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Is There A Shelf Life On Soldiering?
By WO2 R. Krieger

The 3 C's of Life: Choices, Chances, Changes. You must make a choice to take a chance or your life will never change.

Zig Ziglar

Many would argue that the profession of arms in particular soldiering has a shelf life in which your skill set, experience and relevance is valid. If this is true however, why then are some soldiers not able to identify that their period of relevance has expired and they have indeed gone past their use by date? And are they also unable to recognise that their skills and experience may in fact no longer meet the shifting, innovative and diverse training needs required in a modern Army to maintain and train current capability. The purpose of this essay is to provide a mechanism for open discussion in the way we view senior soldiers, the experience they provide, the image they present, the relevance they hold and the future they represent.

At what age is knowledge?

At what age do we assume someone has accrued knowledge? Is a senior soldier measured generally by their age and presumed experience, with little weight given to appearance and competence. If we are to believe that length of service must therefore equate to a depth of knowledge are we also willing to continue to accept that as the standard. An example is a senior soldier or officer who has had over 20 years of institutional knowledge but has not served in a regimental capacity for over a decade, has no current Armoured Cavalry Regiment (ACR) and the wider Combat Brigade exposure, but sits in a Corps current trade or training space writing trade policy or training manuals for capabilities of which they have no knowledge or experience. Was the perceived experience of this individual justification enough to fill said position and do they still hold relevance as the Subject Matter Expert (SME)? One would argue that they are now no longer valid in the planning and delivery of current and future capability.

What is the image of Senior Soldiering?

So what does/should a senior soldier look like? What is the image that we should seek to portray of relevance and experience matched with senior soldiering? As a start point, this person *must* not only appear capable but also physically be able to conduct the array of physical activity of which other soldiers are expected to do. I concede they don't have to be the fittest, but they must be seen to be capable. We cannot and should not be willing to accept an individual who is generally speaking, permanently medically downgraded; overweight and physically unable to be participate in arduous activities. Is that the person we perceive as the experienced senior soldier? There are many soldiers who are already in this category and whose duties place them in positions of influence and leadership, and yet they somehow manage to progress through the ranks of senior leadership. What was their succession based on? Was it the perceived experience of the individual due to their age and length of service as opposed to actual ability?

I argue that particularly those outside of Combat Brigades don't take fitness seriously enough. Fitness is the cornerstone of mental and physical wellbeing, not to mention being key to overcoming adversity (i.e. sustained combat operations). If we want to be serious about our approach to fitness, we should look at suspension of service allowance for those that fail Basic Fitness Assessments/Physical Employment Standards Assessments (BFAs/PESAs). Put simply, if you are physically unable to participate and your appearance does not present as a fit individual you are setting the wrong example for that job, age irrelevant and regardless of experience.

Additionally, the larger the gap between senior and junior soldiers (by age), the greater the rift in each group understanding the other's motivations and needs, making it harder to lead / follow vice versa. Too many people see Army as a superannuation top up and are essentially financial conscripts. They hit ceiling rank / appointment and stay put. This prevents up and coming soldiers from progressing their careers. Maybe we should seek to adopt an up and out policy similar to the United States? Or age barriers like the United Kingdom? There are those who argue that whilst the individual offers no restricted service and meets their obligations they should continue to serve with no limitation of time, it is this mindset that is fundamentally at the core of the issue. Blind acceptance of unrestricted service is in no way proportionate to quality and value of the individual's relevance and must not be seen this way.

Digital Dynamics

In our organisation where we are focused on delivering capability, it *and* you must be relevant to the Army of tomorrow and the constantly evolving digital space in which we exist. The days of developing doctrine and training slaved to models from 10 or 20 years ago when you had relevance are gone. The dynamic changes that digitisation brings means that you must be adaptive, innovative and lateral in creative thinking. You yourself need to be able to 'plug in' to the digital space with first hand knowledge of current and future platforms within service and how they network within wider Army. Only then are you best able to provide capability in a senior soldiering position at the coalface of today's battlespace. The soldiers of mid level leadership who are posting straight from ACR's such as post Troop Sergeants and Squadron Sergeant Majors are best suited to fill these positions.

Generation X and the Millennial Difference

The Australian workforce today spends on average 3.3 years in any particular job. The millennial generation is happier to conduct a "job hopping" philosophy in order to fulfill the needs of their lives in contrast to the majority of generation xers who feel the need to maintain a full and lengthy career that affords primarily financial stability and not particularly opportunity. This means that assuming they start their working life aged 18 (in a part-time role) and are retired from all work by 75, they will have 17 different employers in their lifetime. Based on 3 jobs before upskilling or career changing, this means that they will also have 5 separate careers in their lifetime.

It is now apparent that job opportunity matters more than job security and where flexibility and mobility matter more than stability and job loyalty, the trends that have created shorter job tenure are here to stay. In an era of employment flexibility and empowered workers, employers can no longer rely on job salary and security to attract top performers and retain the emerging generation of leaders.

Young people have always had shorter job tenure than older workers, moving in and out of education, career changing, up skilling, and moving home which impacts on employment. What is unique today is that the bulk of the workforce is following the lead of young people with more retraining, career changing, home moving, and shifting from employment than ever before. Plus with the shift to a more flexible employment market, marked by more temporary staff, contractors, more parents in the workforce seeking flexibility based on their family arrangements, a more empowered and confident workforce happy to leave a job and try for something else. The obvious and logical deduction is that career soldiering no longer meets the relevance of today's workforce and workplace requirements. Why then do we have so many senior soldiers who buck this trend? It drives right to the core of maintaining relevance. Becoming stagnant and no longer value adding does not meet the needs of the current workplace. The younger generation will continue to move into the workforce with expectations of immediate promotion and success regardless of whether they continue to serve.

Maintaining Relevance

There are 3 driving elements that need occur when seeking relevance and subsequent current and future career management. The first and foremost is ongoing professional development. Every soldier needs to keep abreast of current Defence industry trends, developments and changes. Soldiers should seek to complete courses, training and attend lectures to maintain relevance of their knowledge and expertise. Holding the belief that your qualifications obtained 10 -20 years ago still have currency is simply naive in today's rapidly changing army. (If you think this is all too hard and does not fit your lifestyle then your career prospects look poor).

The second element to relevance and career management is networking. Establish relationships with Defence organisations and offer assistance to them in order to aid and develop their intent. Maintenance of the relationships with these organisations and the people within is key as they are likely to be vitally important to your next career move.

The third and final element put simply is "knowledge is power". Paying close particular attention to wider Defence related topics, ensuring you are informed of those hiring and contracting. Opportunities often occur when least expected so being continually prepared with current expertise, qualifications and knowledge of what the employer is looking for is critical to your career development. If you want to avoid career stagnation it is up to you to take the initiative.

Conclusion

We often refer to the term "threat detection"; I think this can also be applied from within. The reason being that the actual detected threat in fact may be *you* due to age; fitness and relevance, all of which should underpin everything you stand for as a senior soldier. We should all be willing to accept our strengths and weaknesses, assess the situation and move aside if need be. You must be able to conduct critical analysis of yourself in order to detect the threat early only then can you take a measured and detailed approach to neutralize that threat. I firmly believe that professional soldiering does have a shelf life. There does and will come a time for all of us where your individual skills, experience and most importantly *you* will no longer be relevant in you current context. It is clear that many soldiers are unable to identify

this and/or are simply too afraid to step away from the safety net Army has provided for so long. I find this disappointing for 2 particular reasons, the first being you are actively denying yourself the opportunity for your own professional growth by seeking challenges outside Army and secondly impeding junior soldiers with great potential the opportunity to enhance capability to Army.

The decision to transition from Army is daunting, no doubt. However the potential to seek opportunity to regain relevance in the workplace is worth the risk and should be grasped if presented. As junior soldiers progress with their own careers they will identify and seek opportunity wherever it may be and potentially separate in order to undertake these opportunities. This should not be viewed negatively as weakening Army but moreover strengthening it, as they will ensure that the delivery of current capability is maintained under their remit then move on to allow a successor to conduct the same.

Let's consider finally Zig Ziglars quote. *"The 3 C's of Life: Choices, Chances, Changes. You must make a choice to take a chance or your life will never change."* Be not afraid to make the choice to find your relevance, be courageous when you take your chance and accept the change that comes.

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Leading millennials in the Australian Army from the perspective of a millennial
By CAPT R. Reynolds

Millennials will leave organizations unless they have good reasons to stay. So you need to give them something to aspire to

COL Robert Carr,
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Millennials' willingness to switch jobs and companies presents a substantial attraction opportunity for organizations. Ultimately, Millennials are consumers of the workplace. They shop around for the jobs that best align with their needs and life goals. More than ever, employers need to know and act on the factors that make their company appealing to these candidates. They have to make it easy for prospects to choose them over their competition.

Rigoni B. PhD, Adkins A

Millennials; lazy, self-centred, and entitled. The concept for writing this paper initially came around due to the observations by my Wing's instructors in regards to the type of trainees that come through as part of their Initial Employment Training before leaving as trained drivers for their Regiments. A synopsis of the dialogue is that attitudes of trainees have changed over the years. This topic has stimulated many discussions in regards to the instructional or leadership techniques that army espouses and their effectiveness with 2017's recruit trainees. In the research of this paper I came to some introspective conclusions. After thinking about definitions and trying to identify and classify issues in regards to training of the millennial generation within in the Army, I came to a startling conclusion. I too am a millennial. How could this be the case, when I do not believe I share many of the stereotypical characteristics of the millennial? Could it be that after ten years of service, the Army has it finally been successful in smashing my square pegs into its round hole? And if so then surely there are better ways of making soldiers out of millennials. This essay will seek to exam some of the leadership trends that organisations around the world have identified to successfully lead millennial employees, both within different militaries and corporations throughout the world. This will be done by firstly looking at the desire to have an explanation before carrying out a direction, secondly why it's important to recognise the motivators of the millennial soldier and thirdly the importance of understanding the differences in generations which work within the same workplace.

The millennial generation is generally stated to have been born between 1984 and 2000 and were raised by attentive 'baby boomer' or 'Gen X' parents who supplied them with bountiful levels of attention and validation.[1] This statement is of course a gross generalisation; however, the millennial generation does display an abundance

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[1] Rigoni B. PhD, Adkins A., (2016) What Millennials want from a new job

of self-confidence and expectation about life that other generations do not seem to share. This means that they generally believe themselves to be of immediate high value within a workforce. They are generally extremely focused on developing themselves and thrive on learning new job skills and professional challenges.[2] Can the army adapt to suit this generation's priorities and exploit their strengths? The Army aspires to be a reflection of Australian society, yet for many young recruits it is an organisation run by 'Gen X' and lead by 'baby boomers' both of which do not share the same broad life priorities with millennials. It is these older generations who dictate the organisations strategic direction, values and processes but the bulk of its ranks, from approximately the O-3 level down, are the majority filled with millennials. So what are some of the strategies that leaders can utilise to harness the millennial soldier?

Okay Sir, but Why?

Why? Why, has not been traditionally a question asked by lower ranks within the Army in the past. Its use implies distrust or a reluctance to carry out a command which can easily be interpreted as a questioning of the authority of the commander. However the millennial mind has grown up receiving massive amounts of information on every topic imaginable. The formative years for the millennial coincided with the digital information revolution and as such millennials generally possess an intrinsic desire to know everything about what they are involved in.[3] The repercussion if leadership is either incapable or unwilling to invest in time to allow the millennial subordinate to contribute or gain complete understanding is that then millennials will generally detach or divest themselves from the situation and are often reluctant to re-engage once they have done so.[4]

Certain situations will of course always necessitate a directive leadership style, combat, being the most relevant example. The problem for the junior millennial comes when senior leaders see every situation as a combat "take that pit" moment and do not allow input by juniors into planning. Ultimately the millennial's question 'why?' is not seeking to question why they need to perform an action but is an attempt to understand 'why' a action has to be done a certain specific way.[5] A number of examples have shown that in those situations where time can allow for collaborative leadership to occur the level of commitment and 'buy in' from junior personnel is greater, resulting in a superior end result. The sense of achievement from a successfully executed plan in which an individual has had relevant and important input appeals to the millennials need for validation and praise.This approach does require a level of maturity from senior leaders and a willingness to entertain ideas other than their own; however, will often result in innovative ideas and

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[2] Collaboration by FINRA Investor Education Staff, (2015) Military Millennials: What the Research Reveals
[3] Meier M., Col. Carr R., (2017) How the US Army Recruits and Retains Millennials
[4] Collaboration by FINRA Investor Education Staff, (2015) Military Millennials: What the Research Reveals
[5] Humbard K,. (2017) Leading Millenials in the Military

solutions to problems. Keith Humbard states 'Ingratiation is best used in moderation.[6] It is important to avoid validating their affinity to believe that they are indispensable and its overuse could lead to a lack of respect from subordinates'. This style obviously comes with some inherit risks within Army's context. Using a collaborative approach to facilitate subordinate 'buy in' with a specific plan is particularly risky when working with millennials as studies have shown that millennials as a group do not separate their personal lives with their professional. As such failure for Millennials can come hard and is not easily let go.[7]

Recognise Ambition and Expectation

Millennials are a generation with probably the greatest sense of expectation of any group yet experienced in world history. They are the product of for the most part 'baby boomers' or 'Gen X' parents and have been raised in a supportive parenting environment where they have been provided with all their needs and desires. This can mean that the level of expectations that millennials bring to the workforce it high. It is this expectation that has earned then the title of being 'entitled'; however, this up bring has also created a number of opportunities. Millennials generally have a strong desire to make a difference in the world; they are generally very good team members and easily fit into an inclusive or participative style of team work. Manganaro states that this stems from adolescent years where many young millennials participated in school activities or sports which promoted the group and gave equal acknowledgement to all participants. They want to be part of the group. They dislike selfishness and are oriented toward volunteerism.[8]

Ambition is not always a negative concept within the Army. Ambition can promote competition and can enhance motivation to achieve; however, it must be channeled correctly if it is to have a positive effect upon an organisation. Meier further states that it is important to temper ambition with realism whilst not destroying the millennials' ingrained ambition.[9] If millennials are informed of realistic expectations of Defence life and have a true understanding of what opportunities long term service can offer most millennials will willing submit to service life. The chance to be given higher education and specialist training on cutting edge technology is a real motivator in an uncertain job market for millennials. For the Army's leaders, encouraging engagement and a drive to succeed comes with being supportive and providing a realistic expectation of a soldier's future. By mentoring junior personnel and helping them achieve their goals through enabling incremental improvements, leaders will help fulfill the expectations and ambitions of the millennial soldier.

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[6] Humbard K,. (2017) Leading Millenials in the Military
[7] Ibid
[8] Manganaro C., (2015) Misunderstanding Military Millennials
[9] Meier M., Col. Carr R., (2017) How the US Army Recruits and Retains Millennials

Same, Same, but completely different

Millennials and older generations usually do not share the same attitudes in regards to work life balance and displays of work or effort. Older generations are more likely to stay late in the office to achieve their required work whilst Millennials tend to attempt to budget their time more efficiently with apparent concern for what that may look like to the rest of the work place or colleagues. Meier states that for Army it is important to observe that this is not a form of laziness or insubordination but a generational difference. Millennials care just as much about completing the required work, they just go about completing it differently to other generations. The friction can occur however when those older generations consider the manner in which millennials may choose to complete a task as being done 'wrong' because it is not being done in the same manner as they would carry it out.[10]

> "Leaders tend to get frustrated when Millennials challenge them," Carr says. "And it's true that some Millennials can be very outspoken. But usually what they're doing is *stretching*, which isn't always a bad thing. As a senior leader, you have to have the discernment to say: 'This millennial isn't challenging authority; they're challenging the way things have been done,' which forces you to be more agile, flexible, and innovative."[11]

Meier also states that just like most people millennials want to feel that they are adding value and providing input into a situation. This can at times seem to contradict traditional Army values and methods of operation; however, if given some latitude by their chain of command to express their ideas then the millennials' intrinsic creativity and out of the box thinking can enhance a plan and highlight opportunities which may not have been apparent to other generations.[12]

Mangarnaro summarises the concept of influence and control in the millennial military by stating that 'baby boomers' and 'Gen-X' differ in their response to position and power being exerted over them than millennials.[13] 'Hard tactics' are more effective at achieving compliance quickly to get a task completed quickly. Within the Army we have become professional fire fighters. Reactionary to the next problem that requires extinguishing. This has meant that for a long time we have been reliant on positional power, or 'hard tactics', to keep achieving results. This reliance on hard power for so long will eventually exacerbate most millennials. Personal power or a mix of positional power and personal is ideal for leading millennials. Personal power, or 'soft tactics' are developed using influence techniques like inspiration, ingratiation, relationship building and consultation, rather than hard tactics.[14]

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[10] Meier M., Col. Carr R., (2017) How the US Army Recruits and Retains Millennials.
[11] Ibid.
[12] Meier M., Col. Carr R., (2017) How the US Army Recruits and Retains Millennials
[13] Manganaro C., (2015) Misunderstanding Military Millennials
[14] Colford M., Sugarmen A., (2016) Millennials and the Military

Conclusion

Ultimately the Army is meant to be representative of the society it stems from, as the primary recruiting generation changes then Army too must change to remain relevant and competitive and attractive to the millennial soldier. Unlike other generations, millennials who become annoyed by or sick of being 'stuffed around' by army, will simply leave in search of better things and greener pastures. Millennial soldiers are different to soldiers of previous generations, but with every problem that they present them also bring opportunity for Army. If they can be harnessed and focused correctly then those friction points that often create problems for both an individual and the organisation in general can be turned into positives and exploited to create new and exciting possibilities for both parties. If; however, Army chooses to remain un-acknowledging of its issues and its own often self-induced friction points then as an organisation it is unlikely retain, long term, sufficient amounts of its fully trained and experienced millennial members. More than any other generation before them millennials are likely to seek greener pastures. If Army does not adapt, then those pastures will be a long way from where it is left standing.

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The role of the Sergeant in today's Army
By SGT R. Grzyb

The aim of this essay is to summarize the roll of the Sergeant in today's Army. A Sergeant in the army is as vital today as it has always been all through history. This essay will examine several points. I will be covering, what a Sergeant is and what role they have within the organisation. Furthermore I will examine the traditional and modern day Sergeant and how this has changed, and finally I will look into trade and Corps knowledge and the mentoring of others.

What is a Sergeant?

From the Latin *Servins*, "One who serves' the earlier general term meant "attendant or servant'. Today the Australian Army holds a great deal of trust in a Sergeant to adhere to, encourage and when required to enforce our core values. The Sergeant, as the senior soldier in the platoon or troop, is responsible for providing leadership. As a leader, the Sergeant must embrace army's values of courage, initiative, teamwork and respect. I believe courage to be the cornerstone of good effective leadership. Therefore as a leader, the Sergeant must always be a positive role model to his or her superiors, peers and subordinates alike.

The role of the Sergeant is wide and varied across the different corps of the Army. However, there are certain roles that remain constant regardless of specialisation. The Sergeant is normally the senior soldier within a platoon or troop who mentors and provides guidance to soldiers and junior officers alike, an administrator, a disciplinarian, a counsellor, a careers advisor. Amongst all the other common roles the Sergeant must be a leader/role model. The Sergeant is a soldier who has risen through the ranks. By the time a soldier is promoted to the rank of Sergeant, the soldier on average has had in excess of ten years of service within their respective corps. The Sergeant in the standard platoon or troop structure is usually the senior ranking soldier and also the oldest member of the platoon.

Modern Day or Traditional Sergeant

Traditionally, the Sergeant should be tough as nails, a hard man! You would never approach him, you would never cross him. Diggers thought he was a thug that would comment on his soldiers' performance using colourful profanity. Society's expectation is that the Sergeant of today is tolerant, caring nurturing man manager, encourages and developing soldiers whilst maintaining the original capacity to let loose overwhelming acts of brutality in the defence of what is right. (To stand up for what's right). The benefit of time in rank can not be underestimated. From conducting training as a digger to promotion courses. But if this training is not backed up with real-time experiences, this training could falls along the wayside.

The Sergeant, as the senior soldier in the platoon or troop, is responsible for providing leadership. As a leader, the Sergeant must embrace army's values of courage, initiative, teamwork and respect. Being the senior soldier in the platoon places the Sergeant in a unique position. The Sergeant is able to provide guidance and counsel to the subordinate soldier within the platoon in all aspects of day to day

soldiering. On the battlefield the support starts with the administrative and logistic 'bullets and beans' but this is a small portion of the required capability support. A Sergeant's role is to provide the Commander's ideas and help in planning this is combining their experience, understanding of doctrine and knowledge. This requires knowledge of the soldier's skills and capability. Sergeants must understand and support the Commander's plan and although they are not in direct command of the troop, a Sergeant must provide sufficient comment and participation that should the need take place they are able to step up and assume Command of the mission.

Most lieutenants arrive to do their job as leader in a unit for the first time. They bring with them new ideas to improve on the last unit leaders performance, however they lack experience. The Sergeants have come to their position through years of experience and have witnessed multiple cycles of new lieutenants. This difference in experience creates an appropriate balance between the Junior Officer and Sergeant; exuberance against experience. A good Sergeant will guide their Platoon / Troop commander diplomatically, and in doing so will restore the balance, whilst preventing disaster. If the relationship has been beneficial, the officer will not forget the Sergeants who have guided them throughout their successful careers.

Sergeants Trade and Corps Knowledge

Due to the completion of numerous trade and all corps courses required to reach the rank of Sergeant, combined with the practical experience gained through his or her years of service, the Sergeant has amassed a wealth of knowledge and experience.

The Sergeant is best positioned to provide guidance to their Platoon Commander, who is generally a junior lieutenant. Although senior in rank and extensively schooled in the military arts and sciences, the lieutenant is relatively junior and often lacks the practical understanding of the implementation of his or her trade.

