessarily the best course of action, any philosopher will tell you that 80% of your effective work is done in about 20% of your time. Look at the trivia that appears at full flood tide in your in tray each morning, most of the piffle should never have been sent, it is merely evidence of some Biro Pilot trying to justify his over-ranked posy in a desk which has a corner view. Delegate downwards, remember the technique of finding some beardless youth to expend his energy on organising returns detailing "The number of TF soldiers who have passed School Cert Woodwork" or "The ratio of single soldiers with motorbikes to the number of marridies with pushbikes".

POWIP NO 7

"THE PEOPLE WHO MAKE DECISIONS ARE USUALLY THE LEAST AFFECTED BY THEM".

How many times have you received a missive from "them" up there directing you or your organisation to execute an instruction which is of such

insanity that quite obviously the desk jockey who manufactured it is totally unaware of the conditions extent and certainly has no intention of ever having to suffer the consequences. Minor irritation of having the team, (lurking in centrally heated offices at Fmn HQ), delaying the introduction of winter dress till the end of May, whilst the lads in the outposts are freezing their extremities off in drafty billets. Even more tiresome are the Legal Eagles, of varying note, who appear to be employed with the prime task of shooting all else in the lower extremities. It is appalling to think that just a few years ago one could run an orderly room with 50 accused, stoically standing there in close order, find the bloody lot guilty and have the CSM whip them away for seven days bastardisation, all within five minutes. Good Heavens, today you even have to give the criminal wretches an option to plead "Not Guilty". How can real justice be done within those sort of straightjackets?

Well this is only a small sampling of POWIPs but I am sure you young disciples will become all too familiar with them, seeing as it's that time again to get this poppycock off to the Editor, I will take a rest and consider the winter campaign season. With the horrendous rumours zinging around the traps, post the 'Q' report, there is going to be endless entertainment over the next few months, watching the peer group floundering to justify their, or their unit's, existence - I predict an absorbing phase for those voyeurs of the military experience. All the best.

IMPLEMENTATION OF THE ARMY COLLECTIVE TRAINING SYSTEM
WITHIN THE NEW ZEALAND ARMY

by

Captain G.P. BROSAN, RNZIR

Capt Brosnan joined the NZ Army in 1982. He served with 2/1 RNZIR prior to attending and graduating from OCS Portsea in 1984. He served with 1 RNZIR until 1986 and returned to the RF Cadet School as a Pl Comd. In 1987 he was appointed the Senior Instructor of the School of Regimental Training.

- References:
- A. School of Regimental Training Collective Training Precis
 - B. NZ P9 (The NZ Army Plan)
 - C. Army 7/1/PD dated 30 Nov 84 (The Ready Reaction Force)
 - D. Army 7/1/PD dated 12 Jun 85 (The Integrated Expansion Force)
 - E. LF Comd 4500/1 dated 18 Mar 87 (Training Directive)
 - F. 1 TF Comd Directive dated 17 Apr 87
 - G. ATG 4980/1 dated 29 Jan 88 (Directive to Design Training)

INTRODUCTION

The Army Training System (ATS) comprises two sub-systems; the Army Individual Training System (AITS) and the Army Collective Training System (ACTS). Individual training is that training which is taught to individuals to enable them to fulfil a specific appointment or rank. Collective Training is defined in Reference A as, 'that training which prepares members of all ranks to perform those team or unit tasks essential to the accomplishment of a units operational mission. Collective Training requires a combined effort from a team which demonstrates the separate roles of individual and unit elements as well as the total effort.' Both types of training have their own system of design and implementation which have been developed from Australian Army doctrine since the mid-1970's.

The NZ Army now conducts almost all of its individual training in accordance with the AITS. The ACTS has not yet been fully adopted and implemented at any level from LF Comd down to operational units and the overriding consequence of this is that unit and formation training currently being conducted in the NZ Army is to varying degrees both ineffective in design and inefficiently conducted. This lack of commitment to adopting the system in its entirety is detrimental to the Army's ability to being capable of achieving its operational missions in times of war. The consequence of this situation to Training Developers qualified by the School of Regimental Training (SRT) is that they are unable to fulfil their roles within the system, in accordance with the training they have received.

IDENTIFICATION OF THE COLLECTIVE TRAINING REQUIREMENT

Responsibilities

Defence objectives are stated in the 1987 Review of the Defence Policy. These objectives have been analysed by Army GS to determine what the requirements of the Army will be in order to achieve these objectives. As a result, the Army has derived a function together with a number of roles. To fulfil its roles, the Army has designed an operational structure consisting of a RRF, IEF, FMG and Sustaining Forces along with a command structure consisting of Army GS, LF Comd and Spt Comd.

The roles of each element within these structures have been further defined and analysed by Army GS and the findings documented in References B, C and D. It is these documents which form the basis for all command and training matters declared by either LF Comd (which is responsible for collective training) or Spt Comd (which is responsible for individual training).

Headquarters, LF Comd is responsible for all operational units and, in particular, the collective training conducted by these units. It commands with the assistance of two subordinate headquarters, 1 TF and 3 TF. 1 TF consists primarily of IEF units whilst 3 TF comprises mainly RRF units.

Collective Training Requirement

In order to identify the collective training requirement, LF Comd is required to analyse the roles given to both the RRF and IEF in order to determine what missions each formation must be able to achieve in order to fulfil its roles. These missions should then be formulated in Collective Training Objective format and presented to the respective commander.

Collective Training Objectives

Collective Training Objectives consists of three essential elements:

- a. collective performance statement;
- b. conditions; and

c. standards.

The purpose of such an objective is to define precisely what a unit must be able to perform, under what conditions it must be able to perform, and what standards will be accepted before the unit is deemed effective.

Once the commanders of 1 TF and 3 TF have had their formation missions identified, they must conduct an analysis to determine precisely what each unit in their formations must be able to achieve so that the formation can effectively achieve its missions. In all cases, the formation will only be effective if all of the units comprising that formation can achieve their missions ie, if 2/1 RNZIR is unable to conduct search and destroy missions in close country, then the RRF could be deemed ineffective in that phase of war. Likewise, if 1 NZSAS Gp cannot conduct close reconnaissance missions in enemy territory, then the same conclusion could be drawn.

It is important that when mission analysis is conducted, only those essential missions are identified. If inappropriate or unnecessary missions are identified, and training occurs, then that training is considered both ineffective and inefficient. For this reason, mission analysis must be conducted at the highest command level.

Once missions are identified and expressed in Collective Training Objective format, they are then presented to all units within the formation. Each unit analyses its requirement to determine what tasks its individuals, leaders, sub-units and the unit itself must perform so that the unit can achieve its missions. This analysis information will then be transformed into individual, leader, sub-unit and unit collective training.

CONDUCT OF COLLECTIVE TRAINING

The conduct of collective training is relatively straightforward. Individuals and leaders are concurrently trained and evaluated. They then converge as sub-units for training and evaluation, and finally the unit is trained and evaluated. This process occurs for every mission identified for the unit. When all units have been trained and evaluated for all unit missions, the formation will come together and training with evaluation will occur for its missions. When the formation can achieve all of its missions to the required standard, then that formation is deemed effective in its given roles.