Mentoring of others

The army goes to great lengths to foster and develop capable leaders (through JLC, RMC, ADFA and other leadership programs); in order to develop combat capability within its greatest resource its people. If the quality of leadership is so important, then the Sergeant as a role model plays a pivotal role in developing and maintaining capability. A Sergeant must lead by example and make the morally courageous choices.

Moral courage is all about having the intestinal fortitude to do what is right. A leader must always be committed to do what is right, even when in doing so, maybe risky in either a physical, personal and or career terms[1]. It is common in the army to hear a Sergeant refer to the Platoon / Troop Commander as "My LT", and depending on the inflection used can have a number of different meanings ranging from pride to exasperation. The lieutenant's performance is not just a reflection on them self but is also a reflection on the platoon sergeants performance, and therefore the performance of the junior officer is a reflection of the Sergeant who provides guidance to them[2].

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[1] Woods Kevin CSC, OAM WO1, "Has Army Leadership changed over the last twenty years and can we make it better", 2011.
[2] Woodyard John D CSM , "My LT and Me", NCO Journal Winter, 1993.

Therefore, the Platoon Sergeant must "take ownership" for the responsibility to develop and mentor their Platoon Commander in preparation for sub unit command (whilst allowing them freedom to make mistakes, gain experience, and command, provided it is not to the detriment to the junior officers long term career)[3].

Conclusion

During the course of this essay we have briefly examined the Sergeant as a mentor and as a role model. The Sergeant must take responsibility for actively mentoring those around them. A Sergeant always exercises leadership, that is to be a role model, and always seeks to be the embodiment of the army's values of courage, initiative, teamwork and respect, with the most important being moral courage. That is, to do what is right even at the risk of personal suffering and disadvantage. The role of sergeants in today's army is as diverse as the roles of the corps they serve. However, there are certain roles that remain constant regardless of specialisation, be it fighting the war on terror or providing humanitarian support. The traditional role of administration and supply are now interwoven with the need for Sergeants to be more than capable leaders.

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Creativity in the Military
By CAPT C. Howe

The opposite of courage is not cowardice, it is conformity.

Jim Hightower

The requirement of the artist is far from limited to the arts studio or the primary school classroom. As military men and women we must aspire to be an artist, and on opening night it will not be a standing ovation that the better composer will receive, but victory and less body bags. There has been an explosion over the last 30 years into the research and requirement for organisations to become more 'innovative' and encourage creative thinking to maintain their competitive edge. This body of evidence has by no means gone unnoticed by military's around the world, including our own, and throughout all sectors of the private and public sectors. However, is the Australian Army effectively implementing creativity? Is it fostering an environment or culture of creative thought? And how better can we implement training that produces the creative process.

To effectively answer these questions this essay seeks to evaluate creative thinking in the military and how best we as an organisation can create a learning environment that fosters creative thinking and the best way to implement these thought process throughout the Australian Army. It will, for the purposes of this analysis, define creativity and innovation. It will then take an analyse of the unique obstacles the military faces in encouraging and developing creative thinking, including and without apology, attack the obstacles it has created itself, including the ego-centric and incompetent commander. The importance of motivation and its role in creative thinking will be explored and how to teach creative thinking in a context appropriate to the Australian Army. The essay will also focus on dispelling myths regarding creative thinkers and the risks associated with recruitment of individuals with higher creative personalities.

What is creative thinking and why is it relevant?

It would be a tough debate for any team to argue that creative thinking now, or at any point in history, has not provided a commander a significant advantage on the battlefield. History is full of victories in which the decisions made by that would certainly not been considered FASSD, nor passed a TEWT or a career course. Yet these decisions achieved victory and changed the course of history, and yet still thousands of years later we are not fully grasping the idea of creativity. As there is such diversity in the range of definitions relating to 'creativity' and 'innovation', it is essential to clarify their definitions. There is a vast use of the term creativity in the literature. Some researchers describe it as individual characteristics or personality traits (Amible, 88), "the ability to produce novel ideas that others value" (Allen & Gerras, 09) and "is a mental and social process involving the generation of new ideas or concepts or new associations of the creative mind between existing ideas or concept" (Dragomir). Ultimately however the creative process, especially in a military context, is the ability to problem solves using new ideas and concepts (Allen & Gerras, 09). Professor Kaufman summarises this well by stating:

"being different is not enough! Let's say I ask you to solve a mathematical proof in a creative way and you write "Fish are happy." This response is new. It is different. It is unusual. It's a little weird. But it's not creative. For something to be creative, it must also answer the right question.

So what is Innovation? Innovation from an organisational point of view is changing processes or creating more effective processes, products or ideas. From this definition we can see that innovation does lie in the hand of decision makers and military commanders. However, does Army truly understand the application of innovation within itself, especially with regards to the performance appraisal report? Innovation requires creative thinking from subordinates, this allows the creation of new and dynamic ideas and then requires innovative superiors to accept and adopt the changes.

We as an organisation invite innovation to the point the Officer Corps is assessed on it, Senior Officers openly encourage it when they talk to subordinates on visiting tours and without a doubt the senior leaders know and understand its benefit. However, a true assessment of an Officers innovation would be their ability to generate and encourage creative thought in their team and how well they implement those ideas.

Obstacles to Creative Thinking

The Military Appreciation Process (MAP) is a "rational, methodological approach for making decisions…Followed correctly, it should lead to the best (or at least a better) decision" (Allen & Gerras, 09). However, this process was also developed during the cold war, and taught commanders how to plan for a large scale conventional armoured war across Europe. Is it still relevant given the complexities and ambiguity in the battle space that has dominated the last 20 years and is likely to evolve over the 21st century? Allen & Gerras continue to explain that the MAP can suffer, as a wide range of opportunities for failure in creative and critical thinking exist and accompanying them is bad decisions. They explore issues in every step that can lead to failure including receiving commander's intent to the innate biases of commanders. This introduces us to the ego-centric and incompetent commander whose belief is that he is better than anyone else and that he is infallible.

The ego-centric commander is a toxic rat that should be gutted and removed from the military. They will cause more harm to our Army than the enemy may ever wish to (Dixon, 76). Dixon explains in detail the attributes of the incompetent commander "who through their action or inaction have caused untold suffering to thousands of individuals". There are many ways to explain the ego-centric commander however it may be summarised in the words of an unnamed Australian soldier as, "someone who walks into a room and looks around and believes they are better than everyone else in the room. They are the problem", that is the ego-centric and incompetent commander. If you by chance believe you fall into this category, it is advised to re-read the opening sentence of this paragraph. The hierarchal nature of the military naturally resists open dialogue which allows people to share and speak their ideas openly. For dialogue, not discussion, to occur, commanders must view everyone as 'professional colleagues' and not subordinates and superiors (Allen & Gerras, 09). In *Adapt or Die* (Fastabend and Simpson) state that "critical thinking is also an aspect of environment. To foster critical thinking, Army teams must at times leave rank at the

door. 'Groupthink' is the antithesis of creative thinking and exists in organisations in which subordinates simply mimic the thinking of their superiors".

In summary the Army could improve itself by experimenting with the use of the MAP, allowing it to be questioned by students and for instructors and commanders to remove their own biases and be open to the idea of problem solving that they could never have thought of. Additionally, target the ego-centric commander. This can be achieved through 360 reporting and then effective retraining which will be explored in motivation. And finally, open dialogue in which all members are viewed as a professional colleague and can value add or think in ways we never could.

Motivation

"The hallmark of outstanding creative achievement is a passionate motivation to create" (Amabile, 96). Creative thinking requires discipline, hard work and a true dedication to the job at hand. In a study of the greatest creative minds of the 20th century it was concluded that "all were driven by an intense involvement in their work" (Amabile, 96). Therefore the value of discipline remains paramount in the creative process and inculcating this trait at all ranks within the military. However, how do leaders create motivation to achieve the best product from our teams?

Dixon explains that the incompetent commander will fail to deliver discipline at all and the ego-centric commander is likely to use fear based motivation against their subordinates. The first is unlikely to produce a product worthy of the battlefield and the latter will produce a product void of creativity as subordinates merely attempt to avoid the commander's whip. The literature holds a general consensus that human beings are motivated by either intrinsic or extrinsic factors. Intrinsic motivation can be defined as when people seek enjoyment, interest, satisfaction of curiosity, self-expression, or personal challenge in their work and extrinsic motivation when people engage in their work to obtain a goal that is removed from the work itself such as a monetary reward or praise (Amabile, 96). There is generally an overlap at any given time of these factors, however higher motivation and best products are produced when intrinsic motivation is the primary motivating factor.

It will be no surprise for commanders to know that creating intrinsic motivation and having individuals self-invested in their work will produce a greater result. The Australian Army has a very useful concept for this in 'Mission Command' and its leadership teachings. When used correctly, mission command allows subordinates to invest their own plan and problem solving to execute the commanders intent. As an Army this concept is an excellent tool that should be maintained to encourage intrinsic motivation. Fear as a motivating tool must be discouraged as it becomes a purely extrinsic motivator void of creativity. Individuals will create a product that either mimics the commanders thought or falls back to previously taught thought patterns which cannot lead to innovation.

Teaching Creative Thinking

Due to the Australian Army's officer education model, opportunities arise throughout the Officer continuum to evolve creative thinking. It is essential that "Officers need to learn these thinking skills within the officer education system in training" (Allen & Gerras, 09). Allen and Gerras further argue that context-dependant problems are best suited for military creative thinking. This is something the Australian Army does

well in career courses by presenting officers specific tactical scenarios or leadership problems. What needs to be further encouraged is teaching instructors that encouraging alternative problem solving techniques, outside of those they have been taught, should be implemented on such career courses. The author of this article took one major lesson away from a recent career course being the All Corps Captains Course. During an offensive Tactical Exercise Without Troops, it was observed that all members of the Royal Australian Armoured Corps (RAAC) conducted the exact same manoeuvre. There was a mixture of age, gender and background on all members, however all came up with ultimately the same tactical action. This highlights the lack of creative thinking in our junior officers. Most probably walked away with a sense of achievement in their plan, however one could strongly argue that the RAAC should be only concerned at the fact that its junior commanders are creating almost identical products to tactical problem.

No doubt junior officers have limited exposure to tactical planning compared to their senior counterparts, and it may be argued that a junior officer needs to focus on the science before developing their skills in the art of warfare. Nevertheless, naiveté is academically proven to be a cornerstone of innovation as the individual is yet to be institutionalised into a way of thinking (Sternberg, 2006). Though subjective, the art may only begin to supersede the science at battle group level, however how do we prepare the battle group commander for creative thought if they haven't been developing the skills throughout their career? By allowing officers to experiment without negative results and engage in open dialogue regarding alternative problem solving, we may begin to build the foundations of an artistic and creative battle group commander.

Myths and Risks Associated with the Creative Thinker

There is a large body of research which has attempted to find a link between mental illness and creativity (Kaufman, 17). The problem in this research lies in that almost all of the research is limited to famous individuals through biographies and does not create a correct sample of the entire population (Kaufman, 17). Therefore there is no significant evidence that creative thinking can lead to mental health. There is evidence however, that creative talents observed as a personality trait is linked to higher rates of anxiety. Therefore, if recruiting individuals for creative talent, it must be acknowledged that higher rates of anxiety can be expected. The trade-off is an organisation that lacks organic creative talent and ability to innovate.

The Australian Army is well postured for creating military thinking through its leadership teachings, career education models and tools such as mission command. The military has correctly identified the requirement for innovation, however needs to improve the fostering of a culture and education continuum that focuses on individual creative thought that will enable this innovation. The term innovation needs to be correctly identified by commanders as the ability to allow subordinates to express ideas and problem solve in ways not taught in the officer training model and for instructors to embrace these ideas. There will be an inherent risk associated with such experimentation; however the classroom is a perfect place for such experimentation and failure to occur. It must be understood that the inculcation of creative thinking needs to begin at the beginning of the training model, and the newest members of Army may have some of the best ideas to provide to innovation as the institution is yet to shape their thinking process. Open dialogue and a view of all officers as professional colleagues needs to be encouraged. Additionally, stronger

360 reporting should be utilised to identify the ego-centric commander. The battlefield is ever changing, complex and ambiguous. Therefore to effectively fight our enemies today and tomorrow the Australian commander must strive to be an artist themselves.

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Not another essay
By WO2 M. Crossley

The Conduct of professional military education in units must be seem in much the same way that investment advisors view compound interest – it is something that accretes over time providing long term benefit.

Brigadier Mick Ryan
The Ryan Review[1]

The Australian Army has a long and proud tradition of being a professional military organisation. Recent initiatives such as the Ryan Review have been undertaken to ensure that the Army continues to remain a professional and adaptable organisation that is able to meet current and future threats. The purpose of this paper is to look at how the Army uses Professional Military Education (PME) to develop its officers and soldiers. I will look at the traditional role of the essay, the role of digital learning and finally mentoring in order to develop our human capability. The aim of this paper is to create discussion regarding the various forms of PME and hopefully provide some ideas as to how best the Army can develop our professional mastery in the profession of arms.

The essay

The essay has been a central pillar of the formal education system and PME. It purpose is to investigate a subject, establish a position and formulate a logical and hopefully convincing argument supported by fact and reason. The essay is taught and practiced throughout the education system and further refined and developed at tertiary institutions. For those who have finished school recently or been through university it seems like an easy task, however, it's value can appear to be lost especially in the Senior Non-Commissioned Officer and Warrant Officer ranks. Comments like this is an 'officer thing', 'I finished school twenty years ago' and 'this won't help me on the battlefield' are all often heard around the mess at the release of the years PME directive.

The ability to develop an argument or position and present that in a logical and coherent manner is extremely valuable; a leader must be able to convey meaning clearly, yet be both inspirational and motivational, depending on the circumstances and audience [2]. Developing the ability to communicate has always been of importance for all leaders but it's normally focused towards the volume at which you communicate and the number of times you can swear or not in a single sentence. Developing a logical and persuasive argument is an excellent tool for not just winning an argument but also making sure that you win the right argument.

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[1] Ryan Review p 57
[2] LWD 0-2 Leadership p127

We don't write essays to convey orders or in our normal duties, but often such a large amount of our assessed professional development is scored against how well or not we can write an essay. Essays are often due at the end of the reporting period and the author can often be provided with no feedback for improvement and are left wondering why did I even bother. This results in following years' submission having even less effort applied and the author often getting very little professional development out of the experience. If we are assessing our ability to investigate a subject, communicate with clarity and brevity then is the essay still the best suited tool in developing our officers and soldiers or are there better ways?

MOOC and e-learning, podcasts and campus

A massive change has occurred over the last 24 months which has been an explosion of internet base content that can be used for PME. No longer is professional development limited to the quarterly release of the Australian Defence Force and Australian Army Journals, or the yearly publication of a unit PME papers. Social media, internet sites from Facebook, twitter, Podcasts and sites like 'The Cove' provide current, relevant, interesting and engaging articles, opinions and videos which has forged a solid following. This content is constantly updated and renewed which keeps it relevant and applicable to current learners. The articles and videos are generally quick to read or watch and most of the time they create more thought and pose more questions than provide answers.

This highlighted increase of internet based content has allow more and more users to explore the many different avenues and disciplines when investing into their own PME. Podcasts from successful business leaders, philanthropists, professional athletes and our own military leaders give the listener never before insights into the way that top level performers think and act. Podcasts such as the Tim Ferris Show, the Unbeatable Mind Podcast with Mark Divine and the Training and Doctrine Podcast are excellent resources that give a varied perspectives, opinions, concepts and ideas for just about everything in life. These are a free resource that may have a few advertisements attached, but cost you nothing to use for your own professional development.

The Massive Open Online Courses (MOOC) also provide an avenue for exploration with offerings from Business, Education, Computer Science, Law, Language and Cultures, Arts and Humanities, Data science, Health and Psychology and Study skills for university study. Some of the excellent free offerings are from the provider, Future learn with their Military Ethics from University of New South Wales – Canberra. edX program on Global Media, War, and technology from University of Queensland. These courses are free, easily accessible, engaging and in the two above examples are excellent to use for PME for all ranks.

The Army and the Australian Defence Force have already been operating in the digital space with the campus courses for quite a few years. Mainly these courses

are used to reduce the amount of formal training and presentations that personnel are required to attend. From force preservation training to introduction of new processes and software, they provide a more flexible learning environment that allows users to complete courses at a time and location of their choosing, rather than attending face to face instruction. However, a lot of courses on the campus have not kept pace with current standards and users are often just clicking on the next button until the course says complete. This proficiency gaining mindset does not teach anyone how to correctly use the system or understand the concept, but it does make sure that they have the proficiency on PMKeyS for the next audit. The introduction of Moodle based learning has improved this digital space, but more needs to be done to combine, incorporate and leverage of the existing platforms and methodologies to best take advantage of this platform and others into the future.

The use of digital learning will only increase over time and as an organisation we must be looking for ways to make sure that we best take advantage of it. Current soldiers and some officers are glued to their personal digital devices, yet our focus on PME only starts when someone reaches the rank of sergeant and above. Why can't formal and structured PME start when your career starts? Have we lost the early years where were can set good routines and habits for the development of PME, as this is the best years to get the compound interest building? Can time and resources be allocated for all ranks to conduct PME from the start of their career, not just at the end?

> "The most valuable player is the one that makes the most players valuable."
> Peyton Manning, two-time NFL Super Bowl champion quarterback[3].

Mentoring

One of the best ways to develop and enhance performance is through the use of a coach or mentor. While the Army and the ADF have excellent methods for developing leadership in the individual, sometimes however the mentoring aspects gets lost with all the other contending priorities for leaders to manage. The role of the coach according to the Australian Sports Commission is to 'helping members grow and develop their skills'[4]. The largest participation sport in Australia[5] football has developed a comprehensive coaching program from community grass roots to national coach level[6]. The business sector too has as identified the need for better coaching and mentoring so organisations such as Queensland University of Technology have developed an Executive Graduate Certificate in Business (Leadership through Coaching and Mentoring)[7] So why is the Army any different in

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[3] https://www.forbes.com/sites/emilycanal/2016/04/22/30-inspiring-quotes-from-amazing-athletes-and-coaches/#35630e2a3011

[4] https://www.ausport.gov.au/supporting/clubs/resource_library/people_management/coaching

[5] https://www.ausport.gov.au/news/asc_news/story_653917_ausplay_shows_the_sporting_behaviours_of_a_nation

[6] http://www.ffacoachingresource.com.au/coach-development/coach-development-overview/

[7] https://www.qut.edu.au/study/courses/executive-graduate-certificate-in-business-leadership-through-coaching-and-mentoring

how we use and manage our people. Should coaching and mentoring be given a greater focus of attention during our formal and informal education, how can we leverage sporting and academic coaching principles to get our people to grow and develop their skills?

If the Army is to find a better balance between mentoring and leadership than a good place to start would be to review the level of detail that is provided at LWD 0-2 Leadership regarding mentoring and coaching. The entire document devotes less than one page to the role of coaching and to the role and importance of mentoring. Maybe the sporting community with its focus on skills and physical ability overestimates the importance of coaching and so too does the business community with its focus on knowledge and mental agility? If the Army is to thrive in a world of volatility, uncertainty, complexity and ambiguity, then maybe reviewing the role of coaches and mentors might be a good place to start.

Conclusion

This brings me back to the start of the essay and question that was posed. Is the essay still the most relevant and effective way of developing our officers and soldiers? Does a yearly essay such as this very paper effectively develop our people or should it be viewed like the quote at the start of the paper? Professional military education in units must be seem in much the same way that investment advisors view compound interest– it is something that accretes over time providing long term benefit? Short, quick and easy to absorb information such as that which is provided by sites such as 'The Cove' and Twitter are an easy way to start build that critical mass that is needed to reap the long-term success of compound interest. Very deliberately the vast majority of references for this very paper was gained from The Cove and this shows how effective this site can be for development of our people. As highlighted earlier, the essay is an important component for professional development, but more importantly then writing an essay is the skill set of developing the ability to communicate clearly, efficiently in order to build the professional body of knowledge. Start early, start small, constantly nurture and you too will see the unstoppable effect of compounded professional development interest, hopefully not just another essay.

Should I stay or should I go?
Options for when the time comes
By SGT M. Wynd

> *If today were the last day of my life, would I want to do what I am about to do today?*
>
> **Steve Jobs**

We all join the ADF for various reasons such as a previous family history, wanting to provide a service to our country, watching Defence Force Recruiting (DFR) media or just looking for something different to the civilian day to day lifestyle. On our journey we realise that it is a big cultural shock because we are expected to go above and beyond that of a normal member of society. In the early stages we learn the ADF is a close knit community that has developed and continues to improve its support networks for members and their families. But what do we do when one day we wake up and realise that this job might not be for you anymore? The scope of this essay is to provide information on the service length requirements, career milestones including honours and awards, what options are available before we separate and who can we speak to, and things to consider before making our final decision.

Service Requirements

In the early nineties the ADF introduced a four year General Entry enlistment period which transitioned to an open engagement period until discharge was elected. Today DFR provide us with a letter of offer that outlines the details of our proposed new career. Under the new scheme, most Soldiers will have an Initial Minimum Period of Service (IMPS) of four years General Entry (Non-Technical) or between six to nine years for General Entry (Technical). At the end of this contract period, we automatically transition to the open end engagement. It should be noted that each specific job within Defence will vary.

Our compulsory retirement age for ADF regular soldiers is 60 years of age. However, we can voluntary separate or transfer at any time after our IMPS with a minimum notice of three months. Occasionally under certain personal circumstances this can be shorten with approval from our Career Management Agency. Early termination or discharge can also occur due to administration action or medical reasons.

Career Milestones

Just like our civilian occupations, ADF recognise certain career milestones with either additional leave entitlements or receiving medals from honours and awards. Not all soldiers are aware of these and we should consider them when making our decision. The first award for all ADF members is the Australian Defence Medal (ADM). The ADM is to recognise completion of an initial enlistment period or four years of service, whichever is the lesser, and all of the relevant service post September 1945. This includes former ADF members who did not complete the qualifying period because they died in service, were medically discharged (based upon individual circumstances), or left the service due to a Defence workplace policy of the time.