CURRENT IMPLEMENTATION OF THE ACTS

The NZ Army is not conducting collective training in accordance with the doctrine as described. The principal areas of disparity involve mission analysis, the expression of this analysis in objectivised format, and the design of training to achieve the requirements of the objectives.

Mission Analysis and Methods of Expression

Mission analysis is not necessarily being conducted at the appropriate level. LF Comd has analysed References B, C and D and derived a number of responsibilities for both 1 TF and 3 TF. It has determined a training policy, likely operational setting, and the requirements for individual and collective training. This information has been expressed in Reference E, a training directive. This directive does not specify in precise terms what missions each Task Force must be able to achieve. Although it directs that training objectives will be developed in conjunction with the preparation of exercise papers, it is this information which is immediately required by the commanders of the Task Forces so that they can analyse the training requirement in accordance with how they are to be evaluated. In its present form, the commanders of the Task Forces do not know how they are to be evaluated or in what specific areas.

1 TF have conducted a subsequent mission analysis and expressed its findings in a training directive (Reference F) to all operational units under command. The information contained in this directive primarily concerns policy and roles. It specifies guidelines for the design of training and priorities, all of which will assist the commanders of the 17 operational units comprising this formation. What the directive and its references do not specify is what missions each unit must be able to achieve, under what conditions it must perform and to what standard it must perform before Comd 1 TF considers it an effective element of the IEF. Further, it does not specify a plan for the conduct of unit evaluation, a critical factor if commanders at all levels are to assess the effectiveness of their units.

Consequences of Current Implementation

The consequences of References E and F are firstly that the responsibility is placed upon unit commanders to design the training to meet their perceived expectations of their units by formation commanders. This may be considered delegation of authority to the lowest level and therefore a good example of rank responsibility, however, the disadvantages outweigh the advantages. Although commanders have received the responsibility of designing training down to unit level; because their units are only elements of a larger formation, their decisions on 'what to train' may prove detrimental to the ability of the formation to achieve its missions.

An illustration of the preceding point is that in Reference F, the four infantry battalion commanders are given responsibilities which include training. The guidelines given in the document include priorities, the general training theme, collective training guidelines and, in Reference G of the document, the general capabilities of an IEF infantry battalion. The four commanders are likely to design four different training programmes for the period based on what skills and knowledge they perceive to be necessary to fulfil their role in the IEF. They are informed very generally about the conditions under which they will be required to perform and are given no standards to reach, thereby indicating when they are deemed effective. Details on any missions which are to be evaluated during annual camps are also not advised. The consequence for the IEF is that its four Territorial Force infantry battalions will be trained to achieve various missions, some of which may not be essential. They will also achieve varying degrees of effectiveness based upon the knowledge, experience and expertise of the battalion commanders and their staff. A battalion commander may consider that because his unit covered a phase of war some time earlier, it need not be covered again. This may prove correct but unless that unit is given objective standards against which to measure itself before discarding the need for training,

it will not be capable of determining whether or not it is currently effective. For this reason, Collective Training Objectives are a diagnostic tool.

A further consequence to the unit commanders is that the information contained in a Collective Training Objective forms the basis for development unit 'Standard Operating Procedures' (SOPs). Without this information, commanders will have to assume a large degree of information which will determine how they structure their SOPs for various environments.

Another consequence of the current system is that units attached to the RRF but located within another formation are not always receiving training directives from the commander who will be employing them on operations. QA Sqn, which is located within ATG, has attached to the RRF one Light Armoured Troop, along with HQ, Administration and Light Aid Detachment elements. The remainder of the Squadron forms part of the IEF. Reference G states that Comd ATG is responsible for issuing a training directive to QA Sqn. A Spt Comd formation headquarters is therefore directing what training QA Sqn requires to be an effective element of both the RRF and IEF. This analysis should be conducted by the respective formation commanders because what missions they require QA Sqn to achieve will directly affect the ability of their formations to achieve its missions. Comd ATG, with the assistance of his advisers, may not be capable of meeting this requirement.

Army Training and Evaluations Plans (ARTEPs)

To complement the current system, ARTEPs have been developed to provide training guidelines for commanders. These may prove useful when designing training but are not necessarily designed for the requirements of recent mission analysis. They have been superseded by Collective Training Guides (CTGs), but a problem exists whereby these guides do not detail individual and leader training requirements. The designing of CTGs as taught at SRT does provide details down to this level but this teaching has yet to be implemented at appropriate levels.

THE ACTS

General

The ACTS currently being taught to training developers will alleviate all of the disadvantages detailed as a result of the system presently being incorrectly implemented. It will guarantee that training conducted is both effective and efficient. The Army's command and training organisation is capable of correctly adopting the system with careful management. The main area of concern appears to be that commanders at many levels are not familiar with the principles of the system or how to apply them. This introduces a barrier between commanders and developers which is detrimental to the professional development of the Army.

Advantages of the ACTS

The advantages of the ACTS to the various levels of command are:

a. LF Comd.

- (1) Provides needed documentation.
- (2) Provides answers to the following questions:
 - (a) What should the units in LF Comd be able to do to perform successfully in combat?
 - (b) What are the units' current capabilities?
 - (c) How can units breach the gap between desired and current capabilities?

b. Units.

- (1) Tells the Unit Commander what to train.
- (2) Provides a diagnostic tool for determining how much to train.
- (3) Provides a prescription for the evaluation of training.
- (4) Provides a tool for determining the effectiveness of training.
- (5) Provides a tool for identifying training deficiencies.
- (6) Minimises unit failure due to failure of key individuals or sub-units.
- (7) Encourages the decentralisation of training responsibilities to the lowest level.

c. Individual Soldiers.

- (1) Puts into perspective the relationship between the soldiers' job and the collective jobs at the unit. Training becomes mission-oriented.

d. The Army Schools.

- (1) Provides a school to unit link.
- (2) Confirms mission-essential tasks which can be taught through the AITS.
- (3) Confirms the standards which must be achieved at Schools.

Teaching the ACTS

The ACTS is currently taught formally by SRT on the Training Development Course and the RF Grade 3 Staff and Tactics Course. Two other options available to ensure that users and supervisors implement the system correctly are firstly, it is taught on the RF Grade 2 Staff and Tactics Course and secondly, commanders at sub-unit level are directed to attend the Training Development Course.

CONCLUSION

The .ATS is a systematic and methodical approach to the analysis, design, conduct and evaluation of both individual and collective training. It has been adopted from the Australian Army and developed to fulfil the requirements of the NZ Army. The system is currently fulfilling the individual training requirement but is not being implemented correctly by commanders to fulfil the collective training requirement.