The next milestone is the 10 year mark. Although we do not receive any honours or awards not many people stay with an employer for this long anymore. At this point we are eligible for a period of three months Long Service Leave (LSL) which can be utilised either at full pay or half pay to take a holiday from service life to recharge the batteries. It is not compulsory to utilise the leave and we continue to accumulate more LSL during our service period.

The next milestone is one that Commanding Officers really take pleasure in presenting. The Defence Force Service Medal (DFSM) from 1975-1999 and Defence Long Service Medal (DLSM) post 1999 which shows that a member has completed 15 years qualifying remunerated service in the ADF. This includes efficient service in Permanent and Reserve Forces. Additionally, some members are eligible to the Military Superannuation and Benefits Scheme (MSBS) pay bonus.

Clasps are awarded for each further period of five years efficient service which leads us to the final milestone which not may members reach due to different circumstances such as date of enlistment, breaks in service or medical reasons. The Federation Star is awarded for 40 years dedicated Service to Defence and is a milestone that does not go by unrecognised. Five clasps are worn on the DFSM or DLSM to indicate the Service but a silver miniature Federation Star is worn on the ribbon bar. Members who receive this award will usually receive a visit from the relevant Defence News Group and have a formal activity to present such a prestige career milestone award.

Options Available

Before considering separation from the ADF, we should consider the milestones which we remain eligible for while looking at what is available to us from within. The ADF is a unique organisation consisting of three different Services that offers so many different jobs. To gain a better insight into the other jobs, we can utilise the intranet/internet where we can explore the DFR and relevant Services websites.

The 'Stay Army' website is a valuable resource to us. This should be our first point of call because it contains relevant details of each trade including pay and career progression. Furthermore, we can speak to current servicing members in that trade (just remember they may be jaded). Alternatively, ADF have got smart and created the Trade Transfer and Retention Warrant Officer (TTRWO) positions in each State/Territory. These TTRWOs have access to all the available positions in Defence and can provide us with useful information to assist with our options.

We should remember that the ADF expends a considerable amount of training and resources to train us so we may incur a Return of Service Obligation (ROSO) if we transfer. The length of ROSO will depend on what job we choose. If we attempt to separate early after transferring then we may be rejected until the ROSO is completed. Another good resource for information is the ADF Transition Cell who provides regular seminars in each State/Territory available for all members to attend. These seminars provide valuable information to any personnel considering separation and things you should consider. They will advise us on our entitlements available which changes with our length of service.

Things to Consider

The ADF offers us many reasons to stay such as job stability, career progression, physical training as a part of our normal work day, free medical and dental, subsidised rent in housing with free regular maintenance, a good superannuation and the opportunity to move locations every two to three years on posting (which can be a refreshing new start). However, it can be quite daunting and hard for families with employment, education and schooling, and just making long term friendships outside of the ADF.

Before we make the call, we should consider what the true impact is on our future. Are we ready to transition? Do we have a job lined up or has our partner got steady employment to support the family during our transition, do children still require education assistance (education fees and schooling stability can be a driving factor for many members). Where are we going to live? Will we rent or buy close to our employment or travel. If we are single will we move back home with our family? Are we eligible to the Defence Home Ownership Assistance Scheme (DOHAS) or first home buyer loans? Do we have any outstanding debt? Do we have a good financial reserve to fall back on? Will our superannuation be enough to support our choice? Can I afford to drive or will I need to take public transport for future employment?

We should write a list of good and bad points of why we want to separate. We should make a five year exit plan to give us the best opportunity to transfer to the civilian lifestyle. If we are offered the dream job we should still make a plan just for a shorter period. We should seek professional financial advice about any current debts and money management ideas. Additionally, we should consider transferring to the Active or Standby Reserves (now known as SERCAT 2 and SERCAT 5) as an additional source of income, continual eligibility for DOHAS, and as an alternative entry back in the ADF. If we are separating due to medical reasons our entitlements are considerably different and we should speak to our Chain of Command and medical centre for specific details.

Conclusion

In summary, there is no 'right time' to separate from the ADF but before making a decision we need to explore all options available to us. A simple internal job change or taking that well earnt LSL could be all we need to ignite the passion again. Finally, take the time to talk to somebody and make a good plan because circumstances can change quickly.

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Modern physical training
By SGT C. Tomlins

Physical fitness is not only one of the most important keys to a healthy body, it is the basis of dynamic and creative intellectual activity

John F. Kennedy

This essay looks at the evolution of physical training through modern times and how, why and what we can be doing today to help adapt and train the soldier required to win the war of tomorrow. The paper will include three topics of discussion; training smarter, aligning best practices with other organisations and adapting to train the soldier of tomorrow with the society of today.

Evolution of Physical Training from past to present

'Training for a war not the war' is a phrase used by experienced members throughout units within the ADF, in particular over the last ten to fifteen years. The development of technology in combination with the rapid growth in extremist groups internationally has produced major changes in modern day warfare. This has therefore resulted in change away from conventional warfare and the strategies which we have trained so much for in the past. To replicate the stresses, fatigue and mental resilience associated with war, physical training plays a large part in developing the modern soldier to deal with these physical stresses that accompany warlike situations, evident in Oliveto (2015). In past years, the focus has been on the physical preparation for these stressors and for preparing soldiers for the effects of war. However, the mental aspects are somewhat neglected leaving a piece missing with regards to the longevity and health of soldiers, as shown in *Dents in the Soul* DVD (2011). With the evolution of modern warfare changing rapidly as our enemy is becoming more technical and strategic, the way training is delivered needs to replicate the fast moving pace of times. Looking at the different types of strategic adaptations and aligning them to the ADF training continuum will enhance the soldier being trained today to the soldier we need for tomorrow.

What works in the past contributes to lessons learnt, however, will these training methods continue to work for the future? If anything, past wars and conflicts have given much in the way of structuring our physical training to cope with the high demands, however, we must ask if these are best practice. Is the sustainability and health of defence members a priority for the ADF or is training harder not smarter the only thing we have taken away from the past 30 years? Physical training covers more than the outer layer of physical fitness as it also covers the mental health attributes that is required for soldiers to take in information, visualize tasks and carry them out to a high standard.

Soldiers undertaking Special Forces reinforcement cycle training are exposed to frequent meditation training which provides coping mechanisms for stressful situations. Regular mental health training and coping sessions are integrated into their physical training curriculum as a stepping stone to improving longevity amongst its members, as described by Oliveto (2015) tips for overcoming fear within warlike situations.

Integration verses Segregation for effective training

The ADF prides itself on being a unique workplace and has worked independent of other organisations, in particular to other parts of government. However, what can we learn from these organisations about structuring our training for the best outcome? Are the best practices, when it comes to athletes performing at an optimal level, delivered through civilian organisations? Soldiers are not athletes, nor should they be treated as such. Soldiers are training towards a more complex situation than any competition or sports event. The stresses involved in warfare, the ability to act without thought and the requirement to reciprocate a function or movement only utilising instinctive motor patterns drilled through training is quite relatable. Working smarter and more effectively and aligning specific training methodologies can help adapt the Army's culture for physical training, as identified by Smith (2013). Integration, information sharing and lessons gathered through civilian organisations would benefit the training delivered by instructors giving soldiers the skill sets required to carry out tasks under fatigue and stress.

Bridging the generational gap

Why has baseline fitness requirements decreased, but the amount of load required to carry out physical tasks and physical tests increased? A simple question with a simple answer, however, that answer has become a lot more complex when required to put into practice. The physical training now has to be so much more precise, efficient and effective as the reach between civilian and the deployable soldier has now increased sufficiently. These precise, efficient and effective types of training methods required for soldiers have now been placed in the hands of instructors within the ADF. In terms of physical training, it's solely up to the physical training instructors and core training staff to source best practices to produce a high volume of physically capable soldiers to ensure the commander's intent is achieved.

The baseline fitness requirements directly reflect the noticeable change of society's youth and the potential soldiers being recruited. Technology and comfortable living has greatly improved but that comes with a cost. The Australian Defence Force recruiting mainly targets society's youth and these potential soldiers have become much more sedentary, as shown by Sedentary Behaviour Research Network (2012). Knowledge of technical data, research and potential intellect may have increased, however, the physical hardness, ability to push past mental limits and a reduced likelihood of injury is something of a liability to the ADF. Instructors now have to work smarter, deliver a high level of effective training to help cope with these demands placed by the change of society of today.

Conclusion

Army has adapted to these changes and implemented coping mechanisms to better prepare the soldier of tomorrow. Physical employment standards have been introduced through a scientific approach to best prepare soldiers for the physical demands of operational environments but also to ensure the various employment categories have specific minimum requirements that must be achieved by its members. Professional civilian courses have now been made readily accessible for members of specific trades to upkeep their skills and ensure best practices are being implemented to future training programs of Army. On a more important level, over the

years, the Australian Defence Force has taken active steps and approached mental health illness through awareness courses, mandatory training and help from civilian organisations give the soldiers the adequate care required to ensure a healthy mindset is maintained.

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How an absence of discrimination is effecting leadership in the military
By WO2 A. Ballantyne

A man who has nothing for which he is willing to fight, nothing which is more important that his own personal safety, is a miserable creature and has no chance of being free unless made and kept so by the exertions of better men than himself.

John Stuart Mill

There are many differences between the consideration for the planning and execution of orders for General Sir Edmund Allenby and Lieutenant-General Sir Harry Chauvel in the lead up to the charge of Beersheba, to how modern leaders achieve the higher commander's intent. These include, although not limited to, the time allowed to plan, the advances in training, the diversity of the troops and the effects of combat to the mind. The complexities of modern warfare have fundamentally changed due to not only the time available to make decisions, but also in the psychological differences in the soldiers involved.

This essay aims to generate discussion on if a lack of discrimination within current military forces is bringing about increased pressures on leaders. Decision makers should be allowed to discriminate on who becomes members of military forces and who is best suited to be the trainers of soldiers and future leaders. Having the right people for specific roles will greatly reduce the extra burdens current leaders are experiencing, whether it be the corporal, sergeant or lieutenant on the ground or the service chiefs. The scope of this essay is not to undermine diversity in the military or to discriminate towards gender, race, religion or age. It is directly related the how selective employment of candidates for positions will give the best outcome for military forces. The main focus will be on psychological testing within recruitment, the selection of instructors to training establishments and allocation of command positions.

Psychological testing in the recruitment process

Recruiters need to be more stringent on psychosomatic testing for civilians applying to become members of military forces. The range of mental disorders has been clinically documented since the American Civil War and the treatment of these disorders has been the major focus of military mental health professions (Kaiter, 2015). It is not a new concept that some soldiers experience mental issues due to the effects of being in combat. In 1917 the American Psychological Association formed a committee with the main focuses being to screen recruits and to select men for specific tasks (Kaiter, 2015). This process is continuing today for many military forces across the globe. Current processes may not be able to correctly identify that personnel applying for military service are adequately and mentally prepared to experience trauma associated with armed conflict. A military force invests a large amount of time developing programs to assist in aiding resilience within its members, which is a valuable tool. It should however be able to reject candidates that are susceptible to mental health issues or have already experienced trauma that may develop into further disorders.

Being susceptible to mental health problems does not make a person less valuable to society. It does however increase the likelihood to exacerbate precursors of mental health issues if exposed to more traumas that may be associated to military service (Schultz, Glickman and Eisen, 2014). Military members possibly will be involved in an emotionally distressing experience. Good, well developed resilience training is valuable for those that have made it passed the recruitment process. A NATO survey on mental health within recruits outlines the importance of optimism during recruit and military training. It describes the results of the survey in relation to cognitive approaches to optimism as being able to just accept what is happening, accept reality and thinking about moments that are less difficult (Adler, et al 2013). Compartmentalizing experiences is not the method that is best practice for soldiers, its being able to deal with events as they occur and knowing when to seek professional help if problems arise. Williams (2016) explains that there is no agreed upon definition of resilience, although it can be described as the demonstration of positive adaptation after exposure to significant adversary. It is better practice for a military force to help develop these skills instead of creating a link between mental fitness as a way of coping with trauma.

Selection of competent instructors

It is better to have a higher ratio of instructors to students then to have less qualified, incompetent personnel fill positions. Military forces, in particular the Australian Army not only post soldiers and officers into instructional positions that are not qualified but also publish incorrect and/or incomplete information into training aids. For instructors to be effective, students must believe and trust that the information delivered is correct (Obermiller, Ruppert and Atwood, 2012). An example of a published article that does not portray a full, correct understanding of military doctrine is within 'Smart Soldier 48'. The article itself gives a very basic explanation of the Military Appreciation Process. It lacks detail on how to achieve the outputs of each step. The author expresses the importance of mission analysis and how a commander needs to ensure their mission aligns with the superior commander's intent, yet mentions nothing about mission nesting. The issue is not necessarily with what the instructor wrote. An article that is directed at junior leaders was not vetted for accuracy, or, it was vetted by an officer who also does not completely understand the process. Processes should be in place to ensure that the instructor and training managers have enough knowledge to sufficiently suit the position.

For soldiers and officers to become better leaders they need to be instructed by those that are best suited. It will also greatly reduce the amount of time that leaders require to explain of clarify learning outcomes already taught. Grossman (2004) explains that we teach soldiers to perform a specific action that is required for survival without conscious thought. He continues to argue that instructors can teach the wrong thing, which leads to bad muscle memory. Those points directly relate to instinctive action in combat, it can also be said that teaching the wrong or incomplete processes can also lead to the brain continuing to use incorrect thoughts. Students and trainees observe and learn from their instructors, therefore suitability testing should be implemented prior to a posting to a training position takes place. Grossman (1995) discusses a third level of learning that is called social learning, where it revolves around observation and imitation of a role model. It is careful selection of instructors which will give our soldiers and officers the best training and establish success mechanisms for future leaders.

Allocation of command positions

Global social change over the past thirty has influenced the acceptance of different societal groups into militaries including the Australian Defence Force. These changes are a good thing as it aids in the diversity of our troops and gives an increased perspective to planning and problem solving. In 2011 the Minister for Defence announced the removal of gender restrictions to the remaining roles that previously excluded women. To date there has been no reported adverse effects during the transition. It is definitely a step forward in the cultural change of defence. In the same manner of recruiting, gender and race should not have a target number to achieve in command positions. The best person for the role ought to occupy that position. Allocating successors to command positions once again ought to be elected to the person that is most capable. There are many background discussions on how anti-discrimination is actually discriminating against the white Anglo-Saxon male. This is due to a requirement for Defence, particularly Army to reach target numbers of female and indigenous percentages into the overall members.

For a military to have the right people for positions and roles, the application process should not notify selection boards of their gender, race, religious or sexual preference. Boards and advisory committees merely analyse the credentials and experience and relate it to the position available. Throughout Directorate of Soldier Career Management presentations over the past four to five years reference has been made to target percentages of females within army. A Defence Indigenous Employment Strategy 2012-2017 stated it had a target of 2.5% of its members by 2018 (www.defence.gov.au). The Sydney Morning Herald describes a recent recruitment campaign for defence as targeting more diversity within the organisation. Having target numbers or percentages to achieve open demonstration that the organisation does not discriminate, in turn is creating the possibility the best most qualified person may not get the job. Not having the best people in command positions has a flow on effect to subordinate commanders.

Conclusion

In clarification, this essay was not intended to undermine the social changes that have allowed for devise and more effective militaries. The points raised were to create discussion on how the swing in societal ideologies may have bought about demise in employment of the most suited candidates. It argues that as an organisation military has an obligation to discriminate against those that may develop mental health issues through no fault of their own, albeit a higher chance due to adversary that may be in-counted. It also demonstrates that positions of employment, especially those that are to influence and instruct defence's future leaders should be limited to personnel that are adequately suited to the position. The last point is how and if the need for diversity is actually creating discrimination against those that may be the most qualified to hold positions. The Australian Defence Force has a long history of being one of the most consistent, reliable and credible forces in a global perception. As an organisation it needs to continue what is best practice, training and positioning of its members to continue to uphold the traditions of its predecessors.

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Crew progression in a modern AFV and why it needs to change
By WO2 A. Donnelly

> *Any change, even a change for the better, is always accompanied by drawbacks and discomforts*
>
> **Arnold Bennett**

The Royal Australian Armoured Corps (RAAC) again stands at the precipice of transitioning to a new platform. Will we drag forward our current training ideology or will we transition with a new, strong calculated plan and execute it with a clear end state in mind? Will we continue to train and sustain our fighting men and women as we always have or will we accept new and challenging ideas to help us maintain our mastery of mounted operations?

It is with this in mind, that I will outline a pathway for training our crews in a way that will meet the demands of the current generation of young troopers and improve vehicle craft at all levels. My aim is to merely provide some fuel for thought and optimistically spark debate that is lacking on this subject at all levels.

Background

LWD 1 Chapter 3 best describes what we as AFV crewman are really trying to achieve with mastering vehicle craft when it states; '*Mission command allows faster, more relevant decision-making in complex, volatile environments, but also relies more heavily on individual judgement and tactical exertion. It is based on the clear expression of the senior commander's intent and the granting of trust and freedom to subordinates to act creatively within that intent.*' Mission command is achieving professional mastery for a vehicle crew. The vehicle commander issues his intent (Crew Brief) and through trust and freedom, allows his subordinate commanders (driver and gunner) to carry that out as they see fit. This allows the commander to focus his efforts on what the enemy is or may be doing. The commander is now focusing out on the middle to far ground, not directly around the vehicle. The commander currently allows additional freedom to those he trusts (Gunner) and more supervision on those that he doesn't (Driver). Unfortunately our vehicle crew progression that we have held onto since WW1, is holding us back from ever achieving true mastery of our craft.

The current training progression for RAAC personnel is Driver, (Loader), Gunner then Crew Commander. The reason for this is vague, however I suggest it is a legacy from previous operating platforms. With the M113, there was only a driver and a commander and as such the progression made sense. No doubt the same rationale was applied with the Ferret. Legacy tanks like the Lee, Matilda and their gunnery systems were, in many ways, a black art taking considerable time to master. Before modern technology was introduced, sighting equipment was still in its infancy and ranging targets in order to get a direct hit took a lot of training and familiarity with the equipment. As such, it made sense to have an experienced person in that position to make best use of the weapon systems.

Importantly, the driver in all these platforms was the newest and least experienced person. Customarily, they were generally mechanically minded and this meshed well with the maintenance intense platforms at the time. The majority of armoured vehicles were quite slow in comparison to today which allowed the driver considerable time to formulate where they needed to go and seek confirmation from the commander. That description and requirements of a driver has transformed dramatically due to both platform and operating environment evolutions. There is now a requirement for drivers to be technically and tactically minded, and the majority do not possess any mechanical knowledge that will assist them with their role as a driver. In addition to this, the latest offerings for the CRV will be treated more like the family car in regards to maintenance; very little for the crew to conduct themselves other than some very basic checks.

The gunner is still the second most senior crewman in our armoured vehicles today. It is interesting to note that in all of these vehicles there is an override on the turret and everything that the gunner can do. There are precise orders for engaging targets that are rehearsed until they are second nature. Procedures that need to be followed verbatim from a written document, not memorised, to ensure correct adherence to doctrine and accuracy of the equipment. Drills. The gunner is within arms-length and within the same compartment as the commander. The weapon system ranges itself and elevates for the ammunition involved. It has stabilizers which remove almost all vehicle movement. The gunner must receive a verbal command before they are allowed to engage the trigger….. All this for the senior soldier within the crew.

It is therefore further puzzling why we are still recruiting 17 year old boys and girls and teaching them to drive a modern armoured fighting vehicle. We expect them to move that vehicle tactically around the battlefield, with potentially less than a year's civilian driving experience (or none at all). They get this information only as a brief description from the commander (crew brief) and are expected to then perform the task immediately. They are also tasked with keeping in mind the main gun and maintaining a steady platform (something that they have almost no knowledge of) for the gunner. They are to have an intimate working knowledge on all the vehicle hull systems and know immediately what the fault is and what action to take or recommend to the commander. Modern vehicles are easily able to maintain 30-50kmh cross-country and much higher on formed tracks and roads and the driver is pushed to ensure that the vehicle is never static for very long. All of this with no external control from the commander other than radio. We have been perpetuating this error since the introduction of the ASLAV.

We go against everything that we preach in regards to mission command and the amount of trust that this involves at varying levels. Having been provided the opportunity to inspect current platforms competing for the Land 400 contract, the driver is now even further removed from the rest of the crew than what we have now. Unquestionably there is a superior way of utilising our new armoured crewman and extracting the best of their capabilities. We have yet to realise the importance of the driver within the crew and to harness the potential that this position has within the crew of a modern fighting vehicle.

The tactical movement of modern vehicles has not changed all that much from our legacy to current in-service platforms. The driver still receives orders from the commander via radio and other than improved suspension giving a smoother ride, they still need to negotiate the same terrain in the same way as previous platforms.

The major difference now is that modern vehicles can give a false sense of security to someone with little experience in negotiating terrain. The latest suspension and evolutions of fighting vehicles are remarkably well designed to traverse difficult ground. This can unfortunately lead to the driver becoming detached from the surrounding terrain and relying too heavily on vehicle capabilities that they learnt in a classroom. With little experience to fall back on, and with simulation becoming more heavily relied upon for training hours, the driver has very little to assist them in negotiating these real time difficult situations. The threat of a roll over is always high, particularly at night, and is the single biggest threat to crews in training, yet we still give this incredible responsibility to our most inexperienced personnel. There have been no training related deaths or serious injury from vehicle live fire in over 25 years in the RAAC, or other Corps that have employed armoured vehicles in the past. Conversely, there have been numerous fatalities through vehicle accidents.

The current in-service weapon systems on board the ASLAV and Abrams are designed to be incredibly accurate and negate the inaccuracies imposed by external factors. Millions of dollars have been spent on getting them to that point. This is observed every time that we conduct demonstration shoots and have untrained personnel fire the weapon systems. They hit targets; no training conducted. The latest CRV's are even further advanced with their accuracy, lethality and functionality making the task of the gunner even easier.