The principal problem is that the analysis of missions is not being conducted in accordance with the system, nor at the appropriate command levels. The consequence of this is that missions that are critical to the achievement of roles are not being identified precisely and lower commanders are having to perceive what missions they could be expected to achieve on operations. In some cases, commanders are not even operationally responsible for the units that they are directing. The second problem is that analytical data is being inaccurately and non-specifically expressed to subordinate commanders. This results from mission data not being expressed in Collective Training Objective format. The third problem is that unit training is not necessarily being designed effectively or conducted efficiently due to the fact that current training directives do not appear to specifically detail the precise training requirement. The use of ARTEPs does not solve this problem. A progressive evaluation plan for training also appears to be lacking in detail for many units. The fourth problem is that qualified training developers are unable to be fully utilised because the present system cannot accommodate all of their knowledge and skills.

The current organisation of the NZ Army appears capable of implementing the ACTS in its entirety. Its advantages far outweigh the disadvantages. Unless it is fully adopted then that training which is preparing the NZ Army for war will continue to be, in varying degrees, either ineffective or inefficient.

THE ARGUMENTS FOR AND AGAINST DETERRENCE

by

Captain J.L. Liddell, BA, Dip Phys Ed, RNZIR

Capt John Liddell was commissioned into 3 Auck North in 1978. In 1985 he took up the appointment of Second in Command Territorial Company, Waiouru Training Depot on the Special Service List. Since then, Capt Liddell served as Intelligence Officer and Company Second in Command in 2/1 RNZIR. In 1987 Capt Liddell transferred to the General List and currently serves as Adjutant, HQ Burnham Camp.

There is an ancient Roman axiom that proposes that a nation desiring peace must always prepare for war. This responds to the political realisation of the second law of thermodynamics, that is that a country allowing a defensive vacuum to exist invites the aggression of other nations against it. These concepts imply that the best way to preserve peace and security is to have an effective defence of it. A potential aggressor is therefore confronted with an unacceptable cost should he attack. This is the concept of deterrence.

In modern times deterrence has been largely thought of as the nuclear strike capability of the great powers. Deterrence in this sense refers to the assured destruction of an opponent should he launch a nuclear attack. Such assured retaliatory action would probably signal the end of civilisation, if not all life on this planet. The obvious costs and implications of maintaining such deterrence has therefore become the subject of much polarised debate. The two sides are represented by those who accept deterrence as the sole workable solution to world security and those who believe disarmament is the only answer.

This essay will assess the arguments for and against deterrence and suggest which of these is the more persuasive.

The body of opinion against deterrence as a national policy has gathered momentum with the escalation of nuclear arms. Although such opinion centres on nuclear weapons it also applies more generally to conventional forces. Arguments of this kind tend to be deontological in nature and usually focus on the ethical aspects against the use of arms.

A world without weapons is a world in which war could not take place. Disarmament would result in a truly peaceful world in which war could not take

place. It is the idea that is at the heart of all protests against the maintenance of arms. A policy of deterrence which requires nations to have military forces is therefore abhorrent to those who seek peace through disarmament.

The opponents of deterrence contend the absolute immorality of nuclear weapons. They say that to threaten anyone with weapons that destroy all mankind, innocent or not, is perhaps the ultimate immorality. This logic is further extended to drawing no distinction between the stated willingness to use such weapons and the use itself.

Deterrence comprises of both the sum of military hardware and the perceived resolve to use it. It is necessary therefore to convince and display to other nations the willingness to act violently if pressed. It is therefore casual that the possession of major military forces may produce confrontational and aggressive stances by nations in international affairs. This situation created by the policy of deterrence creates tension and may encourage the very war it is designed to prevent.

A policy of deterrence creates the necessity of matching ones own military capability with that of potential aggressors. In the age of technological and economic progress, production and maintenance of such forces is an ongoing requirement. This inevitably leads to escalation which is one of the most costly and dangerous facets of maintaining a deterrent. It creates firstly, a huge economic burden, secondly, increasingly large and destructive military forces, and thirdly it produces a potentially unstable environment in which war may start, based on the perceived advantage or disadvantage a foe may have gained. Deterrence as New Zealand's Prime Minister summarised.

"Creates a burden of confrontation which could end in accident or misconception of an adversary's intention".¹

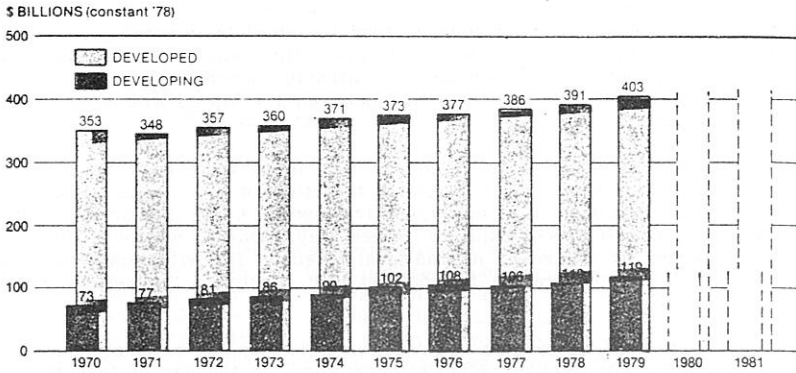
The previous paragraphs allude to the economic cost of deterrence. Military spending in the USA represents \$40 per \$100 of newly created capital. This figure is estimated at R70 per R100 in the USSR. Globally such spending would in two days provide housing and food for the entire undeveloped world for one year.² The reality of this situation is seen as a massive condemnation of the arms race, the price of which is widespread human misery.

Finally the opponents of deterrence cite the more than eighty small wars that have occurred worldwide since 1945. Deterrence it is said has failed to stop such wars, whereas disarmament would have prevented their occurrence. Deterrence has therefore simply failed to achieve its aim of preventing war.

1 'Foreign Affairs Review' April - June 1985, p 12.

2 United Nations Figures 'New Statesman' April 1987, p 16.

Table 18.2 WORLD MILITARY EXPENDITURES



SOURCE: Arms Control and Disarmament Agency. *World Military Expenditures and Arms Transfers 1970-1979*, p. 3.

Table 1

The proponents of deterrence see themselves as taking a 'realist' approach to world affairs. Their view was well represented by Malcolm Ross, a Post Graduate Fellow of The London School of Economics who said,

"It is all too easy for the enthusiastic amateur to overlook and ignore the realities of international life. Statesmen must be concerned with the world as it should be".³

The realist points to history which shows nations do act aggressively towards one another. Where there is not credible resistance to such aggression, wars start.

An often quoted example of this was Britain and France's lack of resolve in deterring Hitler and his expansionist policies in the 1930s. Seeing there was no military force, or determination to use one against him, Hitler successively invaded large parts of Europe. The appeasement policy of the major European nations resulted then in the Second World War. The proponents of deterrence would contend that this war could have been avoided if a resolute policy of deterrence had been pursued.

A more recent example of the success of deterrence is cited in regard to the two superpowers during the past 40 years. The USSR and the USA have found themselves thrust together as the major international opponents in world affairs. The potential for a major war has been extreme. The inevitability of

3

'NZ International Review' 1986, p 36.

such a war has been avoided, many would say, by the nuclear forces on both sides.

The existence of a deterrence has therefore curbed aggressive aspirations in fear of escalation into a nuclear war. The care with which crises between the two powers have been handled (eg, Cuban Missile) further tends to support this argument.

The essential proposition above is that deterrence prevents war. Although small wars have taken place, these have been prevented from escalating into all out war by the superpowers. The lives saved and peace promoted has been considerable as a result. A large conventional war alone in Europe would probably destroy Europe and cost 80 million lives. Deterrence policies have therefore contributed markedly to producing a peaceful environment in which social, economic, and political progress has been made.

In 1985, the then Leader of the New Zealand Opposition, Jim McLay, said,

"The existence of nuclear weapons is a very unpleasant fact. Deploring their existence however will not make them go away. They cannot be uninvented".⁴

This statement addresses an important argument for continued deterrence. If the major powers were to abolish all their nuclear weapons (or indeed conventional weapons) the knowledge and capability to rebuild them would remain. Any small irresponsible state (or even a terrorist organisation) could rapidly dominate world affairs by the possession of even a few powerful weapons. Who in such circumstances would 'police' unilateral disarmament? Advocates of deterrence point out that some form of military force, including a nuclear capability, is needed to achieve extensive disarmament. The major powers would at present be the obvious candidates to responsibly control and possess such a deterrent force.

The foregoing discussion introduces nuclear deterrence as a morally acceptable policy in the process of general world arms control. Recently the world has experienced a growing détente amongst the great world powers. Fundamental to détente has been the introduction of extensive arms control treaties. START, SALT, INF and other arms agreements have therefore grown out of an environment in which deterrence has been practised. This suggests that deterrence policies have created a stable world situation in which nations have developed sufficient security to encourage such treaties. The realists would therefore suggest that such policies have promoted peace but not at the expense of long term world security.

In conclusion the proponents of deterrence argue that history proves deterrence works. Where deterrents have existed, (as with the superpowers) war has been avoided. Where it has not, (Hitler's Europe in the 1930s) war has soon ensued.

Both the opponents of deterrence and the realists desire the same end, that is world peace. The fundamental difference between the two is the method

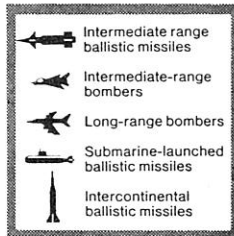
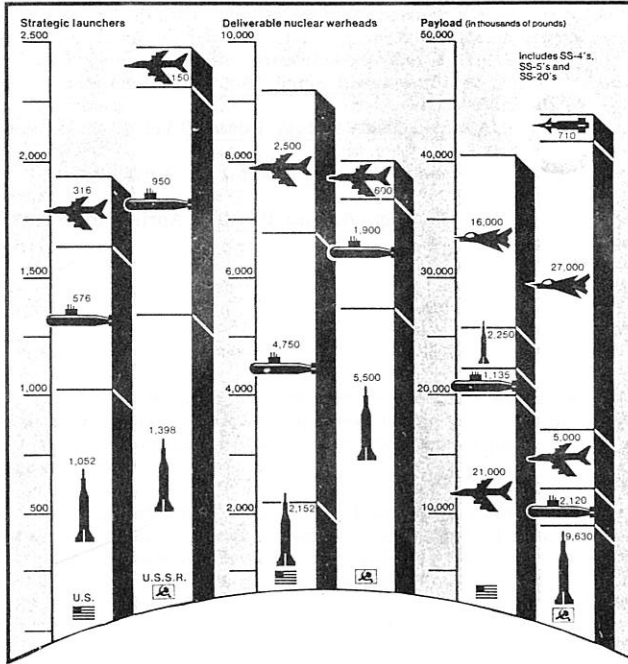
by which this can be achieved. The Idealists reveal a major weakness in their argument against deterrence however. A world without weapons is undoubtedly a desirable state. The ethics of killing other human beings are abhorrent, as to, are the weapons of mass violence. None of this is in dispute. What the Idealists lack are the practical policies of how to achieve a disarmed and yet stable world order. Put simply their argument fails to suggest the methods by which their principles can be attained.

The strength of the realist position is that it provides the practical and proven solutions to world peace. The major weakness is that uncontrolled adherence to deterrence can lead to runaway arms escalation. The Idealists have strength in rightfully pointing out the costs and dangers of maintaining armed deterrence. What is painfully clear however, are the lessons of history and the problems of enforcing unilateral disarmament. Such problems reflect nations latent aggressiveness towards one another in the absence of a deterrent. The fact is also apparent that the ability of nations to build, or rebuild, nuclear and conventional weapons cannot be removed. The realists' policies of balanced limitation and reduction combined with credible deterrence are clearly the solution.

The potential for war will exist for the foreseeable future. Even full and total nuclear disarmament today would be no guarantee that such weapons would not be reintroduced tomorrow and is certainly no barrier to catastrophic conventional war. A deterrent to warlike and irresponsible nations must be maintained. In modern times this must include nuclear weapons. What is equally essential however, is the continued control of nuclear arms through verifiable arms control treaties.

In conclusion, the proponents of deterrence appear to have recognised the realities of the current world. They propose a policy which is tested and if managed well can promote peaceful co-existence.

In this sense the evidence suggests they have the more persuasive argument. It would be a sad world however in which we could not aspire to the virtues of the Idealist's position. Perhaps total disarmament can be likened to the stars for which we can aim. Deterrence policies provide us with a vehicle on which we can travel somewhat towards them in the current world.



SOURCE: *The New York Times*, March 21, 1982. © 1982 by The New York Times Company. Reprinted by permission.

Table 2

BIBLIOGRAPHY

1. Spanier, John 'Games Nations Play'. Fifth Ed, Hold Rirehort
Winston.
2. Vadney, T.E. 'The World Since 1945'. Pelican Books 1987.
3. 'NZ International Review' Vol 1985 - 1988.
4. 'New Statesman' Vol 113, April 1987.
5. 'Foreign Affairs Review' April - June 1985.

"HORSES FOR COURSES"

An intercepted letter by

Captain M.J. Davies, RNZCT

GS03 Tpt, Army GS

I have received your letter concerning the governing of the V8 engine in the Landrover 109. Hopefully my comments will explain some of the points raised by you, and provide some insight into the rationale behind the Landrover and its V8 engine.

Firstly, and from memory (so I make no claims of accuracy here), the engine was originally a Buick design of the early 1960s. It met with little success in the USA mainly because compact cars (which at 3.5 litres capacity it was used to power) were not all that popular at a time when the muscle-car race was on between American manufacturers. The engine was used and developed by Rover of England, in what were for the British and European markets large, more upmarket cars. The engine was used in the Rover V8 and Rover SD1 cars, Morgan and many other specialist sports cars, and the Range Rover 4x4. It eventually was used in the Landrover 4x4 range, and was also developed and enlarged into the 4.4 litre V8 used in the Australian Leyland P76. So, as you can see, the engine was mainly intended for use in passenger cars.