We do not however place untrained personnel in the driver's seat and let them take it for a test drive. Even though some have had decades of driving experience in other platforms or civilian vehicles, we deem this too unsafe. So it is safe to say that as a community we already acknowledge that the driver has more responsibility and a superior role than the gunner if we are not prepared to let this happen. The benefits of transitioning to being a gunner first are many, and offer far greater outcomes to our mastery of vehicle craft. We have the opportunity to make this happen only due to the advent of advanced weaponry and improved vehicle mechanics. It is an opportunity that should not be passed up.

Transitioning to a modern solution

The transition towards this will be a major hurdle. What are the major obstacles? Restructuring the training continuum? Career advancement? The 'we've always done it this way' rhetoric? Troopers that have recently moved to the gunner's position? If we implement these changes today, it will probably still take three to five years before it is truly accepted in the Units. Gunners will definitely not want to return to driving (probably due to the way that they were treated) and troops will initially think new soldiers are shortcutting the system and getting ahead. There will be a very large leadership challenge for the Corps in order to make a clear delineation of the roles in these positions. The benefits are very clear though.

The gunner will now be a new motivated soldier who is doing a job that they signed up to do and enjoying it. As the junior member of the crew, they will still be responsible for all vehicle maintenance and those jobs normally associated with the drivers today. The grind of daily maintenance on the vehicle is balanced with the seemingly important role of being a gunner in an armoured fighting vehicle. It meets their immediate needs of fulfilling the ideological concept that they had in their mind for enlisting. They will be closely situated to the commander of the vehicle and are closely managed due to the nature of the job as a gunner. They are generally more

technically savvy then previous generations and will identify quickly with modern weapon systems. Safety is not compromised as the commander has override on any actions potentially taken by the gunner. They can also be mentored in the technical skills of a driver prior to doing the course, and have vicariously had the vehicle husbandry culture that RAAC promotes, imbedded into them prior to stepping up into the role of driver.

On the recruitment side, it is a very easy sell to people wanting to join. To have this as an entry point allows for a more selective approach towards enlistment hopefuls. It is appealing and fits today's generation of wanting immediate self- gratification. The technical aspects of modern armoured fighting vehicle gunnery systems are an excellent stop gap for selection into the Corps. Not only does it require an understanding of intelligent computer systems to perform at their job immediately, it will require future mechanical comprehension of heavy vehicles as well. It is a job that will be heavily sort after due to its appealing nature, and as a result the Corps can recruit from the top. Ensuring a strong body of armoured crewman into the future.

We will now have a technically-minded gunner, operating systems that they can quickly assimilate and master, who are closely monitored by the commander of the vehicle. They will be able to watch and learn the mounted troop standing operating procedures and drills from the turret. They will have a visual concept of where the vehicle needs to be or what they need to do prior to actually conducting it. This will build a superior driver who reacts far quicker and far more dynamically then what we currently have. It removes the commander from being involved in the minutia of vehicle movement. This can only build better vehicle commanders as well. The benefits of this are exponentially felt throughout the crew.

The driver adopts the position as 2IC of the crew and takes more ownership of the vehicle. They will manage the gunner's tasks. This then grows the leadership ability for the driver and assists their growth into a young JNCO. We now have more experienced personnel driving the vehicles. This value adds in several ways. Firstly it will aid the crew commander in vehicle movement and thus increasing its lethality. The commander will spend less time trying to drive them through the terrain and more time scanning for enemy and preparing for their next move. The driver will understand what a crew brief is and what is expected from them. The drivers will know where they are going, and understand commanders intent. They now have a vested interest in the tactical situation and can assist and advise the vehicle commander on vehicle capabilities.

They will be listening to the radio (as they're supposed to) and understand what is being said. As they are not directly involved in the engagement, they can assist with battlefield commentary if the commander and gunner are heavily committed in combat. As a result, they will be able to react to commands given by higher, allowing the commander further freedom to manoeuvre the vehicle or direct actions against the enemy. The driver knows what it's like to fire the weapon system, static or on the move, and will be able to place the vehicle in the best position with minimal instructions from the commander. They will be able to better advise the gunner as to any upcoming terrain that may affect accurate firing or concerns for turret alignment. All crew members of the vehicle are competent on the weapon systems and can identify and correct any faults that occur on the platform. All of this adds up to increasing the level of proficiency and lethality that the vehicle crew can provide.

This is nothing new. Vehicle commanders should attempt to recall the times they've had a senior trooper or even a junior crew commander driving their vehicle and will know how much easier tactical movement became and how everything just went smoother. There was far less stress within the vehicle as the driver understood what was expected and what you wanted. They understood the terms that were used and there was far less repetition of instructions which directly increased your movement and tempo. We also see this on our subject four courses where the students drive and gun for each other. Many a student has passed a battle run due to the competency of the 'driver' who received poor or incorrect orders from the student vehicle commander, and surprisingly arrived at the correct location or headed in the right direction. We call this coursemanship but in reality it is telling us that we are underselling the importance of an experienced driver.

We have always done this. Who gets the best driver in the Troop? The Troop Leader. Then down the line until the Troop Sergeant gets the least experienced. Why? We have taken into account the match between vehicle commander's ability and the driver's. So it stands to reason that if all the drivers were more experienced, then all crews would be better off. Hence, our vehicle craft and war fighting skills will be at a higher standard. How then do we then put this into practice?

Implementation

The requirement for well-trained soldiers is constant. As a result, pressure on the School of Armour (SOARMD) to deliver quality training will not disappear. With new platforms arriving, we need to be postured to accommodate the new vehicle in regards to training, and ensure a smooth introduction into service. A potential plan for Initial Employment Training (IET) is not so hard to achieve.

The Communications phase wouldn't need to change, as this is already pitched at an entry level standard. The Driving and Servicing (D&S) phase would now become more focused on the maintenance of the vehicle, as this will be the primary role for the new Trooper. IET's will still obtain a restricted licence however will have very limited off road experience. Simulation will have a lead in this area providing significant cost reductions and reliance on actual platforms. The time spent at D&S Wing can be greatly reduced. The IET will then conduct the Gunner's course which will see them off to their respective Units. The Unit now has a soldier that is motivated to conduct their new role as a Gunner, and a soldier that will have a good understanding of how to maintain the whole vehicle, not just the hull. The flow-on effect here is that there won't be any more Gunner's courses. It will be an advanced Driver's course.

After 12 to 24 months as a gunner, the Driver's course will be conducted. It will be more tactical in nature and focus on filling the void between gunnery and the mastery of vehicle craft. This is where vehicles will be utilised in all facets in order to enable the driver to gain as much experience as deemed necessary in filling this void in the troop. All of the students will already have licenses and so more time can be spent on night, close terrain, urban, formation and other more tactically minded driving techniques.

As all the students will be senior soldiers within the unit, more responsibility can be placed on them. They are used to operating in and around the vehicle and

understand the maintenance requirements when in the field, so vehicle readiness will be maintained. Instructors can adopt more of a mentoring role rather than instructional as they are dealing with soldiers that have worked on the vehicle before. They can spend more time offering their experience and guiding the students. A tactics package would be included to help drivers further understand the lexicon of their commanders, and to understand the tactical situation so as to increase tempo on the battlefield.

This is an easily exportable course due to its very nature. This will ease the resource burden on the SOARMD and allows Units to run their own Driver's courses when and where they require it. As it is focused on tactical driving, this is easily overlapped with Unit field training and reduces resources considerably. The amount of drivers that are able to be trained is completely reliant on the number of Driving and Servicing ECTO's the Unit has. This however could be justifiably increased due to the drivers already being licensed, and only requiring tactical driving hours which all vehicle commanders understand and can supervise.

The flow on towards future courses is such that our troopers will already have a good knowledge of the tactical aspects of vehicle manoeuvre, and therefore we can look at more advanced packages for the Subject Four CPL Crew Commanders Course. The students on the course by this time will have been tactically driving and working closely with their vehicle commander for approximately two years. As a result they are acutely aware of what the majority of the early stages of this course currently teach. Terrain appreciation, ground selection, and working with other vehicles has been their job, so this course can now start at a higher standard and become more complex.

This will in turn have its own future flow on effect on other courses. As Gunnery ECTO's are the SME's for mounted gunnery, Driving and Servicing ECTO's will become the SME's of mounted tactical movement. As the Driver's Course is now tactically focussed, the Corps now has a body of people actively evaluating our movement doctrine and assessing its validity in the current environment. They will also provide the Unit and Sub-Unit Commanders with expert advice on the real time capabilities and limitations of the vehicle.

The processes and courses that will be needed to conduct this change are already in place. They are just arranged at different times or pitched at different levels of soldier. Outside the box thinking for example, could see the new driver's course overlapped with the Subject Four and ROBC. This would allow the drivers to be out in the field for a week at a time, moving tactically all day gaining all the necessary experience required. Several Driver's courses could be run over one Subject Four or one ROBC. The cost savings on resources, fuel, training efficiency, etc alone make this a credible course of action.

Conclusion

The major hurdle that we need to get over is the ingrained belief that you should be a driver first then progress. There is no data to support this that is relevant to a modern fighting vehicle today. Legacy training methods that have been cut and pasted from legacy platform training doctrine is currently holding us back from achieving mastery of modern fighting vehicles. It is, for the end users in particular, the most prudent way forward in improving our vehicle craft. If we do this, then we improve our ability to

conduct manoeuvre warfare. This concept can achieve all of this and possibly much more. With the introduction of our latest fighting platform we have the opportunity to make an important step towards true mastery of our craft. If these changes can be implemented it will result in a concise and logical introduction for our new soldiers. It meets their immediate and future demands and utilises their capabilities when and where they are most needed. If we are truly dedicated to the mastery of arms for armoured operations, then the RAAC needs to embrace this line of thinking.

Employment of the cavalry soldier
Operations past, present and future
By SGT D. Williamson

Leadership is of the spirit, compounded of personality and vision; its practice is an art. Management is of the mind, more a matter of accurate calculation, of statistics, of methods, time tables and routine: its practice is a science. Managers are necessary; leaders are essential

Field Marshall Sir William Slim

The word Cavalry comes from the French words *cavalerie* and *cheval* that means 'horse'. The soldiers and warriors that fought on horseback were to be known as Cavalrymen. From the earliest times cavalry had the advantage of improved mobility making cavalry forces 'an instrument which multiplied the fighting value of even the smallest forces, allowing them to outflank and avoid, to surprise and overpower, to retreat and escape according to the requirements of the movement'. Cavalry operations have been used since ancient times, and some of the cultures that employed the tactics which would form the basis of cavalry operations were the Egyptians, Romans, Japanese Samurai and the Mongols to name a few.

The modern term 'cavalry' refers to units that are combat arms of an armoured force, which in the past have filled the traditional horse-borne land combat light cavalry roles. Some of the traditional tasks of cavalry include scouting, skirmishing with the enemy, conducting reconnaissance to deny the enemy knowledge of a particular disposition and finding out the enemy's dispositions, defensive screening of friendly forces during retrograde movement, fighting to and on the objective along side or independent of tank, and lift of Infantry from anywhere to the Line of Departure (LD) and to the Objective, just to name a few of the tasks.

Past

Australian cavalry (Australian Light Horse) were formed in the early 1890s; the Australian Light 'horse' was originally more akin to mounted infantry, in that they usually fought dismounted using their horses to get to the battlefield and as a means of swift disengagement when retreating or retiring. The most famous exception to this was the charge of the 4th and 12th Light Horse Regiments at Beersheba on 31 Oct 1917. In 1918 some light horse regiments were equipped with sabres, enabling them to fight in a conventional cavalry role, such as scouting and screening tasks that were later conducted.

A Light Horse Regiment was equivalent to an Infantry Battalion; however, only contained about 600 men not the usual 1000 strong of the infantry. A Light horse section contained four men in each section and one man would be the 'horse' holder during the battles. The Regiment would be divided into 3 Squadrons with A, B and C Squadron, each Squadron would be then broken down further into 4 troops, then the troops would be broken down into 10 x four man sections.

In the First World War the cavalry were used mostly for screening tasks and for finding the enemy, long range reconnaissance tasks, due to distances and the use of horses. At this time, the main problem with the horses and the men was the need for water, and winning this resource was what most battles were over. Interestingly, unlike modern Australian cavalry, there was only one 'horse' for all types of cavalry operations.

Present

Currently, the Australian Army has two traditional cavalry streams; (in which is about to change) ASLAV and APC operations. The cavalry soldier continues to provide mounted and dismounted options to a commander.   Nonetheless, the cavalry role hasn't changed. The main difference is the 'horse' or 'horses' that are used.   The 'Horse' has evolved through the light tank; to the well know M113, to current day, in service vehicles – the M113AS4 and the modern ASLAV.

Since the start of current operations, cavalry have been conducting the same types of tasks; however, the cavalry tasks of today are evolving from the conventional tasks and tactics that have been used in the past. Cavalry operations now are more focused on conducting the protection of the other assets that are in the combined arms teams. From the overwatch positions on the banks of the rivers in East Timor using the optics and giving the combat teams and battle groups the mobility and fire power required.

In the early 1990s, the Australian Army sought the guidance from the USA and at that time, the LAV was the weapon of choice. The vehicle had a 25mm chain gun capable of firing out to ranges of 2000m, at the time one of the best in the world. Also the vehicle was quiet and robust, but only capable of conducting the tasks that were required of the cavalry soldier less the cavalry roles of support to Infantry lift, fighting on the objective, and moving from the LD to the objective with and without Tank support. The capability shortfall was considered acceptable, as the Infantry were operating the M113 and was able to cover these responsibilities.

In the last 16 years RAAC has been deployed to East Timor, Iraq and Afghanistan. Again they were not employed in the typical cavalry role; however, the tasks that have been completed and still are mostly our typical role. The main role of the cavalry in operations in these areas was in a combined arms role supporting the infantry in close support and at long ranges.

Future

The future of the cavalry operations is the way of combined arms teams.   This includes cavalry expertise moving forward within ACRs, combining as a team with the mixture of the infantry, and supporting arms at the side. The cavalry is always evolving. If it's not the vehicles, it's the way we conduct the operations against the enemy. Our current role is to locate, dislocate and disrupt the enemy through the conduct of offensive, defensive and security actions. This is our role now and will be in the future; however, in the future we are going to have to rely on supporting forces to assist in this.

RAAC needs to move forward enhanced by advancing technology, but this does not and should not mean that we as a corps lose sight of traditional cavalry tasks.

Currently the Corps has a lack experience in the full suite of fundamental cavalry tasking such as moving tactically from the LD to the Objective, operating autonomously and separate from Tank, particularly within the APC trade at the junior level. In order to close this gap in training RAAC needs to acknowledge that this gap exists, and the ACRs needs to emphasise, mentor and grow the JNCOs, particularly APC qualified JNCOs from within. It is unfortunate that with the loss of M113 to Rain, and the subsequent re- introduction of the AS4 into the ACR, the cavalry skills necessary of an APC section commander were lost to those personnel who had never been exposed to M113. Most commander acknowledge this short fall, but interestingly, do not have the experience themselves in APC operations to correct this either. RAAC needs to correct this gap in training so that we do not amplify it further with the introduction of new capabilities.

Conclusion

The rate that RAAC is evolving leaves a steep learning curve for Junior Commanders. The Corps currently awaits the new fleet of ASLAV replacements, which need to be tried and tested, and the replacement M113AS4 needs to be selected for its tasks as well. While new vehicles are great in terms of up to date technological advancement, they will be less than effectively employed if we don't invest in the fundamentals of cavalry task mentoring for our riders, the operators of our future 'horses'. It is our soldiers who will impact on future success of our Corps in battle, and if we do not give them the time, effort and mentorship now, then all of those new technologies and our time re-raising the APC trade will be wasted as well. Currently, ACR APC JNCOs 'are drinking from the fire hose at full rate' and these JNCOs will be our future. If we do not only mentor them within the ACRs and APC Cell, Tactics Wing with a specific standard and end state in mind, we will effectively be wasting our time.

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Is Plan CENTAUR going to be the answer to Army's Armoured maintenance needs?
By SGT P. Glendenning

They exist to keep the punch in the Army's Fist. They are a new Corps, born in the late war, they have done magnificently and have won their spurs in battle

Viscount Montgomery of Alamein

Prior to Federation and until the present day, the management and maintenance of Army's equipment has been at best problematic; this has been addressed in a number of ways. Under Plan Beersheba, the Army is modernising its equipment in order to be prepared for future threats whilst meeting the current demands placed on it by the current World situation and to maintain its training obligations. The implementation of Plan Beersheba has necessitated another rethink of the maintenance processes of the Army's equipment. Plan Centaur is the latest attempt at reforming the Army's maintenance practices and aims to deliver a more robust and effective means of meeting the Army's future capability requirements. The aim of this essay is to provide a background to the Army's maintenance history; to consider the effect Plan Beersheba will have on the current maintenance regime and to examine Plan Centaur's focus on achieving reform to meet the demands of the future.

History of Maintenance services in Australia

From Colonial times, the maintenance of the individual Colonies Militia's equipment was conducted by the various Artisans and Armourers who were part of each Unit's support staff. From Blacksmiths, Armourers, Mechanics to Wheelwrights the maintenance needs were met at Unit level. The Defence Act (1903) created a Military Board for the Army, under whom the Inspector-General was to report on the results of policy and administration and the condition of the Australian Military Force (AMF) in general. From the first Inspector General, it was reported that the lack of a Military Ordnance Corps was severally limiting the AMF's supply and maintenance processes. This situation continued to exist, throughout World War One and up until 1928, when the Australian Army Ordnance Corps - Permanent (AAOC – P) was established. In the meantime, with the creation of the AIF, the Australian Army Ordnance Corps (AAOC) was formed, based on the British system, to allow for the conduct of the War. At the same time, the Australian Army Services Corps was created and allowed for the various Horse drawn and eventually Motorised transport vehicles to be operated and maintained in the field. At War's end, there were numerous Ordnance Workshops (Ord Wksp), both Light and Medium, throughout France and in the Middle East. After the disbandment of the AIF in 1921, these Units and their functions officially ceased to exist.

In 1927, the mechanisation of the Australian Army began in a co-ordinated fashion, as opposed to the piecemeal developments of the earlier years. The Mechanical Engineering Branch (MEB) of the Ordnance Department was formed in the same year, as was the Australian Tank Corps, but one had little to do with the other, as the maintenance of the armoured vehicles was done within the Units or locally. It was however during this time that Lieutenant General Chauvel impressed the need for

better workshop facilities, which slowly but surely became available. This situation continued to exist, up until and included the beginning of World War Two. With the advent of the War and the early reversals, particularly against the Germans in the Desert, it was decided that the unwieldy system that had existed needed to change. When the Royal Electrical and Mechanical Engineers (REME) in the British Army was formed from the combination of their Ordnance, Engineers and Service Corps maintenance elements, then it was decided that the Australian Army would do likewise. Thus, in 1942 the Corps of Australian Electrical and Mechanical Engineers was formed.

Since the addition of the word 'Royal' in 1949, the Australian Army's maintenance identity has undergone several changes, from the Base Workshop Depots of the 50's and 60's; through to the Workshop Battalions of the 70's; on through to the Base Administration Support Battalions (BASB) of the late 80's and up until the current Combat Service Support Battalions (CSSB). Along the way the size of the force has halved, the amount of technology that requires service and repair has increased exponentially and the resources both with regard to manning and supply have become finite and difficult to plan for, let alone maintain.

Plan Beersheba

The Army, under Plan Beersheba, is continuing to modernise its equipment, to be prepared to meet any new and emerging challenges. With the restructure of the three regular force combat brigades into similarly structured, multi-rolled formations and with the advent of the included Armoured Cavalry Regiments (ACR), the current supply and maintenance issues have manifestly become increasing complex and cannot be met by today's inflexible and failing systems. In addition, with the development of the new Amphibious capability, a difficult situation has become even more untenable.

The management of the multiple vehicle platforms found within an ACR, not only affects the supply and maintenance requirements for each equipment type, but also affects the manning of the associated supporting supply and workshop elements and the workshops themselves. In each ACR workshop, the workshop will need to be big enough and flexible enough to support the three different platform types. Each workshop will need to have the tooling and associated diagnostic equipment for each type of equipment and the workshop personnel themselves will need to be in sufficient numbers to cope with the increased technological demands as a result of the formation of the ACRs. Otherwise, every Tradesman will need to be qualified on each platform type, in the barracks and in the field environment, which will increase the burden on an already stretched training development system.

Plan Centaur

With the introduction of Plan Beersheba, it was identified that a review of the equipment maintenance and their supply systems was well overdue, the last having taken place 30 years before. Thus, Plan Centaur was enacted to address maintenance constraints within the ACRs and to provide significant improvements in the way maintenance is delivered to Army in the future. Plan Centaur is a three year program, funded and sponsored by Army HQ, with its primary aim to identify and remove any maintenance issues that cause problems or delays with the deployment of, or the operation and sustainment of the ACRs.

To meet Army's needs, Plan Centaur's intention is to deliver Operational Effectiveness through the provision of safe, environmentally compliant and functional equipment. If this is achieved it will allow Army to meet not only its preparedness requirements, but also its activity demand requirements. Plan Centaur also intends to realise Organisational Efficiency through the optimised use of resources. This will include the optimisation of Army and Contract Labour, and improve the efficiency of the use of Army's assets as well as its finances.

Plan Centaur's ultimate aim is to target improvements in equipment availability, through improving maintenance productivity on operations, whilst improving equipment sustainment in barracks and with the final aim of achieving cost savings of $10,000,000 annually after project completion.