The 3.5 litre V8 used in the Landrover 109 provides around 90 hp, in the Range Rover 125 hp, the Rover V8 140 hp and the SD1 160 hp (the last Vanden Plas variant may have been more), and various specialist manufacturer applications have seen it deliver over 200 hp. Not only has the available horsepower varied considerably in different applications, but the torque developed has also. As a general rule, the higher powered versions developed their peak torque at higher engine revolutions than the lower powered versions. The higher powered versions had more definite torque-peaks, with more significant drop-offs in torque generated either side of this peak-torque-point in the rev-range.

The important thing about torque and 4x4 vehicles is that torque, and not horsepower, is the major key to off-road performance. For this reason diesel engines, which litre for litre produce less horsepower and more torque than petrol engines, are generally much more suitable for serious off road vehicles. There are of course plenty of petrol powered light 4x4 vehicles around. This is because diesels are more expensive to buy than petrol engines, and frequently

result in lower on-road performance due to lower horsepower weight for weight and litre for litre, when compared to petrol powered vehicles. Also there are a lot of petrol powered 4x4 because petrol engines are readily available from manufacturers larger car and light commercial vehicle ranges, and because of "four wheel drive posers" who do not buy 4x4 vehicles on the basis of their off-road capabilities. Clutch engagement torque (really low-down pulling power) is what matters when off-road going gets really tough, not huge amounts of horsepower created at thousands of revs. Tractability in difficult terrain situations will be lost through wheel spin or engine stalling if pulling power is only gained high up in the rev range.

Now back to the Landrovers engine. In the various Rover applications mentioned above, the same 3.5 litre engine is developed between 90 and 160 hp. Generally the major difference was the way the engine breathed, and was fed fuel. The most powerful was fuel injected, the other two had twin carburetors, and our version also has twin carbs. But in our case the inlet manifold below the carburetor has been blanked off with a restrictor plate with only small holes which let the fuel air mixture past. In effect the engine is prevented from breathing as efficiently as it might, but this is only really noticeable at higher revs when the engine wants to gulp more air; at lower revs the affect on power is less noticeable. This has two benefits when used in concert with other factors such as engine timing and the like:

- a. It de-rates the engine and so, in theory, makes it more reliable (our Rovers are unreliable for reasons other than de-rating by manifold restriction).
- b. In our case it makes the engine produce more low down torque, and brings its performance characteristics closer to those of Landrover's diesel engine.

The detrimental effect is a loss in engine efficiency on the road where a more car-like set of characteristics would lead to better performance and greater fuel economy. In essence, our V8 has been made to resemble the very efficient diesels' high torque characteristics by being made inefficient through manifold restriction.

To expand on your analogy to horses: a heavily laden Landrover traversing broken undulating terrain is better off with a de-rated high torque clydesdale, than it would be with a high power racing thoroughbred of an engine. Its less a case of Bonecrusher being made to trot, and more a case of Bonecrusher would stay stuck in the mud whilst Old Ned pulled the cart past him.

With regard to your original perception of governing, it is wrong to regard the V8 as governed in the commonly understood sense. Instead, it is better described^a as a derated variant of the Rover (néé Buick) 3.5 litre V8 family. Governed engines can rev higher if a restrictive control is removed, such as allowing a throttle to open more, or a fuel injection system to deliver more fuel. Such ready removal is less straight forward with the V8 - the restrictor plates would have to be removed, as would a weight moved by centrifugal force inside the distributor which cuts the ignition at higher revs to protect the engine from over revving. If this was done I would think that the carburetors would need to be rejetted for optimum performance, the engine timing changed, and just as significantly, the resultant engine characteristics would no longer be optimally matched to the vehicles gearbox and final drive ratios. Governing is normally used on diesel engines to prevent damage through over-revving. In our case the

V8 clearly has enough power in 90 hp trim to permit soldiers to break speed limits or drive dangerously (blowing it up through over-revving may be more difficult however), although, because it is de-rated, it will tend to wear out more slowly than a higher revving version. This is a very desirable feature in a military vehicle (The Scorpion CVR(T)'s Jaguar engine produces considerably less than the 225 hp found in a Jaguar XJ6 for similar reasons as the Landrover's V8). Your "local expert's" comments on why the Landrovers are governed (de-rated), indicate that they are perhaps less expert than they think. So any thoughts on "un-governing" Landrovers in time for an RRF deployment is academic, as it has never been a feature of intended Landrover employment.

I am sure you will agree that the Landrover 109's V8 3.5 litre engine is a big improvement over the Series II Landrover's 2.2 litre engine in terms of performance. It is important to remember that Landrover no doubt spent considerable amounts of time, effort and money in setting up the V8 engine and drive train to provide the best compromise of vehicle characteristics for military use. It is unlikely therefore that a RNZEME mechanic and his tool kit will be able to provide a quantum leap in vehicle performance. However, for what it's worth, my personal opinion is that we should have selected a diesel engined variant of the Landrover, and if the decision were to be made now I would not favour selection of Landrover anyway.

THE JESUS NUT: A CAMEO ON THE MILITARY CULTURE

For some unknown reason, military helicopter crewmen seem to delight in pointing out to their not so enthusiastic passengers, a particular part of their vehicle's anatomy. This device, so one is told, serves to stop the main rotor blade from unfixing itself from the drive-shaft. Actually, the picture is a little more graphic than that. Remember that the main rotor is the bit which holds the helicopter up in the air, and in one sense, the body of the aircraft hangs off it. Thus, this clever device supposedly prevents the body from separating from the blades and, (along with the bodies of the occupants), falling suddenly to earth.

They call it the 'Jesus Nut'.

For those readers who, perhaps recalling Shakespeare's words about soldiers being "full of strange oaths", detect some hint of sacrilege in this, may I hasten to assure them that the truth is otherwise. The term "Jesus Nut" is one loaded with religious possibility. Indeed, it justifiably describes an article of faith - faith that the confounded thing will do its intended job and stay in its proper place.

Now it seems to me, on reflection, that there are few structures of mankind's invention that don't have a 'Jesus Nut'. That is, a device which serves to hold the whole thing together, and which should it fall, guarantees that the structure will simply fall to pieces. For example, on the cart, it is the axle pin. On a bicycle, it is the large nut at the top of the front forks - and if you don't believe me, try loosening it off before your next ride.

Generations of application have established the military structure in which we serve today. By structure, I don't just mean the tangible organisations of battalions/brigades, squadrons/wings, and flotillas/ fleets, etc, but rather that greater entity which is the sum of spirit, professionalism, commitment, and so on. However, we would all acknowledge that the component parts are people, and that the nuts and bolts which bond them together into a structure, are their various motivations. Where, then, is the 'Jesus Nut' for the Military structure? Where is that article of faith?

We know that the hub of the military structure is unquestionably the Oath of Allegiance which all service members must volunteer in order to join. The Oath is also the plank upon which military law is founded. Our structure is considered to be an 'authoritarian' one, hence the weight given to the law, and from the law, the concepts of discipline which are the hallmark of the Military.

It is popular in our wider society, to question the need for authoritarian systems. Yet in our case it makes a great deal of sense. (Certainly as much sense as a 'Jesus Nut'). The ultimate employment of the Defence structure is to participate in, and hopefully win, wars at the State's behest. An armed force needs to operate as though of one will. To be

otherwise, would simply promote dissention and confusion and enable the enemy to seize the critical advantage. There is no purpose in losing wars, and I don't recommend that you try.

There are those who would suggest that the 'one will' could be distilled from group discussion and negotiation. But you and I know that the numerical scale of our forces along with the diversity of opinion of our people would make such an outcome impossible. Nor would time permit the process when the enemy is breathing down our necks. (Imagine asking the enemy to 'hang on a minute, mate, while we negotiate what we want to do to you') Battlefields are also 'moveable feasts' in the sense that they are fluid and therefore encompass a constantly changing range of opportunities and threatening scenarios. How could we apply systems of discussion and negotiation to determine our aim, either in anticipation of battlefield contingencies which may occur, or when they are actually happening. The short answer is that we can't, and that is all there is to it.

The 'one will' is, therefore, imposed by a legal authoritarian structure and is enhanced by training and those human behavioural processes referred to as 'Leadership'.

In our military culture, this 'Leadership' is worthy of another look as it is strongly underwritten by some very ancient ethical concepts. In this regard, we have already mentioned the Oath of Allegiance but now we want to home in on the bit where we all swore to "faithfully observe and obey all orders of (you-know-who, and of) the officers set over me". We can see that this represents the hub of legal authoritarianism but it doesn't seem to promise anything of 'Leadership'. It is, however, balanced by the commission which the officers have to accept in order to become officers. Again, the commission is an ancient concept founded in ethics. In accepting the commission, the officer also accepts the obligations that the commission imposes through its text.

One of these obligations states: "You are at all times to exercise and well discipline in their duties both the inferior officers and other ranks serving under you, and use your best endeavours to keep them in good order and discipline". The actual process of 'good order and disciplining' is interesting, to say the least.

Should a group of soldiers, for example, demonstrate an on-going inclination to get into trouble, thereby attracting the attention of the due weight of military (or civil) law, their officer will invariably end up at odds with the superior officers. They will contend that there is a failure (and we military tend to view failure very unfavourably) to 'look after the chaps', ie keep them in good order and well looked after so that they would not want to get into trouble. Inherent in this twist is a concept that the officer has failed to establish control over the soldiers and is, therefore, wanting. By the way, in case you're feeling complacent, this concept flows on to include Warrant Officers and Non Commissioned Officers as well.

So it can be seen that the true idea of 'good order and well disciplining' rests upon this business of imposing control - and that is so that the group can be incorporated as part of the 'one will' which drives the structure. How does the idea work in practice? Through a variety of shared training or combat experiences a social contract is forged. It is unwritten. It is unstated. Yet it is clearly understood by all parties involved and can be defined through the process of sharing and mutual support in difficult situations. It is the keystone of the structure and is especially the relationship-bridge between the officers and the other ranks.

For their part of the contract, the soldiery offer obedience and commitment sufficient to the need, so long as that need is lawful and reasonable. (Note that 'reasonable' has a somewhat elastic definition in keeping with the environments of war - but it is definitely not infinite). In return, the officer is expected to 'look after them'. That is, to look conscientiously to the reasonable demands of their personal and collective welfare and safety. This contract is an article of faith. What have I said? Behold the 'Jesus Nut'.

If either party breaks the faith, the consequences will be at least disharmony, and in the worst case, possibly total dissolution of the group hegemony. (Either outcome is a departure from the 'one will' requirement). Where the contract is kept, both parties apply considerable attention to looking after each others' well-being. And because of that, the military structure holds together. All by means of a 'Jesus Nut', an article of faith which makes wonder glue look like sticking plaster.

C.R. Caltrom
1989

THE CLOSE SUPPORT WEAPON SYSTEM
FOR THE READY REACTION FORCE
TO THE YEAR 2005

by

Captain A. Mitchell, RNZA

Capt Alan Mitchell enlisted into the British Army in May 1960 as a surveyor in the Royal Artillery. He served in units in both the United Kingdom (UK) and British Army on the Rhine before returning to the Royal School of Artillery (RSA) to attend the Long Gunnery Staff Course.

During his UK service Capt Mitchell rose to the rank of Warrant Officer Class One, Master Gunner and held the following appointments: Sergeant Major Instructor Nuclear Weapon Systems at RSA; Senior Instructor of Trade Training at the RA Junior Leader Regiment; and Master Gunner of the Young Officer Training Branch at RSA.

Having completed 22 years service with the British Army Capt Mitchell enlisted in the NZ Army in April 1983 and served as the Master Gunner at the School of Artillery in Waiouru. In May 1985 Capt Mitchell received a Quarter Master Commission and continued to serve at the School of Artillery as Instructor of Gunnery.

In May 1986 Capt Mitchell was attached to the Australian Light Gun Project Team (Project Hamel) for four months before taking up his current appointment as the Artillery Projects Officer, Directorate of Equipment Policy, 15 April 1987.

- References:
- A. ABCA QWG Category 1 Concept Paper
 - B. NZ P68 Operational Forces Annex F to Chapter 1 to Part 2

INTRODUCTION

The Ready Reaction Force (RRF) is required to be capable of deploying rapidly within New Zealand's area of strategic interest to counter low level threats. Geographically this area, extending from the tropics to Antarctica, from

jungle to tundra, requires the RRF to be airortable and preferably air deliverable.

Mobility, together with the other basic tactical requirements of firepower and economy of forces, are the basis of the RRF All Arms Force. These tactical requirements may have been overshadowed by the impetuous impetus of the NZ Army in 1986 to equip the RRF artillery with the British 105 mm Light Gun (Lt Gun). Perhaps these well proven tactical requirements could have been more easily satisfied with a less expensive, less sophisticated and more combat efficient weapon system.

In selecting the Lt Gun, the NZ Army may have misinterpreted both the capabilities of Defence's strategic and tactical air transport and the operational requirements.

Mortar systems are employed in other Armies to accomplish similar support tasks to that required of the RRF artillery battery. It is, therefore reasonable to query whether a mortar system could be utilised as a close support weapon system for the RRF.

It is worthy of note that the alliance between America, Britian, Canada and Australia (ABCA), of which NZ is signatory, agreed in May 1988 to work together to identify the close support weapon system for light forces for the year 2005 and beyond. Canada had produced the concept paper (Reference A) which was based on a 105 mm gun system and also failed to mention low level operations.

All members of the Quadripartite Working Group (QWG) agreed that:

- a. 105 mm should not be allowed to dictate the future close support weapon system because of the unnecessary limitations that calibre placed on the investigations particularly in respect of ammunition families; and
- b. the paper should specifically include low level operations.

My paper therefore assumes that due cognisance will be taken of future developments in this QWG paper and that the era under discussion is up to the year 2005.

AIM

The aim of this paper is to determine whether the Lt Gun is the most appropriate close support weapon system for the RRF to the year 2005.