Conclusion

The Army's equipment maintenance needs and the threats that that the Army is preparing to face, are constantly changing in a World where change is constant and the failure to evolve, or adapt can prove to be detrimental, if not fatal. From the study of our history, it can be seen that the failure to keep up with the changes necessitates a painfully steep learning curve, in a short amount of time. In the past, we have had that time, but with the rapid evolution of Computers and Electronics and with the technological gap between our Country and those that we would consider our adversaries, closing, (if not already having passed us by), then failure to plan for the future will surely lead to our demise as an independent Country. In this essay, I have studied the background of the Army's maintenance history; I have considered the effects that Plan Beersheba will have on the current maintenance regime and I have examined Plan Centaur's focus on achieving reform to meet the demands of the future. Whether Plan Centaur will achieve its aims, only time will tell.

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Reducing resource requirements for training at the School Of Armour
By SGT N Petersen

…The definition of the object of military training is success in battle....

Lewis "Chesty" Puller (USMC)

The changing nature of modern technology necessitates constant review and implementation of processes with regard to the training and maintenance of skill sets to prevent 'skill fade' over time. In the Australian Army we have an attitude of training our soldiers in as many skill sets as reasonably practical with a view towards not only enhancing the individual, but also to cover any gaps arising from a shortage of qualified personnel in specific technical and non-technical areas. The complexity of the systems we are currently utilising and just as importantly the systems we are moving towards in the future are going to directly affect the way in which we train and the time in which it takes to achieve competency.

The aim of this paper is to discuss the issue of training time and resource allocation associated with larger courses, in terms of time allocation, that are run within the School of Armour (SOARMD). The main focus will be on considerations for reducing the resource strain on SOARMD associated with Subject 4 Corporal Crew Commander CRV/Tank Course (SUB4 CPL) and solutions to alleviate some of the issues associated with instructor manning and equipment availability that could be applied to other courses within SOARMD.

Training on Current Platforms

I have chosen to discuss three possible solutions that address the time management issue I assess would be cost neutral insofar as the resources required to complete the training outcomes are already in place and/or the monetary cost to units would be comparable to current costs with regard to flights and accommodation for any members needing to travel. As a point of reference the current SUB4 CPL CRV runs for ninety two days with the Tank course running at eighty one.

The first course of action would see the units take responsibility for the initial gunnery training by utilising instructors and resources integral to the organisation. SOARMD could then conduct a confirmatory/assessment phase for an applicable period of time for that particular course. SUB4 CPL CRV is a good example of a course that could utilise this method by conducting an in-unit gunnery component prior to moving down to SOARMD for the tactics phase. This would help to alleviate stress on SOARMD's instructor and equipment resources. As we know this course of action has been utilised in the past with comparable standards of trainee performance to courses run entirely by SOARMD.

The second possible course of action would essentially reverse the previous idea of in unit instruction prior to moving to SOARMD. Utilising the 'non continuous training' method trainees would begin the course and learn core skills such as gunnery and tactical vehicle craft at SOARMD up to the completion of the patrol live fire assessments. From there, the trainees would return to their unit qualified as individual crew commanders with the AFV safety supervisor qualification. The units

would then bear responsibility for the aspects of the tactical phase that can easily be completed during dry/blank training, such as route reconnaissance, ambushes, close target reconnaissance etc.

The third course of action follows a the British Army style for tactical training whereby the instructors themselves are qualified at the armour school and then go back to their units to conduct the entire course. The Gunner and the Commander swap seats and the entire exercise is monitored by the tactics instructors in follow up vehicles in a similar way to Observer Trainers on exercises like Talisman Sabre and Hamel. SOARMD could adopt a similar model by sending small 3-4 man 'fly-away' teams to the units to oversee and conduct training. These teams could then be augmented by instructors already posted to the unit and managed by that unit's training cell.

ROBC and Land400

Having explored the above options it's worth pointing out that at both the gunnery and tactical level it is generally accepted that the learning outcomes within the Regimental Officer's Basic Course are considered essential competencies and that the time frame is appropriate in order to gain the necessary competencies. Taking into account that ROBC trainees have had little or no exposure to the Corps prior to their course there is no other option than to conduct the entire course at SOARMD.

The more advanced Land400 systems of the Boxer and AMV-35, could potentially result in additional days or weeks added to training programs such as the SUBJ 4 CPL Crew Commander and ROBC courses which are already three and six months long respectively. In the case of both of these vehicles the current package, which has only been run by the civilian contractor, is a five week conversion course through two weeks of driving, and three weeks on the turret systems. It is assessed that through the initial introductory stages of either of these vehicles that the above COA's would not be viable until a solid knowledge and experience base has been established throughout the Corps.

Conclusion

Time, as always is at a premium at SOARMD. Through speaking with the instructors of the wings within the School it is clear that there is little room to shorten the length of these courses as whole, however by exporting some of the components
of these courses to the regiments this could free up time and resources at the SOARMD reducing the stress on vehicle availability and manning issues within the instructional wings, which would in turn lessen the strain on the individual and the organisation as a whole.

The role and relevance of RAAC Reserve units
By WO2 J. Passmore

the Defence Reserve Association (DRA) considers that the architects of Plan Beersheba may not have given sufficient thought to how Reserve Armoured Corps (RAAC) units could or should be used in rounding out or supplementing Regular Army Units and capability. For example, Army Reserve RAAC units are tasked with generating a protective mobility capability using the PMV 'Bushmaster'. These units are not tasked or equipped to undertake a Cavalry role of conducting reconnaissance, defending vital assets, providing convoy protection, staffing listening posts and undertaking surveillance tasks. Consequently, the Army Reserve cannot properly supplement the Regular Army Cavalry Capability

Submission to 2015 DWP

The role of Reserve RAAC units has become convoluted and confusing to say the least in the recent past. The implementation of Plan Beersheba has only added to the existing confusion, to the point where now, their role seems to depend on the opinion of the individual you ask. The aim of this essay is to discuss the ability of Reserve RAAC units to support and supplement the ACR as cavalrymen and if they cannot; what to do with them. There is not enough scope with in the limitations of this essay to go into detail on all the issues associated with the current state of Reserve RAAC units. As such this paper will focus on the current level of competence versus the required capabilities, integration into ARA units and some of the options for the future of Reserve RAAC units.

Competence Versus Capability

It was stated in the opening quote of this essay by the DRA itself that Reserve RAAC units are not tasked or equipped to effectively conduct cavalry tasks. This has been evident the last two years during the Cavalry Regimental Officer Basic Courses (ROBC) at the School of Armour. The ASLAV troops' scout sections were supplied by ARES units. The Tactics Wing instructors observed in the ROBC after action review that while the Reserve RAAC soldiers were not lacking in enthusiasm, they were certainly not trained adequately enough to conduct basic cavalry tasks in the dismounted role without direct supervision by directing staff. The Army web page states the role of the Cavalry Scout as follows:

> *"The Cavalry Scout is a soldier who provides specified individual and collective capability which can support, sustain and reinforce Army's operational RAAC units. The Light Cavalry Regiments/Units are Army Reserve units that can operate either in a mounted or dismounted role".*

It further states as their duties:

> *"His primary duty is to operate as a Scout, in tactical and non-tactical situations. He is required to participate in the conduct of reconnaissance, surveillance, offensive, defensive, security, and peace keeping and support operations, employing Specialist Equipment".*

One of the roles of the Army Reserve is to deliver specified war fighting capabilities (as the main effort) by raising, training and sustaining specified 'round out' and reinforcement roles (Army Modernisation Update 2014, p 43). Taking this into account as well as the mandated role of a Reserve RAAC soldier, it is paramount that competence in their training reflects this. As it stands with the current order of battle in the ACR having no ARA scouts (which severely degrades the effectiveness of a cavalry troop to conduct reconnaissance tasks or operate effectively in any degree of complex terrain, this topic however is an essay in itself) it is highly unlikely that a Reserve RAAC element, either mounted or dismounted, would be required to integrate or 'round out' the tank squadron. With this in mind it becomes obvious where the focus of training needs to be; within the ACR cavalry squadrons. At present there is very limited current doctrine which is specific to cavalry scouts; they are being trained using mounted and dismounted minor tactics pamphlets. The training material that is readily available for dismounted cavalry operations is a doctrinal abyss. The 2/14 LHR (QMI) web site has an electronic version of the cavalry scout handbook which is an excellent starting point however, it needs to be evolved and incorporated into the doctrine used by all RAAC units both ARA and ARES. As stated in the Army Modernisation Update 2014; these roles and tasks underpin the structure of Army Reserve capability within the wider force and provide a basis for the priorities of their organisations' training. If Reserve RAAC units are not being trained as cavalry scouts with the ability to 'round out' the ACR and cannot competently execute basic cavalry tasks they are not fulfilling their role as stipulated by Army.

Integration Into The ACR

Recent operations in which RAAC units and personnel have deployed in their primary role as AFV crewman have been a poignant example of the need for dismounted support for mounted cavalry troops. This need has been fulfilled and carried out primarily by infantry soldiers and in the low intensity conflict environment this has been effective. However, it has rarely been seamless, infantry soldiers are not cavalry scouts and nor should they be. Ideally cavalry scouts should be qualified AFV crewman with specialist dismounted skills suited to support the spectrum of cavalry operations. Taking into account what the ACR needs and what Reserve RAAC soldiers can actually do, the question begs: 'what do we do with our Reserve RAAC units?'

Plan Beersheba outlines the Reserve RAAC units providing a protected mobility capability for the Multi Role Combat Brigade (MRCB) utilising the Bushmaster PMV. This is in contradiction to the mandated role of the Army Reserve and the role of the Reserve RAAC units. This fact sheds a lot of light on the confusion and opinion based nature surrounding what light cavalry actually does and is needed to do. In order for the Reserve RAAC units to provide the capability required of it, we first need to define what that capability and role is. There are many options and a realistic approach to what they can actually provide to the Army is essential. At present Reserve RAAC units are arguably the only corps in the Australian Army that does not do what its regular counter part does. This makes their ability to 'round out' and reinforce the ACR, which is not only a specified task of the Army Reserve but is its main effort, extremely difficult.

Keeping this fact in mind there are three options to briefly explore:

a.   Refocus training on light cavalry skills in line with the mandated role and duties of Reserve RAAC units (focusing on the ability to supplement the ACR cavalry squadron).

b.   Redefine the role of the Reserve RAAC units (with the focus on Plan Beersheba's intent for protected mobility capability).

c.   The disbanding of Reserve RAAC units and the options that it creates for the RAAC and the Army.

Of the first two options outlined in the above paragraph the first would present little difficulty to implement and achieve as the role would not change. The vehicle platforms used within the Reserve RAAC units becomes incidental as the onus of training is on the skills required by the ACR, namely; light cavalry scouts mounted in an AFV who can 'round out' and reinforce the sabre troops. The second option poses some difficulties in the fact that the capability that Plan Beersheba is asking of the Reserve RAAC units, namely to provide protected mobility as the crews of Bushmasters, is not a RAAC task. This role has been given to the infantry, CSSB and transport units in the ARA. If this becomes the case, then in line with the specified tasks of the Army Reserve, the Reserve RAAC units are now 'rounding out' and reinforcing infantry, CSSB and transport units. This leaves the ACR in its current predicament where the crews (within the cavalry squadron) are expected to conduct the dismounted tasks required to effectively execute cavalry operations or have infantry elements attached as scouts. It also initiates a Reserve RAAC unit identity crisis as they are no longer fulfilling the role of a RAAC unit which leads into option three.

The third option to be explored is no doubt to be riddled with controversy if it was ever tabled as a possibility. However, this should not deter anyone from at least having the conversation from an objective and capability focused point of view. It is the author of this essay's opinion that if the first option above was to be implemented then the disbanding of Reserve RAAC units need not ever be up for debate. Given the points so far we see that Plan Beersheba and the role of Reserve RAAC units, namely light cavalry, at times contradict themselves. This being the case the question needs to be raised; are these units an armoured capability anymore if they are employed as a protected mobility capability for the MRCB? It could be argued that even as light cavalry scouts they are not either, however as well trained light cavalry scouts they can integrate into the sabre troops of an ACR, substantially enhancing the ability of the squadron to conduct cavalry tasks.

Conclusion

The RAAC needs to have a serious discussion about what our corps needs from the reserve RAAC units. As discussed during this essay the capability of reserve units has become a hot bed of confusion and opinion, to the point where what they do and are needed to do is contradicted in policy itself. If our reserve units are not executing Armoured Corps tasks (protected mobility in a PMV for example) are they actually part of the Royal Australian Armoured Corps? How are they achieving their specified main effort (rounding out the ACR)?

As such the options provided in this essay are not intended to be 'gold plated' solutions but rather a starting point of further discussion. There is no doubt that there will always be stakeholders who cannot agree and the potential for units to jeopardise their long and proud histories, however we cannot continue with the status quo. As stated above we are now arguably the only corps within the Australian Army where our reserve units do not and in some cases cannot fulfil the role of their regular counterparts.

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Integration of ACR Dismounts
An analysis of the Cavalry Scout role and Its relevance within the contemporary operating environment
By SGT Mark Robinson

> *The problem with today's world is that everyone believes they have a right to express their opinion AND have others listen to it. The correct statement of individual rights is that everyone has the right to an opinion, but crucially, that opinion can be roundly ignored and even made fun of, particularly if it is demonstrably nonsense*
>
> **Professor Brian Cox**

Mechanised infantry are infantry equipped with armoured personnel carriers (APCs) or infantry fighting vehicles (IFVs) for transport in or to combat. In NATO and most other western countries, motorised infantry is infantry that is transported by trucks or other non-armoured vehicles. Some nations distinguish between mechanised and armoured infantry, designating troops carried by APCs as mechanised and those in IFVs as armoured. The aim of this essay is to identify what dismounted cavalry are and should be called. The learning outcomes from the LMP taught on Armoured Cavalry IET's at Corps Training Wing (CTW) within the School of Armour. How to integrate the Cavalry Trooper up to the standard required to be employed in this role in the future.

This essay will discuss the traditional role of the Cavalry Scout and which tasks translate to the current battle space, how they are relevant today. How the capability can be re-established and what TMP and LMP revisions are required to support the initial and on-going raise, train and sustain requirements for the trade.

The relevance of Cavalry Scouts

ACR's are the Armoured Cavalry Regiments specialising in armoured warfare. Its named that way because its armoured vehicles doing cavalry tasks, with the strength of a regiment. Cavalry Scouts / Recon Scouts / Assault Trooper have the specialisation of recon / scout / assault incorporated into the name it has been a contentious issue with RAINF. The RAINF have Recon Platoon that is a specialist role, only entered through high levels of personal fitness and experience in the battalion. Reconnaissance, scout or assault are task verbs that are conducted as part of the role of the dismounted trooper. Other tasks that a dismounted trooper will conduct are:
a.   SBF with Anti-Armour, HMG, MMG, LMG,
b.   Ambush in support of armoured vehicles,
c.   Clearance of Urban, Obstacle, Minefield, Battlefield, Defile,
d.   CASEVAC, extraction of casualties from vehicles,
e.   VCP, VAP,
f.   Construction of Obstacles,
g.   Marking LZ's, Crossing points, replenishments, routes, FUP's,
h.   Assault in support of Armoured vehicles,
i.   Observation posts, listening posts,
j.   Close or Point target reconnaissance,
k.   All arms call for fire.

l.   Security

The Cavalry Trooper is fully qualified in their relevant position on the armoured platform, which provides depth and reinforcement for crew positions. They know the vehicle capabilities and the SOP's, TTP's of the TP / Sqn and what requires reporting to higher.

By identifying that the Cavalry Trooper primary specialisation is with the armoured platform being utilised and the dismounted duties being second to the armoured platform responsibilities. The tasks of reconnaissance, scout or assault are tasks, not specific duties to the dismounted personnel. The flexibility and diversity of tasks that are needed to operate in conjunction with the armoured platforms, understanding the strengths and weaknesses of the armoured platform, understanding the reports and returns and need to know information sets the dismounted trooper apart from the RAINF soldier.

I believe the term Armoured Infantry or Armoured / Cavalry Trooper are the closest names that best describes the dismounted trooper as part of an armoured organisation. They wear the black beret and are not limited to a particular task or skill set. This would assist with recruiting for RAAC as all aspiring personnel that want to go infantry, will find out about the dismounted option and increase the desire to enlist in the RAAC.

They are armoured crewman first, and transition into the dismounted role after experience is gained in the mounted. A career snap shot for an armoured cavalry soldier would appear as;
a.   Driver 12 to 24 months (1 to 2 years),
b.   Dismounted operator 12 months doing gunners course while a dismount (2 to 3 years),
c.   Gunner 12 months (3 to 4 years),
d.   JLC and/or CCOMD 3 to 4 year mark (conducted while a gunner),
e.   CCOMD of armoured vehicle 4 to 5 years,
f.   Section COMD Dismount 5 to 6 years.

What has not been done well in the past was the allocation of the section commander. The 2IC only needs to be JLC qualified but the section commander needs to have had vehicle commanding experience. This is due to:
a.   Knowing and understanding TP /SQN TTP's SOP's,
b.   Accuracy in reporting,
c.   Controlling CASEVACs and extraction of casualty form A VEH,
d.   The command presence that a senior JNCO provides.

While there were dismounted personnel within the 2nd Cavalry Regiment it provided something different to being just a crewman. It increased the average retention period of the enlisted soldier to six years. With the option of Cav / Recon Scout it assisted with adding time in rank and developing the experience levels of the soldiers. As a JNCO it will assist with filling the five years required as a CPL prior to promoting to SGT.

Does this training fit into the Tank Stream?

The tank stream and career progression for a TK qualified soldier is very hollow. You become a platform specialist and never leave the platform until an out of corps

posting is provided. The dismounted training, or employment as a dismount, does not fit into the existing tank stream. However the ACR's have a TK SQN, to fight as a single entity with developed teamwork and trust you need to develop an understanding of who it is that's fighting with you. Different experiences increase an individual's knowledge base and assist with performance. The TK soldier has no flexibility with his/her career progression and this has been the same for cavalry soldiers for the past 14 years. With the option of a dismounted role, something different will aid to retention of TK stream soldiers as it did the cavalry soldiers prior to 2005.

Does the training need to be delivered to ROBC?

If it is identified that the priority of the mission is for a dismounted activity, then mission command dictates that only in exceptional cases the TP LDR is not required. The ROBC focuses on mounted tactics, with dismounted tactics taught as part of ADFA or RMC. With a dismounted section in support of ROBC the integration of training would be provided through the experience of having a section attached. Tasks that require a TP LDR's direct attention in a dismounted role would be facilitated by them being attached to the section for the task. A dismounted section commander would be able to brief or advise the troop leader with the tactics DS on a course of action, or what they can provide. This would create a bridge and develop a level of understanding with the TP LDR and negate the requirement for formal training and increasing the length of the ROBC. A Cav Scout section was provided in support of Cav ROBC by the 2nd Cavalry Regiment until 2003. Direction from a current serving officer or ex TP LDR from this cohort would provide the feedback required as to the success of this course of action.

Reintegrating Armoured Infantry / Cavalry Trooper within the ACR's

The current dismounted course being ran by Corps Training Wing (CTW) SOARMD as part of the Armoured Cavalryman IET's is an excellent foundation to reintegrate dismounts into the TP's and SQN's. There are three key MLO's that will require revision due to skill fade.

To label as grade 1 these are:
a.   MLO 1.1 Operate Armoured cavalry common weapons,
b.   MLO 1.4 Describe the military recognition procedure,
c.   MLO 1.7 Employ dismounted Armoured Cavalry Skills.

The skill fade identified from the listed MLO's comes from a number of reasons, these are:
a.   IET's get taught seven new weapons systems deemed competent and move on, with further teaching only supplied on the Mag 58 7.62mm and 12.7mm HB QCB MG,
b.   AFV ID, military equipment, recognition and purpose, gets covered again on gunners' course which can be up to 3 years from initial teaching.
c.   Dismounted skills are taught without a set standardisation of training or SOP's, drills or tasks. It is done dependant on the experience level of the section COMD providing the training to their section. It needs to be understood that there has been no Cav Scouts in the armoured regiments or ACR's for nine years. The last were pooled as V7 with no ECN based training program. The last Cav Scout course, with ECN based recognition, was developed from the

infantry recon course and was run by 2nd CAV REGT in 2003.

The current MLO's develop a good all corps knowledge base which has assisted RAAC soldiers through Sub 1 CPL / JLC. If a unit wanted to conduct revision training based on these MLO's, the training is currently provided in lesson format from SOARMD CTW objective training file and would take 7 to 10 days to complete. This would incorporate the theory and practical aspect of the weapon handling and dismounted drills in a barracks environment. It should be conducted with the planned sections so the development of section level SOP's can begin. No integration with vehicles is identified as part of these MLO's.

To create a standard that was the minimum standard for Assault Troopers / Recon Scouts / Cavalry scouts there are other lessons and information they need, to be able to operate effectively and efficiently. Or to label as grade 2, these are;
a.   PUC Searching handling and processing,
b.   Minor obstacle clearance and marking, with training in the mine lab 4500, working in conjunction with A VEH recovery systems,
c.   Defensive obstacle construction Cat 1/2/3, wire and sandbags,
d.   OP construction,
e.   All Arms Call for Fire at section commander level (IFOT),
f.   Live fire patrol and section attacks, fighting withdrawals and break contacts.

B SQN 2/14 QMI has developed a training schedule that covers off on the dismounted theory and tactics to a very good standard. However it has not identified the requirements of training required for the dismounted armoured soldier when utilised in the cavalry tasks. Training short falls identified from the previous paragraph are what make the armoured dismount a specialist within the cavalry troop. These teaching points will have a direct effect on the capability that a dismounted armoured section will provide to the commander.

To further enhance the section and have it up to the Assault Trooper standard of the early 90's other specialist courses need to be conducted to ensure the flexibility and lethality of the dismounted section in support of armoured operations.
a.   Cobra pavement breaker/digger,
b.   Chainsaw,
c.   Motorbikes,
d.   MK19 Lightweight AGL,
e.   HK417 marksman Rifle,
f.   Javelin,
g.   Live Fire Armoured Cavalry weapons Common (HE).

The standard required will dictate the soldiers, resources, time and effort allocated to bringing this asset back on line. This asset is what increases the manoeuvrability, flexibility, lethality and stealth of an armoured organisation.

Equipment

The equipment I want to discuss is not the SCE, but equipment that was integral to the TP, that assisted with the capacity of the Cav / Recon Scout. These were:
a.   VCP kit – stop go signs, vehicle inspection mirrors, bastard wire, star piquets,
b.   PUC capture kit- black out goggles, PUC cards, plasticuffs, sandbags,
c.   OP kit- Spotters scope, sig log book, sandbags, cam net, ET tool, hoochie cord.

There is controlled equipment that would be distributed from within the troop to suit the task or activity the dismounts were going to conduct. Defensive stores were carried as part of the troop deploying to the field. A troop carried;

a.   4 x rolls concertina / razor wire (100m),

b.   8 x rolls Bastard wire,

c.   50 x star piquets.

These were carried on the ASLAV PC and CMD variants as well as two spare tires. It enabled the TP to establish a defensive perimeter, or block the likely enemy approach routes. It provided a degree of protection to the TP and was constructed by the dismounted personnel.

Conclusion

The Armoured Cavalry dismount should be identified as an identity without a specialisation or task verb associated to it. Having scout, assault, or recon does add grandeur but sets the standard at a very high level when compared to RAINF. With the soldier being qualified in an armoured vehicle, as well as in a dismounted capacity, the name Armoured Infantry / Trooper dictates the specialisation of the soldier being qualified in the platform and experienced in its employment. To reintegrate the dismounted capability back into the ACR's, the need for understanding of the armoured dismount supporting the employment of the armoured platform needs to be highlighted. Their role is to support the armoured platforms and not be a stand-alone entity. The flexibility in tailoring the LMP's and further training in specialist equipment to ensure that the dismount has the correct tools to conduct the job.

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What future for the Cavalry?
By CAPT Scott Owens

Without Cavalry, battles are without result.

Napoleon Bonaparte

Traditionally, armoured vehicles have been integral to the majority of most operational deployments alongside infantry since the end of the Second World War. Whether the mission is to provide support via direct fires, protected mobility of combatants and non-combatants, provide a reconnaissance or surveillance; or simply to present an overt presence during low-level and peacekeeping operations, there is little doubt that armour enhances the flexibility of any deployed force. In recent years, Cavalry has been the RAAC's capability of choice due to the current in service vehicles' flexibility and inherent ability to complete a varying degree of mission profiles across a broad spectrum of operations.

During these deployments the organisation has shown that the only limitation to achieving mission success has been due to the challenges associated with managing an ageing fleet of ASLAV and M1113AS4s. With both of these vehicles due to be replaced under the LAND 400 program within the next decade with more sophisticated and capable platforms, and the M113AS4 capability currently being transferred to the infantry; it is possible that the question will be asked 'If infantry is now motorised and mechanised, do we still need Cavalry?'. The aim of this essay is intended to address this question by examining the role of Cavalry from its historical use, to recent operations and considerations for use in future warfare and to highlight the unique set of mission sets provided by a well-equipped, manned and trained cavalry force.

One of the most important factors affecting the evolution of complex societies is the military technology available to its combatants, with the domestication of the horse serving to enhance offensive capacity through enhanced mobility, both on the battlefield itself as well as the wider theatre of operations. Mounted troops have the flexibility to rapidly concentrate for a massive strike or disperse in small groups that are able to attack from multiple and unexpected directions prior to withdrawing to reposition for subsequent operations. Horse-based military technologies, such as chariots, mounted archery, and armoured cavalry repeatedly revolutionised warfare in Eurasia during the Ancient and Medieval eras and in the Americas during the Early Modern period after the horse was brought there by the Europeans. Before the age of gunpowder, horses as a supreme instrument of war were eclipsed only by ships in naval warfare and by elephants in the jungles of India and Southeast Asia.

Before the mid-1800s, horse units typically fought mounted using sabres, pikes, lances and rapid firing carbines. These units could mount a charge faster that the defending infantry could fire enough volleys at the advancing cavalry to weaken it to the point where the shock effect of the charge would be neutralised. In such cases the infantry adopted a complete square formation where riflemen would crouch and present their bayonets to the charging cavalry. The utility of the square meant that cavalry was not usually used against line infantry unless the latter had already been broken and was in retreat. The disastrous Charge of the Light Cavalry Brigade at Balaklava in 1854 showed that cavalry was not the 'magic bullet' that could be used

to decisively defeat any foe and that commanders needed apply a careful selection of the terrain, application of appropriate tactics as well as understand the limitations of mounted warfare. There would be few times after 1854 where the cavalry would be utilized as the arm of decision, and could impact the outcome of the day of battle so decisively due to the advancement of weapon technology.

The advent of advanced weaponry such as rifled artillery and small arms, along with trench warfare and machine guns of the First World War heralded the beginning of the true demise of the cavalry on the modern battlefield as it could only function in theatres of war that had ample open space for manoeuvre, such as the desert or the vast expanses of Russia. By 1918 most of the European armies had dismounted their cavalry and used the vitally needed manpower as infantrymen. A notable exception was the charge of the 4th Australian Light Horse Brigade at Beersheba in Palestine in 1917 where they captured the town and routed the Turkish defenders. The 800 cavalrymen took 38 officers and 700 other ranks prisoner as well as four field guns[1]. In the two regiments involved, only 31 men were killed and 36 men wounded. What is notable about the Australian Light Horse Regiments was their ability to adapt to local conditions and fight either in the traditional manner while mounted, or to dismount and take on the role of infantry[2]. On the Western Front, the birth of the tank meant that a highly mobile and survivable force capable of breaking through the enemy line and causing havoc was now available to any commander who saw its worth. The cavalry's historical role was passed on to the armoured force and by the end of the Second World War, the majority of nations had mechanised their cavalry and the Australian Army had formed reconnaissance regiments within the Infantry Divisions to conduct screening and scouting missions in order to find the enemy and preserve the main body for decisive action.[3]

Operations in Vietnam saw various Australian cavalry units deploy with newly acquired M113 APCs in a wide variety of classical cavalry tasks such as reconnaissance, convoy escort and protection, route security, flank protection, cordon and search as well as direct support to infantry units. Although the Vietnam conflict was mostly fought in densely vegetated and close terrain, cavalry soldiers were able to demonstrate at the Battle of Long Tan "the comparative ease with which surprise may be obtained and the terrifying effect of armoured vehicles as they race in to destroy the hapless enemy."[4]

Subsequent M113 operations in Somalia and a combination of M113 and ASLAV in East Timor allowed for the provision of route security and reconnaissance to the deployed forces and the benefit of their speed of reaction as well as the flexibility to conduct simultaneous mounted and dismounted operations through the use of Cavalry Scouts was ideal in these low threat environments. Operational deployments to southern Iraq from 2005 onwards saw the ability for the employment of ASLAV in a more traditional cavalry role due to the nature of the mission and terrain, however this also saw the advent of a new type weaponry from threat forces with the use of IEDs of various natures, as well as EFPs which were able to defeat the ASLAVs armour; subsequently, this saw the development and implementation of a set of new TTPs for vehicle crews whereby the attached dismounts conducted "5 and 25" sweeps of the area surrounding the AFVs in order to identify emplaced

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[1] Australian War memorial Record, pg 401
[2] E. Kennedy Jnr, pg. 61-62
[3] LWP-CA (MTD CBT) 3-3-6, pg. 1A-2
[4] Ibid

munitions. These TTPs were subsequently adopted on deployments to Afghanistan, with the sweeps being conducted by attached Infantry and Combat Engineers (instead of Cavalry Scouts) with a significant number of IEDs being identified and neutralised as a result and served to reinforce the need for dismounts to be integrated with cavalry.

With the acquisition and introduction to service of the next generation of Combat Reconnaissance Vehicles (CRV) in the coming decade, there will need to be a fundamental shift in the way that the Australian Army utilises the improved capability that these vehicles will bring to the battlefield. With cavalry troops likely moving to a four vehicle construct under L400 Phase 2, as well as the loss of cavalry scouts to the Reserve Force it is very likely that Cavalry Squadrons will experience capability loss in the future for a number for a number reasons, including a reduced ability for the troop to concurrent mounted and dismounted surveillance, a lack of endurance due to limited troop personnel and a higher reliance on external resources for the conduct of combined mounted/dismounted operations. While there is a capacity to draw on cavalry scouts from Army Reserve units, it is questionable whether these soldiers would be available for recurring, extended operations in a high threat or tempo environment, and if so, what is their standard of collective training prior to deployment?

To remedy this shortfall, there are two options that are available that will allow a modern cavalry force to meet the needs of future operations.

Use of additional personnel from APC Sqn. The recent announcement transferring the APC capability to the infantry in preparation for the introduction of L400 Phase 3 will result in some of the surplus personnel from the three line troops of the APC Sqn having the capacity to be re-rolled as cavalry scouts for use within the ACR as cavalry scouts. This would negate the need for infantry who are likely to be unfamiliar with ACR TTPs and SOPs to be attached from a SIB[5]. This would also continue to allow the light cavalry construct in use in the Army Reserve units to be maintained within the ACR by attaching either an entire Light Cavalry Sqn to the ACR, or alternately the bulk of the APC Sqn structure could remain in place with only the need for the light cavalry troops to be utilised for exercise and deployment. This course of action would be relatively simple to achieve and achievable with current doctrinal manning and with the utilisation of current in service vehicles such as SRV or Hawkei.

Re-Rolling APC SQN into Light Cavalry . An alternate construct would be for the APC organisation to remain within the ACRs as per doctrine; however they are re-rolled into a light cavalry force that could be used to either operate independently of, or to augment the operations of the cavalry squadron. This light cavalry force could potentially be mounted in Hawkei and would be able to perform the majority of cavalry tasks such as screening, patrolling, CTR, OP, route reconnaissance and convoy escort; however due to the reduced firepower and protection afforded by these platforms, missions such as guard, ABF and some forms of SBF would likely be outside of their scope of operations.

The ability to deploy a force that is highly mobile, offers protection and is capable of accurate sustained direct fires which also has the ability to react rapidly and be re-

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[5] LWC ORBAT Book, pg 29

tasked in an ever changing tactical situation, has been demonstrated on any number of occasions throughout history as one of the most valuable assets that any commander can possess. While recent years has seen a number of major organisational changes for the RAAC and with the reduction in manning and potential capability gap post implementation of L400 Phase 2, it is apparent that these issues should be examined in further detail and addressed in order to best manage any future loss of capability.

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Should the Australian Army be running to catch up?
By CAPT Shane Abdoo

There is nothing new under the sun

Ecclesiastes 1:9

The enduring nature of war has remained constant throughout history but the character of conflict is constantly evolving.[1] The speed of which technology emerges in a networked and globalised world has proven difficult for Western militaries to maintain their traditional advantage over potential adversaries. This paper aims to highlight areas that the Australian Army could seek to rapidly advance techniques, procedures and drills to ensure its regional advantage.

As a vehicle for discussion, this paper will briefly introduce the techniques employed by Russian Battalion Tactical Groups (BTG) in Ukraine. It will specifically detail the Russian rocket attack at Zelenopillya on 11 July 2014 during which two BTR-mounted mechanised battalions were all but destroyed in three minutes. It may serve the ADF well to not only learn from these recent actions, but seek to emulate their techniques of integrating assets. Suggested ways forward at the tactical level will be made with the aim of lifting our gaze and professional discussions above the basics. The following issues raised are predicated on the knowledge that Defence acquisition is a very thorough and proven process, but the critical observation is that it assumes that conflict is at our discretion.

Recent Developments in Conflict

Much has been written on Hybrid Warfare or New Generation Warfare represented by the Russian intervention in a number of its former Soviet satellites. The methods employed include cyber warfare, use of special operations forces and local proxies to sow confusion and mount strong disinformation campaigns.[2] On the ground these actions aim to undermine local government, they use ceasefires to resupply proxies, disguise resupply as aid convoys and attempt to hide state involvement. None of these attributes are new but it is clear that the Russian military has refined their employment in Ukraine after development in Chechnya and Georgia. Russia is demonstrating a very clear intent to achieve military goals without consideration of political impact. What is new however is the articulation of the manouvrist Russian aim to exploit Western weaknesses by using such methods, largely in response to sanctions.[3] Much of the above occur as precursors to violent actions but it is these the ADF can learn much from.

In the late Cold War period the Soviet Union introduced the term of Reconnaissance Strike Complex, which linked missiles/Offensive Support (OS) to radar sensors and

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[1] LWD 1 The Fundamentals of Land Power.
[2] Karber, Dr Phillip, A, "Russia's Military Drills Near NATO Border Raise Fears of Aggression", *The Potomac Foundation,* 1 Aug 17.
[3] Karber, Dr Phillip, A, "Lessons Learned" from the Russo-Ukrainian War", *Historical Lessons Learned Workshop sponsored by Johns Hopkins Applied Physics Laboratory & U.S. Army Capabilities Center (ARCIC),* 8 Jul 2015, pp 46-48.

C2.[4] In the Australian context it would be understood as a sensor – shooter link. The contemporary Russian manifestation of this complex is demonstrated in the BTG. This is a Combined Arms Battle Group which typically consists of two mechanised infantry companies mounted in either BTRs or BMPs, one tank company and two OS companies (one rocket, the other gun). Air Defence and Combat Service Support (CSS) assets are also organic. Interestingly, each sub unit has an extensive variety of UAS, which, when coupled to the disproportionate quantity of OS assets, enables an overwhelming, rapid and flexible response to any threat. It is believed that Mech companies operate quadcopter UAS to provide situational awareness within their immediate area of responsibility and the OS companies operate larger, fixed wing, day/night capable UAS for the control of precision fires. Of further interest is the fact that professional soldiers rather than conscripts man these BTGs. The parent Brigade generates the capability from its three battalions to produce highly motivated teams, supported by conscripts only on an 'as needed' basis. This Combined Arms model has met with great success in Eastern Ukraine.

At Zelenopillya on 11 July 2014 two Ukrainian mechanised battalions moved to within 10km of the Russian border to monitor the illegal movement of weapons across the border. The Ukrainians mistakenly believed that Russian UAS were not fitted with infrared optics, therefore the move was conducted at night. Due to communications interference both organisations came together and established a night leaguer. Poor night routines were conducted due to fatigue after a long march. By 2300 hours the leaguer had been identified and the fixed wing UAS of the OS companies had confirmed the precise location. At approximately 0200 hours a strike by a BM21 'Grad' company fired a mix of top attack and thermo-baric rockets. In less than three minutes most AFVs were destroyed and the units received 36 KIA and 93 WIA. Casualties included the medical staff, preventing the triage and treatment with organic assets of the massive number of injured. The rockets had been fired from Russian territory but the West dissuaded the Ukrainians from applying counter battery fire in an attempt to not be 'provocative.'[5]

Figure 1. Ukrainian AFVs destroyed at Zelenopillya

Recognition is given to the fact that militaries should not race to adjust doctrine or philosophies after every war. This was a motivating factor for Von Clausewitz when writing *Vom Kriege* in the nineteenth century and the reason for his delineation of the nature and character of war. It should be noted however, that as a professional military force the ADF and Army in particular should look to rapidly integrate technological developments as soon as practicable.

Lessons for the Australian Army

A globalised world has not only brought conflict closer to Australia but it has also enabled adversaries to rapidly learn from their contemporaries, particularly as we

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[4] Watts, Barry, D, "The Maturing Revolution in Military Affairs", *Center for Strategic and Budgetary Assessments,* 2011, pg 2.
[5] Karber, *Lessons Learned,* 2015, pg 37.

enter a period where state-on-state conflict is more likely than in the previous decades. It is reasonable to expect that the ADF will encounter any number of characteristics of the conflict in Ukraine on future operations. Karber provides an extensive range of observations from that country but for clarity,[6] the following four will be examined:

a.   Unmanned Aerial Systems (UAS) presence is ubiquitous
b.   indirect fires lethality has increased
c.   Anti Tank Guided Munitions (ATGM) need to be employed at lowest level
d.   light AFV survivability has declined.[7]

These four lessons will be analysed using the metrics of Army's current use, gaps or impacts identified and what options may be available to address them.

UAS

UAS are currently employed in specialised units or in limited capacity in niche roles within selected units. UAS of varying size and capability have been used with success during operations in Iraq and Afghanistan. Like many operational acquisitions this century, they have been obtained to meet a specific need and are frequently not integrated at Combat Team and below. The novelty is now wearing off and there is an acceptance that UAS are part of the new normal, but much remains to be done regarding the integration into doctrine and Training Establishments.

Army must seek to clarify and build new doctrine around the employment of such equipment, given the risk presented of revealing friendly force positions through visual, aural and electronic means. An understanding has been gained on the employment of larger UAS as part of the sensor-shooter link but tactical level development is lacking, as is their use for controlling fires. Not only do infantry sections/platoons and cavalry troops need to enhance their understanding of how to utilise them for tasks, but to learn how to alter their extant TTPs for defence against the threat posed by UAS.

A fully integrated understanding of best practice at the lowest levels can only come through exposure and access to equipment. Junior commanders need sound doctrine and SOPs to reference as they develop training and expertise in UAS employment. These same commanders then need to rotate into training establishments to set the baseline for ROBCs and specialist courses to further develop concepts. An entire training cycle such as this is needed to set even the most basic of foundations to start 'professionalising' tactical employment as something more than a novelty. Only this way can Army gain the *Know* combat function at the tactical level.

Indirect Fires Lethality

No argument can be offered that denies the lethality and accuracy of Offensive Support (OS) systems currently employed in Army. The differences and issues raised

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[6]Karber, as quoted in an email from Maj Gen GC Bilton AM, CSC, following a lecture at Association of US Army, undated.
[7] Karber, *Lessons Learned,* 2015, pg 12.

by Karber regarding OS speak more to philosophical variance between the Western and Russian militaries. The Soviet experience in the Second World War certainly taught them to prefer massed over precision fires, while the West has opted for the reverse. The change effected by recent Russian modernisation programs however, has accented an increase in accuracy whilst retaining a quantitive advantage through close integration with UAS. This particularly relates to long range fires such as Multiple Launch Rocket Systems (MLRS).

The Royal Australian Artillery currently fields a small amount of OS and a variety of precision munitions. Available systems could not be considered long range fires and despite the intention to acquire precision fires of this nature, the ADF still lacks any land based deep fires capability. This effect is gained from the RAAF or Coalition partners, which denies a common understanding at the lowest levels. Junior commanders cannot fully employ systems that only exist in simulation. Similarly, logistic redundancy is also lacking in the maintenance of our small number of traditional artillery systems, to the point that they may not all be deployable in short notice conflict.

Potential adversaries will not necessarily possess gaps in indirect fires capabilities that the ADF has and little can be done in the short term to rectify this. What can be integrated into training however is the impact of threat systems in the battlespace. How would our doctrinal defensive routines need to alter to counter the threat of MLRS launched thermobaric rockets? Who is investigating the impact of such systems on our mounted and dismounted forces, with the assumption that they are likely to become more prolific? Given the absolute necessity of integrated fires with Manouvre forces, how can deployed forces achieve the *Strike* function effectively without a deep fires capability?

ATGM

The US desire to prevent the escalation of the Ukrainian conflict also manifested itself by not providing the tandem warhead TOW 2 ATGM. The tank was the primary Ukrainian anti-tank weapon system, supported by limited holdings of modern ATGM. The superior Russian T72B3 and T90 tanks quickly destroyed Ukrainian T64B tanks, which left infantry forces unable to protect themselves against tank assault. These units were quickly reduced to using shoulder-launched, short range AT weapons, which were ineffective against Explosive Reactive Armour (ERA), equipped modern tanks. Without modern ATGMs Ukrainian infantry were unable to hold ground.

This scenario could easily be replicated in the ADF should it deploy against a peer threat army. The limited holdings of Javelin missiles and the complete absence of any wire or laser guided ATGM would quickly be found wanting. A capability gap exists in that the 66mm SRAAW and 84mm MRAAW systems are suitable to destroy light AFV only but are not effective tank defence in any future conflict scenario. Only tandem charge warheads, with the capability to defeat ERA and then main armour, will suffice at a time where even older MBTs are receiving protection upgrades. Similarly, an order of battle that holds anti-tank weapons at Battle Group level rather than with the Platoon Team may impact infantry force survivability. Again, the observation is made that if the right equipment is not held, how can its employment be fully understood and integrated at the tactical level?

Under project Land 400 an ATGM capability will be acquired and bridge this gap for mounted forces only. The problem remains that under any short notice, high intensity conflict scenario, rapid acquisition coupled to 'just in time' training would be required for infantry units. These soldiers would be qualified but not proficient in techniques, procedures and drills required to integrate true anti-tank systems and achieve the *Strike* and *Shield* Combat Functions for a deployed force.

Light AFV Decline

The arming of irregular forces by Russia in Ukraine with advanced weaponry is expected to be a norm in Hybrid/New Generation Warfare. This 'democratisation of lethality'[8] has resulted in an increasing proliferation of hand held anti armour weapons capable of defeating most modern tanks and all light AFVs. This highlights the decline of light AFV for roles other than protected mobility.

Figure 2. BMD 2 APC destroyed by direct fire

The Australian Army has commenced modernisation initiatives under projects Land 121 and 400 and has redistributed tank across Combat Brigades. These are significant capability and cultural changes which will prepare Army for future conflict. The problem is that they coincide with the aforementioned spread of anti armour weapons which dictates a counter-development of greater protection. Without a commensurate level of protection to MBT, IFV/APCs are nothing more then targets with a high payoff.

The shift to greater protection is already occurring in many armies around the world. The Israel Defense Forces (IDF) leads the way following some hard won lessons during the 2006 Lebanon War, with the introduction of a Heavy Infantry Fighting Vehicle (HIFV) based on the Merkava tank called *Namer* (Hebrew for Tiger).[9] These vehicles are also fitted with Active Protection Systems (APS) which further enhance survivability by destroying incoming projectiles before they contact the AFV.