GUN VERSUS MORTAR

The artillery element of the RRF is 161 Battery (161 Bty) of 16 Field Regiment (16 Fd Regt) whose role, as stated in Reference B, is to engage targets of immediate concern to the units of the RRF and provide timely, intimate offensive and defensive fire support. To fulfill this role, 161 Bty are currently equipped with six Lt Guns.

In this paper the Lt Gun will be evaluated against a self-propelled 120 mm mortar system under the categories of:

- a. equipment characteristics;
- b. combat efficiency, including:
 - (1) ammunition,
 - (2) manpower, and
 - (3) survivability;
- c. deployment characteristics; and
- d. cost effectiveness.

Equipment Characteristics - Lt Gun

The Lt Gun was designed, by Royal Ordnance UK, to replace the 105 mm Pack Howitzer for light forces deploying to the flanks of NATO. The equipment needed to be lightweight and capable of being air-dropped (Parachute Brigades) or carried by helicopter (Commando Brigades). The towing vehicle, an integral part of any towed artillery piece, selected by the British Army was the 1 Tonne Forward Control Landrover. This vehicle, like the gun, was air-portable, capable of being air-dropped and within the lift capability of the UK Defence forces support helicopters.

The NZ Army selected the standard 1300L Mercedes Unimog as the Lt Gun towing vehicle based on its load carrying capacity, cross country capabilities, and commonality with the remainder of the fleet. More recent experience with the carriage of first line ammunition and general mobility within NZ has resulted in the upgrading of this gun tractor to the 1700L Unimog within the RRF Bty. On both occasions, consideration of overseas deployment in RNZAF transport aircraft seems to have been either ignored or dismissed as being insignificant. Reference A clearly states that the RRF should develop and maintain the skills required to deploy operationally within the permitted time frames. A C130 can only airlift one Lt Gun and one Unimog in one load therefore any overseas deployment could be extremely extended before an effective close support weapon system was available. A minimum of three guns is considered an effective fire unit.

The Lt Gun, in the 1950s when it was designed, was state of the art metal technology. The manufacturing process for the trail assembly has, to this day, never been reproduced or improved in any production gun. Because of this high technology design, the majority of the gun's major assemblies are restricted to a life of 20,000 rounds. This in itself creates additional inspection, maintenance and servicing criteria.

Another design feature was the furnishing of two barrels with each carriage. One barrel fires the American M1 ammunition achieving a maximum range of 11.5 km, whilst the other barrel fires the UK Abbot Mk 2 ammunition to 17.2 km. NZ purchased both barrels; the M1 barrel for use in training and the Abbot barrel for operational use only. The conversion of each Lt Gun from the training to operational barrel, by the supporting workshop can take between two and four hours. Detachment re-training is also necessary to account for the hardware and gun drill differences.

NZ, therefore, has adopted a gun designed for the Parachute and/or Commando Brigades deploying to protect the flanks of NATO with all the

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NZ, therefore, has adopted a gun designed for the Parachute and/or Commando Brigades deploying to protect the flanks of NATO with all the

resources of that size of force available to support its various modes of transport. Army, with its battalion size group, has been unable to capitalise on the Lt Gun's design features because of the deficiencies in the RNZAF inventory, resulting in the facts that:

- a. the gun has never been, nor likely to be, air delivered by parachute into the area of operations;
- b. NZ Defence Forces have no helicopter capable of lifting the gun; and
- c. the selected towing vehicle cannot be air delivered or carried by the current in-service or proposed helicopters.

Equipment Characteristics - Mortar

A more suitable support weapon system for the RRF may be a self-propelled heavy mortar system. There has been various attempts in the past to mount 120 mm mortars on vehicles, and almost without exception a single tube has been mounted in an armoured carrier vehicle.

There is currently on the market a 120 mm salvo mortar which is an autonomous mortar system and consists of four parallel tubes mounted on a Mercedes 1700J Unimog. This system resulted from detailed studies of the advantages and drawbacks between a mortar and a multiple barrel rocket launcher. The four three metre long 25 calibre smooth bore barrels are mounted in line on a common base plate.

The all-up weight of vehicle and weapon system is approximately 900 kg and is capable of being airlifted by C130 or CH47 helicopter without preparation. Two mortar systems can be carried in a C130 thereby achieving eight tubes in the area of operations with one flight.

The weapon is placed into action using a hydraulic system powered by the vehicle engine and is remotely, pneumatically fired. The hydraulic assistance provides the weapon with extremely rapid into and out of action times.

This salvo mortar is capable of firing any of the current range of 120 mm mortar ammunition and does not require barrel conversion or detachment re-training prior to operational deployment. Furthermore, being a mortar system, tube replacement and/or maintenance is simple and easily carried out.

Equipment Characteristics - Summary

An equipment comparison table is contained at Annex A, and it is apparent from this table that the two systems are reasonably comparable except that:

- a. the Lt Gun required additional preparations for operations, and
- b. two mortar systems can be transported in a C130 compared to the one Lt Gun.

Combat Efficiency - Ammunition

The Abbot Mk 2 operational ammunition system is only available from the Royal Ordnance (RO) in the UK which could lead to supply problems if UK did not fully support the conflict NZ had entered. RO therefore has a monopoly and this is clearly reflected in the cost of the ammunition. A comparison of costs for the standard high explosive (HE) and base ejection smoke (BE SMK) round and the equivalent mortar bomb will be discussed, further.

The American designed M1 ammunition system, used by the RNZA in peacetime training, is widely available throughout the world as is the 120 mm mortar ammunition.

The M1 and the Abbot Mk 2 ammunition systems compare very favourably in the provision of types within the family. Both systems provide HE, BE SMK, Illuminating (ILLUM) and HE Squash Head (HESH). The only difference in the two families is that the M1 system has a white phosphorous smoke (WP SMK) round whilst the Abbot system makes up for this deficiency by providing a coloured smoke round (SMK Col).

By comparison, the mortar has a much larger family including all the types available in the 105 mm families and in addition anti-infra red smoke (SMK IR), anti-personnel (COFRAM), terminally guided anti-tank, extended range rocket assisted HE (HE RA) and practice (PRAC) bombs.

Artillery have strived for years to obtain first round effectiveness, well aware that the surprise effect is singularly the 'lynch pin' in mission lethality and the yardstick by which combat efficiency is measured. The simultaneous impact of four 120 mm shells, whose fragmentation effect is closer to a 155 mm artillery shell rather than that of a 105 mm round, should be considered a better than a 4 to 1 ratio of combat efficiency. Enlarging this comparison to the RRF field battery strength; six salvo mortars, with a total of twenty-four tubes, equates to four Lt Gun batteries. One round fire for effect would result in a single salvo of twenty-four rounds all fired within one second.

The full family of ammunition is outlined in Annex B and by inspection of this table it is apparent that the 120 mm mortar should give the local tactical commander far greater choice and flexibility in fire support.