Figure 3. *Namer* HIFV

APS is an excellent example of how techniques, procedures and drills must be modified to suit new capability. Infantry fighting alongside platforms equipped with such systems will be killed when the system activates, likewise the employment of ERA on tanks. Our current procedures need significant adjustment to meet these

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[8] Campbell, Angus John, LT GEN, AO, DSC, "The Future of Australian Land Operations", *Australian Strategic Policy Institute (article 25 Jun 15)*, website accessed 17 Sep 17.
[8] Johnson, David, E and Gordon, John, IV, "Observations on Recent Trends in Armored Forces", *RAND Arroyo Center Occasional Paper,* 2010, pg 5.

changes and can only be achieved through exposure in the training environment and a collective understanding of the capability.

Army should train as it will fight. It also may need to deploy with the equipment it has now, not what it plans to have in future. The M113AS4 and ASLAV have been declared obsolete and yet Land 400s selected vehicle is some time off, providing a significant capability gap. The thoroughness and political nature of Defence acquisitions leaves few options in the short to medium term to bridge this gap, which is of concern given our dominant AFVs are now only suitable for low intensity conflict. ADF preparation for high intensity conflict cannot be compromised or reliant upon chance or the ability to select the wars we participate in. Any potential adversary will seek to exploit our perceived weaknesses through surprise in an effort to destabilise our responses from the outset. Without heavy protection suites on future AFV fleets, Army will not be able to provide the *Strike* function to the Australian Government across the full spectrum of conflict.

Changing the Paradigm

The mantra is frequently chanted that soldiers and officers must be 'brilliant at the basics.' Ab initio training is targeted at setting sound foundations with the expectation that units will address the collective training requirements. A number of factors contribute to a very short repetitive loop which prevents Army from developing advanced skills in a training year. These include the lack of alignment of posting and FORGEN cycles, certification exercises that focus on higher level commanders and confidence gaps that occur when commands change leaders.

Could Army forego the 'brilliant at basics' attitude in the training environment in order to set foundations for more advanced skills for units to build on? If there is one aspect units could provide training opportunities for easily, it is the basics. Small team skills and drills are the aspects that are constantly employed. Advanced, integration practice is inherently more difficult and should be the focus of Combined training at all levels.

Should Manouvre Corps Regimental Officers Basic Courses (ROBC) not include assets such as UAS in order to set defaults which are measured and considered, rather than treating such assets as a novelty? Why is there a lack of complexity in ROBCs regarding All Arms integration? Surely an 80% solution on traditional course content is acceptable if foundations for the actual operational job are set on strong foundations. Are we as flexible as we tell ourselves or are we failing to adapt to a rapidly changing world? How will we develop intelligent solutions to complex operational challenges if we do not extend and challenge commanders of all levels, rather than higher level commanders? After all, there is no guarantee that current trainee officers won't be deployed immediately to a high intensity conflict, direct from their ROBC.

Conclusion

The lessons available from recent actions by state and non-state actors in Ukraine are extensive and relevant to a Defence Force in a time of transition. It is assumed that if high intensity conflict was to erupt in a short timeframe, that rapid acquisitions and Coalition support would be viable. This requires the ADF to become comfortable and indeed reliant on last minute, 'just in time' training as the norm. This prevents

tactical commanders developing high proficiency levels with the integration of effects. If we organisationally accept that Combined, Joint, Interagency operations are a default, why do we not establish training regimes that solely focus on this end state?

ADF and Army in particular must seek to apply the recent changes to the character of war when they are considered to be the new 'normal'. The result of not developing techniques, procedures and drills around UAS use and defence is a deployed force with limited situational awareness and an enemy with total advantage. Similarly, the employment of a heavier force or improved OS capabilities is different to the paradigm we traditionally operated under.

The conflict in Eastern Ukraine was of an intensity and ferocity that would have been unimaginable in Europe ten years earlier. Many lessons have been drawn, and continue to be drawn, for conventional armies that need to be ready to fight in unconventional wars. Without an adaptive mindset and a willingness to learn from recent high intensity conflicts, we are destined to expend Australian lives learning the same lessons.

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Reality of Troop level training programs as guidance and expectation management for junior officers
By CAPT Dan Solomon

The Squadron/Troop (equiv) training program is an extremely capable tool to assist field grade/subaltern commanders to maximise the training capability within their organisations. However, particularly for a junior troop leader, the training program can too easily be overlooked or dismissed without the experience or understanding to maximise its effect to train soldiers. This essay will identify some of the lessons learnt from the author following seven years in the Regimental environment learned the hard way and in discussion with peers who share the same experiences and thoughts towards weekly training. While doctrine provides us a basic start point (LWD 7-0 Training and Education, 2015), without the requisite experience junior officers learn too late the Regimental factors that will interrupt planned training, the impact that unforeseen circumstances may have to the best laid plans and how the Regimental week really pans out. While this essay is not a 'hard and fast' rule, it may serve to enlighten a junior officer to the reality of the barracks routine. Note, this is a very generic and agnostic view of the training program and will obviously differ between units.

Troop Leaders reality

At first glance, a five day training program may seem like a lot of time to fill and enormous opportunity to train their soldiers. However, with some experience and understanding of barracks routine, those five days very quickly slip away and end up being measured in available hours rather than available days. All too often officers create excuses (or are forced) to spend their day in the office. The workload of officers hasn't really increased over the years, it has just changed. Officers of old were responsible for kit checks and drill. Now, those responsibilities are taken by JNCOs while the officer spends their day in the office tied to the computer. This doesn't even take in to account the most productive time period of the day for administration, the hour between 1600 h and 1700 h once the soldiers have finished for the day. The reality of the barracks routine means that the Troop Leaders weekly routine will be 'regularly irregular', meaning that they will not be able to predict what unexpected administration burden may occur, but they can predict that one will occur when they least expect it. There are also outside influences that can impact on a barracks routine such as civilian lead times for stores, armoury access etc that usually require submissions/requests weeks ahead. Therefore, it is essential that Troop Leaders planning remains flexible and robust to avoid a training failure before it has even begun. This impact can be best demonstrated by breaking down the weekly training program by day (enclosure 1 shows a generic training program that best demonstrates this):

Monday

Most units hold a PT session on Monday morning that, including breakfast/shower break, covers the morning until 0930 h. These PT sessions should be sacrosanct and considered a right, not a privilege. The benefits of PT and training for soldiers have been described on numerous occasions and will not covered by this essay. The

following period until lunch may be broken by Mornos around 10-1030 h, which, in some units, is considered compulsory to attend by the officers. In the soldier's view, if the officers are attending Mornos, they will be too. The time around Mornos is usually spent dealing with the soldier incidents/atrocities from the weekend. Whether it is Fact Finding, interviews or back briefs to the command chain, the time before lunch is usually not enough time to ensure adequate reporting and incident management to occur, and hence these tasks can continue through, or after lunch. If no soldier incidents have occurred, this time can very likely be taken up by administration/staff work that was not completed the previous week. The period after lunch may also contain COs/OCs orders or something similar which will involve Squadron Headquarters, removing the chain of command from the sub unit for the troop leader to interact with. By the time the OC has returned from/given orders, they will be immediately consumed by the subsequent tasks, and will have limited opportunity to assist the junior officer.

Tuesday

Similar to PT, the Tuesday morning is consumed by the Brigade Sports program. Again, this additional PT is good for the soldiers and benefits training. Tuesday morning generally does not have allocated tasks and allows a good three hour window for the Troop Leader to plan training. However, if resources are required for the training such as weapons or simulation, the set up time can be quite long and diminishes the time available. While it certainly is possible to work through lunch, this would not be the ideal solution for soldiers conducting regular PT as they will not be receiving the adequate nutrition required for recovery. Following lunch on Tuesday is a shorter block of training that is available. However, this will be impacted by the requirement to return resources prior to the end of the working day, and the likely requirement to attend a 'knock off' parade with SHQ. Locality will also play a big part with extreme weather, such as that in Darwin or Townsville, meaning training can be difficult during the hottest part of the day. As an example, the conduct of IMTs in the heat means soldier welfare is paramount and trumps the desire to do additional training at the expense of the wellbeing of the soldiers.

Wednesday

Wednesday commences with another PT session and may, depending on the unit, include a Mornos period for the soldiers. Usually, Wednesday morning and afternoon are free to allow a full day's training opportunity for the Troop Leader. This allows forward planning of larger activities requiring a significant resource allocation and provides adequate time for the setup and pack up of required resources. However, Wednesday can be a risky day as it can be the only day of the week that does not have a permanent activity. Therefore, for any tasks that come up, Wednesday can seem the perfect day as it does not impact any other regular activity in the training program. Given that Wednesday is the best day for a whole day of training, the easy fix of allocating tasks on a Wednesday is actually the worst thing to do and does not enable the Troop Leader to maximise their training opportunities with the soldiers.

Thursday

Thursday is the most odd day of the week. Generally, Thursday morning is given over for the conduct of dress inspections and room inspection for the 'live-in' soldiers. Thursday morning is also an opportunity to give to the SSM to complete any

Squadron tasks that may require completion, while the officers can use Thursday mornings to complete any required administration or PME, which will be discussed later. Even though some time is saved in the morning with no PT, a sports parade will generally be held around 1200 h IAW the Brigade Sports program, which then takes the remainder of the day. While all officers should strive to participate in the Brigade Sports program, realistically an entire afternoon without the soldiers is an irresistible opportunity to complete staff work for the week.

Friday

Friday morning PT is a good way to round out the week. For most units, Mornos is held on a Friday and is, for the most part, compulsory. Friday morning can be utilised for some training however, realistically, is spent preparing the Sqn for the next week or finalising work that is usually due on a Friday. Friday can also contain CO/OC orders to allow for task commencement/completion immediately from the start of the next week. Similarly to Monday, this is most likely going to consume the efforts of the officers and does not facilitate the active participation in soldier training. This continues on into Friday afternoon which usually ends with a COs Hour in the Mess for all officers.

Opportunities to exploit for training

As can be seen in the daily break down, the five day working week realistically is only two days to conduct solid, large scale soldier training. But, as mentioned, these two days are also at risk of being consumed by additional tasks because there is 'nothing on' for the Regt training program. By linking in with the Sqn training program, Troop Leaders will be able to leverage off the OC to keep Tuesday and Wednesday free for conducting training. With discipline, coordination and flexibility, Troop Leaders can exploit Tue and Wed and spend time actually training with their soldiers rather than being confined to the office. This allows for larger, more robust training that requires longer duration like simulation (advance, OPs, delay etc) or going in to the Close Training Area. Exploiting training opportunities is good for the professional development of the Troop Leaders and generates cohesion within the troop as the soldiers are getting face time with their commander. These opportunities need to be treated as essential and non-negotiable by all involved, including by Regimental HQ unless no other opportunity exists. By treating Tuesday and Wednesday as sacred training days, Troop Leaders will be forced to do their inevitable admin on Mon, Thu and Fri, which can be given to the NCOs to conduct their own admin, vehicle servicing or small, 'hip-pocket' lessons with the soldiers.

Generic Regimental and Brigade activities that impact training program

The nature of Brigade barracks time means, inevitably, Brigade tasks will impact on training programs, no matter how well planned and deconflicted. While the volume of Brigade tasks may seem random and ad hoc/late notice at times, a snap shot at previous years shows that Brigade taskings meet a simplified timeline that can be predicted and bypassed to minimise the impact of planned training. This training program is usually available for Troop Leaders to peruse early in the year to allow forward planning and forecasting. With some creativity, Brigade tasks may even be utilised to complement the training program. A monthly simulation or basic IMT training that is stepped and progresses over the course of the month can be broken by anticipating when the Brigade Athletics Carnival or Army SAFE Day is to be held,

incorporating a 'rest' day to break the training. This ensures participants are involved in other stimuli as a method of maintaining concentration and active participation. A Brigade Mil Skills Competition can be utilised as a culminator for an IMT program that, while focused on the chosen section competing, can involve the remainder of the sub unit/troop to increase the overall standard of the soldiers, who now have a goal and competitive endstate to work towards. Alternatively, the Mil Skills competition can be utilised to identify shortcomings and weak points within a soldier base that can shape a training program for the remainder of the year. By having a fixed point in the Brigade training program to aim towards, Troop Leaders can work their timeline backwards to allocate time outside of the preparation required, meaning additional training opportunities can be forecasted with some confidence. However, the junior Troop Leader must be cognisant that while they do not have many years in the Bde, a significant number of soldiers have participated in numerous Bde competitions and do not have the same vigour or exuberance as the LT towards the Mil Skills comp. This creates an added layer of complexity for the Troop Leader to keep soldiers engaged in an activity that may not be as interesting or important to an experienced soldier. While Brigade tasks will ultimately impact a training program, particularly during the RESET cycle, a bit of foresight and a pragmatic approach to creating the training program can leverage of these activities and actually enhance training rather than being a burden.

Sitting below the Bde Training Program will be the Regimental Training Program. Like the Bde program, this should be available for the Troop Leaders to see in the future to allow for some forward planning. This training program will contain all the regimental sized training that the CO desires or has been directed by Bde outside of their own program. The Regimental program will vary between units but one guarantee that exists for all units is the maintenance program set by the Regimental ASM. In an armoured unit, this program is a huge burden to the Troop level training program which all too often results in training ceasing to get the vehicles in the workshops and fixed to prepare for the next field exercise. This will rapidly take up the time of the soldiers and NCOs who will maintain the vehicles as much as possible before they go to the deeper line maintenance, leaving the Troop Leader with no soldiers available for training. While this does allow the Troop Leader time to conduct administration it often leads to an indefinite lull of not getting out of the office until every vehicle is complete which, with aging fleets, can be a significant time. This does provide some training opportunities with a bit of creativity by providing maintenance quizzes or QDEs in the hangars, but is difficult to achieve regularly. Although essential, the maintenance of vehicles all too easy becomes the training program and denies the Troop Leader even more time to lead the soldiers.

Professional Military Education

Professional Military Education (PME) is essential for the development of junior officers. However, experience shows that often it is the first thing pushed aside at all levels when there are other tasks that require completion. It, like PT, should be sacrosanct and only impacted on when there is no other option. PME for junior officers is a command responsibility but, when that fails, the junior officers should be pushing to conduct PME where possible, even amongst themselves. The Thursday or Friday morning time period is perfect for the officers to conduct robust and regular PME. With some cross talk amongst the Squadron's, junior officers can meet together to discuss key topics, training opportunities, TEWT/QDE/TDE, wargame etc. without the need of the involvement of field rank officers. By setting this in stone,

junior officers can use the training program to enhance their own training, not just that of the soldiers. If included in the Regimental training program, this can be enhanced even further with the inclusion of all officers of the Regiment, but must be made routine and unmoveable, or risks being cut away at the earliest inconvenience.

Conclusion

The Troop Training program is an excellent tool that is too often dismissed when it becomes difficult to regularly adhere to the content contained within. While there is a general understanding taught in the all corps environment, the reality of troop leading in the Brigades means that the five days within the working week very quickly become two main days in the middle of the week. For LTs, the pull of the office can be difficult to escape without understanding some of the opportunities in the week that exist to get out of the office and in front of the soldiers, the rightful place for a combat leader. Having learned from experience, this essay will serve to front load junior officers to make the most of their short time in the saddle without having to learn the same lessons of those who have gone before them.

Generic Training Program					
Timings	MON	TUE	WED	THU	FRI
0730-0800	PT	BDE Sport Training	PT	Inspections/Parade/Sqn Admin	PT
0800-0830					
0830-0900					
0900-0930					
0930-1000					
1000-1030	Morning Tea		Morning Tea		Morning Tea
1030-1100		Training Opportunity		REGT/SQN Admin	PME
1100-1130	REGT/SQN Admin		Training Opportunity		CO's O Group
1130-1200					
1200-1230				BDE Sport Parade	
1230-1300	LUNCH				
1300-1330					
1330-1400	OCO Grp	Training Opportunity	Training Opportunity	BDE Sport	REGT/SQN Admin
1400-1430					
1430-1500					
1500-1530				Regimental Parade	
1530-1600	Knock Off Parade	Knock Off Parade	Knock Off Parade		COs Hour

Relevance of Armour in Urban Operations
By LT Charlotte Hargreaves

The military's own report says that one-third of deaths and casualties could be avoided if proper body armour and vehicle armour had been provided from the start of any war

John Oliver

The changing global environment continues to challenge our common assumptions, accelerating technologies in which information and precision dominate, and result in an increasingly cost-conscious Australian Defence Force. Emerging regional and global outlooks along with evolving character of war clearly suggests that land forces will continue to play the decisive role in the security of modern states against both regular and irregular adversaries[1]. The world's population is expected to reach eight billion by 2030, with the overwhelming majority of this increase (95%) in the developing world[2]. Furthermore, the world has now become more urban than rural. In 2012 it was predicted that by 2030, the current urban population would have risen from the then 3.6 billion to five billion, with 60% living in cities, the 2016 statistics show that the world is currently at 4.027 billion highlighting that the trend in growing population of urban areas is occurring faster than initially anticipated[3]. From this a deduction can be made that in the years to come the hub of each major conflict and operation will be embedded in the urban environment.

Urban environments absorb larger numbers of forces than operations in any other type of terrain. For this reason operations must be focussed on discrete zones within the urban and peri-urban areas, rather than seeking to achieve control over entire cities or regional towns. This presumes understanding of a given urban area's design and metabolism, and must be underpinned by highly effective intelligence, surveillance and reconnaissance. Operational experience has clearly demonstrated that, as intelligence, surveillance and reconnaissance technologies continue to improve, adversaries will seek shelter in complex and congested physical, human and informational terrain thus leading forces to be deployed in environments where adversary weapon ranges are greater than our detection capabilities.

Historical analysis shows the benefits of employing Armoured Fighting Vehicles in all types of operations due to the ability for firepower, mobility, flexibility and ability to adapt to fast changing situations, whether that is high intensity conflicts or unpredictable peacekeeping operations. But do changes need to be made to adapt and increase the effectiveness and chance of success against the amplified complex operating environment and increased technological advancements that are faced by all Defence Forces now and into the future[4].

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[1] Future Land Warfare Report 2014.

[2] National Intelligence Council, Global Trends 2030: Alternative Worlds, Office of the Director of National Intelligence (US), 2012, p. iv, at: http://www.dni.gov/index.php (accessed 11 Sep 2017).

[3] Population Division of the Department of Economic and Social Affairs of the United Nations, 'World Urbanization Prospects, the 2011 Revision' (2012), http://esa.un.org/unup/Maps/maps_urban_2025.htm, p.4 (accessed 11 Sep 2017)

[4] Australian Army, Adaptive Campaigning, Army's Future Land Operating Concept, Army Headquarters, Canberra, 2009, p.18-19.

Peace Support Operations

Peace support operations are unlike any other campaign, the primary aim is not to defeat the enemy but to impose a level of stability on a conflict whilst suppressing the level of violence enabling alternative actions to establish the basis for lasting peace within a nation or cultural group. It may portray overt coercion through the application of significant military force however does not fall under the same category as that of war. Support or enforcement for a nation to comply with international law is the main objective and once this is achieved coercion ceases [5].

Peace support is one among a range of activities undertaken by the United Nations (UN) and other international actors to maintain international peace and security throughout the world. Over the past six decades, UN peace operations have evolved into a complex, global undertaking. During this time, the conduct of UN operations have been guided by a largely unwritten body of principles and informed by the experiences of the many thousands of men and women who have served in the more than 60 operations launched since 1948. According to the United Nations Peacekeeping Operations, Principles and Guidelines their aim is for these operations to preserve peace, however fragile, where fighting has been halted, and to assist the implementing agreements achieved by the peacemakers. Evolving from a primarily military model of observing cease-fires and the separation of forces after inter-state wars, to incorporate a complex model of many elements, such as military police and civilian working together to help lay the foundations for sustainable peace.

The first generation of peacekeeping was limited to separating opposing armies by interposing lightly armed neutral international troops and observing or monitoring cease-fires. The basic pillars for this generation consisted of consent, impartiality, use of force solely for self-defence purposes, free mobility of troops as well as the Status of Forces Agreement with the host country, all initiated by Lester G. Pearson the Canadian Foreign Minister and Dag Hammarskjöld the Secretary General of the UN. Following the end of the Cold War a second generation developed which was multi-dimensional and dynamic in character. Operations became much more complex in terms of conflict resolution, finding political and social solutions to the conflict and removing the need for their presence became an important aspect of their tasks.

Violence in cases such as Somalia quickly forced additional change on multi-dimensional peacekeeping, where dozens of cease-fire agreements were broken. Peacekeepers, as well as humanitarian organisations were confronted with all kinds of violence. The mix of national, regional and local leaders, war lords and armed groups involvement proved difficult for forces to establish and uphold a secure environment for humanitarian and socio-economic aid which became the primary demand of soldiers and police. This in turn has caused old doctrine of the 'non-use of force' to be untenable. The Security Council was compelled to launch United Nations Somalia II with a robust mandate allowing for limited use of force [6]. Somalia and other operations such as Yugoslavia Haiti and Bosnia resulted in the third generation of peacekeeping being formed, mostly called multi-dimensional peace support operations.

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[5] LWD 3-0-2 Peace Support 2009. © Commonwealth of Australia (Australian Army) 2009.
[6] Winrich KÜHNE Peace Support Operations: How to Makyehe them Succeed

Congo 1960-64 allowed United Nations peace operations to use force at the tactical level, to defend themselves and their mandate, particularly in a situation where the state was unable to provide and maintain security. The UN began the Congo intervention with lightly armed troops and ended with jet fighters. This operation lost almost 200 soldiers when the mission suddenly turned to an offensive use of force to prevent the succession of the province of Katanga and to suppress public resistance. The UN escalated the Congo operation to a robust one. In February 1961, the Security Council urged the UN to take immediate action on all appropriate measures to prevent the occurrence of civil war in the Congo, this included cease-fires, the halting of all operations, the prevention of clashes, and the use of force if necessary became the last resort. The operation ended successfully with the secession of Katanga prevented, the UN left Congo in 1964.