Combat Efficiency - Manpower

The Lt Gun requires a detachment of seven whilst the salvo mortar operates with only three men. In other words, a single Lt Gun detachment could man two salvo mortars which effectively gives a combat barrel ratio of 8 to 1.

The salvo mortar, being self-propelled with hydraulic assistance for deployment, will not attract the high level of detachment fatigue that is the mark of numerous re-deployments with any towed gun or, for that matter a towed mortar system. History has shown that as fatigue envelopes the detachment, deployment times lengthen considerably and there is an ever increasing repugnance to move.

Combat Efficiency - Servivability

Fire support weapons must move frequently to survive on the modern battlefield. A towed weapon system (including towed mortars) are often less mobile than desired or claimed. A Lt Gun battery requires a prepared position into which to deploy. This involves careful reconnaissance and pre-deployment

preparation by a team of specialists. This, combined with comparative lengthy deployment times and the physical demands on the gun detachments makes this type of artillery vulnerable. Crew fatigue, previously mentioned, is a serious consideration if the 'shoot and scoot' principle was adapted for a towed gun battery or a towed mortar system. Larger Western armies adopted the 'shoot and scoot' deployment principle several decades ago to protect their important self-propelled weapon systems.

The salvo mortar is ideally suited to rapid re-deployments and does not require designated gun positions. Any forest track, jungle lane or asphalt road can easily become a temporary firing position. This together with its high mobility on both road and cross country, easy hydraulic assisted weapon handling leading to rapid redeployment times, provides this self-propelled mortar with far better survival characteristics than the Lt Gun.

Combat Efficiency - Summary

A combat efficiency summary is tabulated at Annex B, and it is worth noting that in terms of ammunition, rates of fire, lethality and detachment size, the salvo mortar is by far the more combat efficient weapon system. Only the maximum range of the Lt Gun exceeds the current range of the mortar but proposed developments in 120 mm mortar ammunition should see that imbalance nullified.

Deployment Characteristics

The Lt Gun deploys into gun areas which are generally a minimum of 500 x 500 metres but can be at least a kilometre square. The bty reconnaissance party prepares the main and alternate positions. A gun bty anticipates deploying into and firing from this position for at least two hours. Even when subjected to incoming fire the bty may still remain and accept the casualties if fire support is required.

The salvo mortar position requires minimum real estate and minimum preparation. Time in any position should be measured in minutes rather than hours with mortar sections adopting the leap-frog deployment principle thereby ensuring that fire support is readily available. A section would probably be three mortars which is four times the number of barrels in a Lt Gun section which should result in enhanced rather than degraded fire support. The salvo mortar, being a self-propelled system, is conducive to on-board orientation and fixation devices, thereby reducing even further the labour intensive, position, preparatory work.

Cost Effectiveness

The Lt Gun in 1986 dollar terms, complete with towing vehicle, costs NZ\$0.800. The salvo mortar, as a total weapon system, costs NZ\$0.520. This sum could be reduced to NZ\$0.400 by converting some of the existing 1700L Unimogs. But for that sum, the mortar is equivalent to four Lt Guns because of its four tubes. Therefore the sum of NZ\$0.400 should be more correctly be compared to the equivalent of four times the cost of one Lt Gun system, namely NZ\$3.200.

The operational ammunition for the Lt Gun is, as stated previously, only available from the UK. The cost of a standard high explosive (HE) round is

approximately NZ\$1250 and this figure is based on quantities of eight thousand. The basic price of the 120 mm HE bomb is NZ\$350. The approximate ratio in favour of the mortar is 4 to 1, which effectively:

- a. quadruples the ammunition available for the current expenditure;
- b. reduces the ammunition costs by a factor of four; or
- c. is a combination of 'a' and 'b'.

In the current economic climate, Defence should be seen to be frugal and endeavouring to obtain best value for the budget with cost effective weapon systems. The cost effectiveness summary at Annex C clearly shows that both capital equipment and ammunition costs have a ratio of 4 to 1 in favour of the salvo mortar system.

CONCLUSION

The high technology Lt Gun was designed under a set of specific requirements as the close support weapon for the flanks of NATO. The NZ Army, in particular the RRF, do not have the same requirements or indeed the resources to match the equivalent UK Commando or Parachute Brigades.

Lack of consideration of the modes of transport for the RRF Bty to deploy to the theatre of war resulted in the acceptance of the general purpose NZ Army cargo vehicle as the gun tractor. This negated the mobility of the Lt Gun and also the mobility potential of the RRF Bty.

The Lt Gun operational ammunition is currently only available from one source of supply which, unless NZ plans to hold sufficient stocks to support any future campaign, could have repercussions if the UK did not support the NZ involvement.

The salvo mortar system, albeit vehicle dependent, is a comparatively simple weapon to operate and maintain and displays a 50% manpower saving when compared to the Lt Gun. A further study of the capabilities of the self-propelled salvo mortar, including the on-board location and prediction systems, should be conducted.

The 120 mm mortar ammunition family is more extensive than the Lt Gun, more widely available, more lethal and less costly. This, together with the improved combat barrel ratio and reduced capital weapon cost, summaries an extremely combat efficient and cost effective close support weapon system.

- Annexes:
- A. Equipment Comparison Summary
 - B. Combat Efficiency Summary
 - C. Cost Effectiveness Summary

EQUIPMENT COMPARISON SUMMARY

Serial	Feature	Lt Gun	Mortar
(a)	(b)	(c)	(d)
1.	Total weight including towing vehicle	8,760 kg	9,000 kg
2.	Helicopter Portable - In service CH47	No Yes	No Yes
3.	Strategic Transport - C130 Quantity per aircraft	Yes 1	Yes 2
4.	Prime Mover	1700L	1700J
5.	Additional preparation for operations	2-4 hrs	Nil
6.	Top traverse in mils	200	300
7.	Equipment Life - major assemblies	20,000 rds	Not Avail
8.	Deployment Times - ↳ Into Action Out of Action	2 mins 2 mins	90 secs 20 secs

COMBAT EFFICIENCY SUMMARY

Serial	Feature	Lt Gun		Mortar
		M1	Abbot	
(a)	(b)	(c)	(d)	(e)
1.	Ammunition Types	HE SMK BE SMK WP Illum HESH	HE SMK BE SMK Col Illum HESH	HE SMK BE SMK WP Illum T/Guide SMK IR COFRAM HE RA PRAC
2.	Maximum Range in Km	11.5	17.2	13 but 15-20 poss
3.	Rates of Fire (sustained) in rds per minute except where stated	3	3	4 rds per sec 24 rds in 50 secs
4.	Lethality - mean area of effectiveness in square metres	318	318	591-818
5.	Detachment Size	7	7	3

COST EFFECTIVENESS SUMMARY

Serial	Feature	Lt Gun		Mortar
		M1	Abbot	
(a)	(b)	(c)	(d)	(e)
1.	Capital Equipment	\$M0.800	\$M0.800	\$M0.520 (\$M0.400 if 1700L modified)
2.	Ammunition -			
	HE	\$200	\$1250	\$350
	SMK	\$800	\$1650	\$485