The complexity of peace support operations is already evident in the multi-dimensional space that is created. The involvement of people within the peace support realm increases the risk of these operations due to the unpredictable nature of people, therefore creating the requirement for forces to be ready for a change in situation at any time. The increased weapon systems of our adversaries even in the developing world need to be considered when deploying soldiers. By equipping forces with armour, although presenting what could be interpreted as an aggressive approach in what is aimed to be an operation international peace, provides security and protection to what could be an unpredictable and hostile situation. The likelihood of all peace support operations occurring in the urban and peri-urban environment as statistics show is high, these environments allow for well concealed and defended positions for any hostile forces making our forces vulnerable, vehicle systems are able to provide increased ISR and firepower capabilities. Although armour may be intimidating they have a purpose in increasing survivability of troops.

Utility of Armour

U.S Army Field Manual 17-10, published in 1942 stated that 'Armoured units avoid defended towns and cities'. The battle of Grozny in 1995 were Russia lost 105 of their 120 armoured vehicles amplified the prevailing view that urban operations were not for armour but were strictly the domain of dismounted troops. Contrary to the opinions formed from these actions historical analysis shows throughout all conflicts in history there has been a demonstration of the benefits of employing armour whether that is to protect and defend a force or be used as a key player in an offensive action, and what can occur when this opportunity is lost.

Where forces face the threat of IED and rocket-propelled grenades, heavy armour operates with much higher levels of survivability than medium and light forces. Engagements against irregular adversaries generally occur at a distance of 1000 m or less because these types of adversaries do not have standoff fire capabilities. Heavy armour enables friendly forces to survive the initial engagement and respond with precise, timely, direct fire that generally generates less collateral damage than do artillery or air strikes. Heavy units have also proved to be the most versatile manoeuvre force in urban operations, such as the 2004 battle of Fallujah and the 2008 battle of Sadr City. Armoured Fighting Vehicles (AFV) have also proved invaluable as support weapons by providing mobile and protected precision firepower. Adversary weapon systems are improving to be able to adapt to forces armour

capabilities. This has not come without set-backs[7] . The resources and space required for such machines has a direct correlation to the concerns raised in the Future Land Warfare Report 2014 [8].

Employment of Armour

Due to current trends and the increased global urbanisation it can be assessed that the likelihood of all major and minor operations in the future will take place within the urban or peri-urban environment is almost definite.

> *Our strategic rationale has not changed. In the Australian context, the tank has predominantly been an infantry support weapon. Our tank regiment [squadron] practices close cooperation in combined arms teams and are becoming increasingly expert in operating in complex terrain. The Abrams tank means that, if we have to deploy our forces on close combat operations, they will have the combat weight they need to achieve their mission without undue risk* - LTGEN Peter Leahy, Chief of Army (Retired).

Whether conducting conventional operations or operations other than war, AFVs firepower, protection, mobility and networked communications make it an essential element of any combined arms ground force. Since the introduction of tanks during World War I, they have provided the world's armies with a decisive advantage when used in joint and combined arms teams. In recent conflicts AFVs have demonstrated their utility by providing protection to ground forces through networked, all-weather, discriminating and precise direct firepower. The characteristics of AFVs make their employment in contemporary warfighting well worth the logistic effort required to deploy and sustain them as they provide ground forces significant fighting power. That additional fighting power will ultimately reduce the duration of the fight and reduce the casualties sustained by friendly forces [9].

AFVs embrace specific traits; firepower, protection and mobility. The effects of armoured vehicles are not only those that come as a result of their weapon systems, the presence of armour in an area will affect the enemy's plans, cohesion and morale. It will often discourage adversaries from taking action or create a dilemma for the enemy. The psychological impact of armour within the battlespace is not only limited to the adversary, fighting alongside an armoured vehicle provides our forces with reassurance that they are further protected whether it be in a low or high conflict area.

In December of 1992 the first U.S. forces arrived in Somalia. The Marine Expeditionary Force (MEF) in support of Operation Restore Hope consisted of a mechanized unit and battalions from the 10th Mountain who were equipped with HMMWVs [10]. This force joined mechanized coalition forces from Canada, France, Italy , Belgium Pakistan, Turkey, Australia and 10 additional support nations [11]. The Marines' mission was twofold; first to secure the relief effort, and second to disarm the militias. Coalition forces faced an enemy equipped with a multitude of weapons ranging from small arms and recoilless rifles mounted on civilian trucks known as technicals to antiquated U.S. M47 medium tanks[12]. Despite limited incidents of sniper and small arms fire the threat level dissipated to the point where Marine commanders

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[7]Armoured Warfare, Edited by J.P Harris and F.H Toase, First published 1990.
[8] Future Land Warfare Report 2014.
[9] LEP-CA MTD CBT 3-3-5 Tank Regiment Full. © Commonwealth of Australia (Australian Army) 2014.
[10]Relevance of Armour in Counterinsurgency Operations, DF Baker, 06 Aug 2012.
[11]United Nations Peacekeeping Operations, Principles and Guidelines, © United Nations 2008.
[12] Relevance of Armour in Counterinsurgency Operations, DF Baker, 06 Aug 2012.

deemed heavy armour such as tanks unnecessary, ordering them reloaded aboard transports. The decreased violence levels triggered the UN transition control of forces from UNITAF to UNOSOM II under UN Security Resolution 814, assigning participating nations geographic regions within Somalia in order to begin relief and nation building activities. A reinforced battalion from the 10th Mountain Division along with assault, lift, and transportation helicopter assets would then serve as the UN QRF [13]. The choice of a light infantry force as QRF was driven by the belief that street riots and civil unrest would be the prime threat. Major General Thomas M. Montgomery, commander of U.S. Forces Somalia and deputy commander of UNOSOM II, realized the potential for violence due to the continued presence of well-armed militias and the ability of those militias to turn their hostilities toward UN Coalition forces especially in the complex terrain of Mogadishu. To counter this threat Major General Montgomery obtained 72, M113 personal carriers and a small number of M48 tanks.

Due to multiple events which showed a trend of increased hostile activity such as the loss of four U.S. Military Police soldiers. The deaths occurred when a Humvee all-purpose vehicle (HMMWVs) which offered little protection from mines or small arms fire was involved in an improvised mine strike. HMMWV was designed primarily for personnel and light cargo transport behind the front line it was never intended as a front line fighting vehicle. The light force on hand could not have effectively opposed the militia should they begin high intensity operations against the coalition forces. The U.S. Secretary of Defence, Les Aspin, denied Major General Montgomery's request for further armoured reinforcement which came from the increased hostility of Somalian militia, this was due to the political implications of assigning a heavy force to operate in what was still considered a relief operation[14]. Through September and October of 1993 violence toward coalition forces reached the highest point of the operation. QRF support to the majority of coalition operations in Mogadishu became standard practice despite the QRF units being nearly evenly matched in firepower by the militias they encountered. Somali militias began to learn the way Americans fought thus countering there operations through massing superior numbers in less than 30 minutes and volley firing RPGs in an attempt to inflict a large number of casualties which would further immobilize the dismounted infantry. The militia emplaced road blocks to impede QRF mobility and arranged weapons to cover the few remaining open routes. The lack of organic armour which would have provided mobility and survivability to the infantry in such a situation instead required the QRF to coordinate with multiple foreign nations for use of their armoured assets which was a complicated and unreliable affair. This caused friction for the U.S as they were required to use helicopter support and tactical ability to regain the initiative due to the lack of heavy weapons, mobility and armoured protection.

The Battle of Mongadishu or 'Day of the Rangers' fought 3-4 Oct 1993 in Somalia between forces of the United States, supported by UNOSOM II, and Somali militiamen was a third generation Peace Support status operation in which Task Force Ranger was dispatched to seize two of Aidid's high-echelon lieutenants during a meeting in the city.

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[13] Samuel M.Katz, Operation Restore Hope and UNSOM, The International Military Mission of Mercy In Somalia (Tsuen Wan, Hong Kong: Concord Publications Company, 1993).
[14]Timothy Knigge, Operation Casablanca; Nine Hours in Hell! :The Story of American Combat in Somalia (Chapel Hill, NC: Professional Press, 1995).

The warlords were somewhat restrained in that they did not have freedom of movement with armed vehicles, only driving technicals - MAJGEN Montgomery.

This operation was expected to take 30-40 mins however the Somalian militia shot down two UH-60 helicopters, engaging and fixing the light units involved in the raid. Extensive militia forces set up road blocks and barricades in anticipation of the U.S QRF severely restricting Task Force Ranger's HMMWV reaction forces and the threat of RPGs negated the use of helicopters to support. This prompted the authorization of Pakistani M48 tanks and M113 armoured personnel carriers as well as Malaysian wheeled armoured personnel carriers, the Pakistani tanks were able to breach the obstacles to move to the U.S forces in contact. The increase in the time required to conduct the rescue and complications with evacuating the pinned down infantry could have been avoided if the U.S. forces possessed their own tanks[15]. Although tanks and infantry fighting vehicles poorly portray the image of a humanitarian relief operation, they do provide superior survivability and fire power to the soldiers tasked with the mission if and when the situation requires them. In Somalia, this need was identified yet largely ignored. When the physical need for armoured vehicles was identified, there were no U.S. assets available, requiring the tanks and personnel carriers to be coordinated with coalition partners[16]. Approval of MAJGEN Montgomery's request would have provided the required firepower mobility and protection for those forces operating in what became the volatile urban environment. Vehicles and crews suffered considerable damage and losses during the Battle of Mogadishu in 1993 due to the nature of the urban engagement and lack or protection.

Conclusion

War is and will remain a fundamentally human, societal activity, rather than a technical or engineering problem. By nature warfare remains violent, chaotic and uncertain, although technology continues to affect its central character. As has occurred constantly throughout history, technology will produce continuous competition to develop more effective weapons. Consequently, the weapons required to win future conflicts will differ markedly from those used to defeat adversaries today. It needs no explaining that a platoon of Infantry would be unable to conduct a large patrol by day and night whilst transporting a weapon system capable of achieving the same effects as that of the 120mm Cannon of the M1A1 Abrams. Armour no doubt has relevance in all theatres and environments whether that be wartime or peace operations due to the uncertainty of the human psych and unpredictable situations any force may face when facing another likeminded force. Whether armour used be light or heavy, it is key for protection of troops. Any operational theatre in which there is unrest has the ability to become hostile, troops need to be afforded the best chance possible to not only achieve the mission but do it with reduced risk. However as made evident throughout historical examples and future predictions within the Future Land Warfare Report 2014 for the highest chance of success in utilising AFVs there needs to be technological advancements made to combat those of adversaries.

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[15] Kent Delong and Steven Tuckey, Mogadishu!, Heroism and Tragedy (Westport, CT: Praeger Publishers, 1994)
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Depleted Uranium Armour in Project Land 907 Phase 2

By CAPT M. Montague

Everyone is entitled to their own opinions, but they are not entitled to their own facts

James R. Schlesinger

All armoured fighting vehicles are a balance of three characteristics: Firepower, Mobility and Protection. These three characteristics are commonly referred to as the iron triangle.[1] Relative weight given to each of the three characteristics is dependant on the role of the vehicle, the primary operating environment (POE) and context for its use. In the early 2000's, Project Land 907 led to the procurement of fifty-nine American M1A1 Abrams tanks. The decision was made that unlike the American versions of the vehicle, Australian tanks would not be fitted with armour packages that contain Depleted Uranium.[2] This decision was reasonable and correct at the time it was made, however; the time is approaching where the inherent base protection of Australian tanks must be improved. The up-coming likely procurement of American M1A2SEPv3 (System Enhancement Package version 3) or M1A2SEPv4 tanks in Project Land907 Phase 2 will see Australia have the best[3] Main Battle Tank (MBT) in the POE and Southern Hemisphere.[4] In order to maintain consistent inter-operability and technological currency with the United States (US) Military as well as insurmountable technological dominance in the POE our tanks must have the very best armour packages that contain Depleted Uranium. This essay will acquaint the reader with issues surrounding the use of Depleted Uranium armour by; stating relevant Depleted Uranium facts, giving an over view of legislation, regulation and regulatory bodies pertaining to Depleted Uranium in Australia, potential impacts of the ADF procuring and operating tanks with Depleted Uranium armour as well as suggest further reading.

Depleted Uranium facts

Uranium is a natural metal that occurs in many forms on the surface of the Earth. Depleted Uranium or U-238 is a by-product of enrichment of natural Uranium to make nuclear fuel, U-235. U-238 and U-235 are identically chemically toxic however U-238 is 60% less radioactive than U-235[5] due to an additional three neutrons in the nucleus. U-235's higher radioactivity makes it able to initiate and sustain a fission chain reaction that releases lots of energy. Nuclear power is produced from dampened fission chain reactions that are closely controlled. Fission type nuclear weapons such as Little Boy dropped on Hiroshima, use a free fission reaction that is not controlled and releases huge amounts of energy in a very short time. The presence of U-238 dampens fission reactions and makes chain reactions harder to initiate and sustain. It is for this reason that U-238 is removed from natural Uranium in the enrichment process.[6]

All nuclear material emits one of three particles when it decays; an alpha particle (a) which is two protons and two neutrons, an beta particle (b) which is a high energy electron or a gamma particle (¡).[7] Alpha particles are heavy, slow and very reactive

so they are unable to pass more than a few centimetres in air and cannot penetrate human skin or even a sheet of paper. Beta particles are lighter and faster but are also quite reactive meaning they can only travel a few meters through air and penetrate only millimetres through skin into the human body. Gamma particles have almost no mass, travel at the speed of light and can penetrate almost anything.[8] Each of these particles damage the human body by ionising (stripping or adding an electron to an atom) atoms within cells. These damaged cells fail to function, function differently or are destroyed causing a variety of effects within the body. When too many cells are damaged in an area the body cannot cope and medical conditions ensue. U-238, like U-235 is primarily an alpha emitter but some beta and few gamma particles are emitted during decay of individual atoms.[9]

Depleted Uranium is used in military applications for its favourable properties such as high density, moderate melting temperature (1132°C) and pyrophoricity (burns on contact with gaseous oxygen).[10] Depleted Uranium is used in armour packages toward the outside of the vehicle to blunt, break, shatter or deflect in coming projectiles.[11] Depleted Uranium is particularly good at defending against kinetic energy long-rod penetrators. There has been a proliferation of advanced soviet style (stowed in half in an autoloader) and traditional western style (single piece ammunition where the penetrator is the length of the cartridge) kinetic energy, armour piecing ammunition in the Australian POE through purchase of modern MBTs such as the Leopard 2, T-90 and T-84.[12] Therefore, ability of Australian tanks to defend against long-rod penetrators must improve.

Exposure to Depleted Uranium can cause a number of health issues due to its inherently high chemical toxicity. Uranium is naturally enters the human body primarily through inhalation or ingestion and is removed from the blood by the kidneys and expelled from the body via urine.[13] It is also worth noting that Depleted Uranium is 10 million times less radioactive than Americium found in smoke detectors and 3 million times less radioactive than Radon found in luminous watch faces and instruments.[14] Depleted Uranium is also used as radiation *shielding* in hospital X-Ray rooms as its high density allows it to attenuate X-Ray radiation in a short distance, leading to thinner shielding panels.[15] Due to these characteristics, the crew's whole body dose in a Depleted Uranium armour fitted vehicle is close to the rate of background cosmic radiation. Couple with that the inherent shielding effect of metal in an armoured vehicle, the additional exposure due solely to Gamma exposure from Depleted Uranium is approximately equivalent to the background radiation that the crewman would receive whilst outside the vehicle.[16] Additionally, the US Military has experience with Depleted Uranium exposure from actions in the first and second Gulf wars where a number of servicemen and women were exposed to Depleted Uranium via the various forms of ingestion, many of whom are continually monitored. Soldiers who had relatively large amounts of Depleted Uranium shrapnel embedded throughout their bodies (from friendly-fire incidents) showed higher levels of Uranium in their bones and organs. They, however, showed no reduction in kidney function or efficiency and receive a extrapolated radiation dose lower than that shown to induce leukaemia in humans.[17]

Depleted Uranium regulation and legislation in Australia

The use of depleted uranium in Australia is highly regulated and restricted. Australian policy is informed by the International Atomic Energy Agency (IAEA) which is an international organisation that seeks to inhibit the use of nuclear materials for military

purposes and promote the peaceful use of nuclear energy.[18] The regulation of all nuclear material being imported or exported from Australia is the responsibility of the Australian Safeguards and Non-Proliferation Office (ASNO).[19] The regulation of all nuclear material in Australia is the responsibility of The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).[20] All legislation pertaining to the use of Depleted Uranium in Australia is drafted and promulgated by ASNO using IAEA guidance as the basis. The task of regulating the use of Depleted in Australia in accordance with Australian Government legislation is undertaken by ARPANSA.

Depleted Uranium is defined and classed as Source Material within Nuclear Material IAW Article XX of the IAEA Statute.[21] It holds this classification as it is theoretically possible (although extremely expensive and hard) to extract U-235 and many other radioactive substances from it. Depleted Uranium's status as a Source Material sees it covered by the Nuclear Non-Proliferation Safeguards Act of 1987. This Act gives effect to Australia's obligations under: the Nuclear Non-Proliferation Treaty, Safeguards Agreement and Additional Protocols with the IAEA, agreements between various countries concerning transfers of nuclear material and the convention on the Physical Protection of Nuclear Material.[22] It is the legislation in this Act that leads Depleted Uranium use to be regulated.

The Australian Government does not purchase or maintain Depleted Uranium ammunition for use by Australian Defence Force Personnel due to the risk of environmental damage, risk of exposure to health issues for military personnel and civilians.[23] The ADF also possesses a myriad of alternative methods with which to destroy an adversary's tanks. CASG has also purchased a war-stock of German KEWA2 APFSDS-T ammunition which uses a Tungsten alloy long-rod penetrator that has performance in the order of 90% that of American M829A3 APFSDS-T Depleted Uranium ammunition. However, in order to meet the rising potential risks of countries in our primary operating environment possessing tank ammunition natures capable of penetrating M1A1 armour packages, subsequently procured tanks must have Depleted Uranium armour packages fitted as standard.

Handling Depleted Uranium accountability

The ARPANSA regulatory framework is used throughout Australia for the regulation of all nuclear material. ARPANSA already work with the ADF in the regulation of RF and Laser Hazards inherent in working with vehicular amplified radios and vehicle gunnery systems that include Laser range Finders. Guidance and regulation from ARPANSA informs all ADF policy on the mitigation of danger from RF and Laser radiation. This policy is clearly reflected in unit standing orders, technical regulatory frameworks and WHS procedures. The addition of controls, tasks and policy pertaining specifically to Depleted Uranium armour packages in Australian tanks would be quick and easy to implement with CASG receiving direction and guidance from ARPANSA.

Constant regulation and control of Depleted Uranium used as armour in future versions of the M1 Abrams family of vehicles can be implemented with little to no additional impost on Army operations and training. The Depleted Uranium is wholly contained in the armour packages in the front and sides of the turret, front of the hull and the forward track skirts. The structure, layout and function of the armour packages is Secret and the physical make-up of the materials used is Top Secret. As a result the armour packages are welded in the structure of the vehicle and are

unable to be accessed by the crew, first and second line maintainers. The only people with the legitimate need and ability to access the armour packages are contractors and employees from the manufacturer.[24] The additional inspection requirements carried out by the Australian Safeguards and Non-proliferation Office (ANSO) will be easily fit into the existing inspection regimes.

User units of the M1 Abrams family of vehicles must be prepared for the most likely forms of regulation, which would occur if Australia procured vehicles with Depleted Uranium included in their armour packages. The Australian Army and all user units already have extant procedures for accidental exposure of Secret Armour packages through vehicle damage. These procedures and processes will serve as an excellent start point as there will be only small additions required to mitigate the very small chance of exposure to Depleted Uranium fragments or oxides. Exposure to the crew when hit by a non-penetrating projectile is likely to be minimal as any fragments, dust or oxide will be initially dispersed outward from the vehicle and any resulting fire damage will be mostly contained within the armour package that was hit. Any projectile that is able to fully penetrate the armour package and enter the crew compartment is likely to cause exposure to Depleted Uranium but also kill or severely injure the crew. Therefore, any exposure will be limited to personnel tasked with the recovery or repair of the struck vehicle.[25] These personnel will be trained and equipped to protect themselves while undertaking the task of preparing the vehicle for rearward shipment of the manufacturer for replacement or repair.

Conclusion

Project Land 907 Phase 2 aims to procure for the ADF, the best MBT available with excellent firepower, protection and mobility. That tank is extremely likely to be the M1A2SEPv3 or M1A2SEPv4 which both have armour packages containing Depleted Uranium. Both tanks are the very best in the world, are battle proven and offer excellent inter-operability with the US Military. Depleted Uranium armour packages in Australian tanks also offer assured technological dominance in the protection domain against any of the current and near-term MBTs within the Australian POE. Although Depleted Uranium does present small toxicity and radiological dangers to ADF personnel it is only in instances where Depleted Uranium is ingested. When encased in the armour packages on the tank, Depleted Uranium poses no toxicity or radiological danger to the crew. If the Depleted Uranium is exposed through a non-penetrating hit or accidental damage the crew continues to be shielded from it and the majority of ingestible Depleted Uranium is contained in the armour package. If the Depleted Uranium is exposed through a penetrating hit the crew will be killed or so badly injured that Depleted Uranium exposure will only be a minor part of their health problems.

Further Reading

Two publications used in research for this essay are particularly relevant and effective in impartially presenting facts and explanation of factors surrounding the use of Depleted Uranium. The first; *Properties, use and health effects of Depleted Uranium (DU): a general overview*, is a very effective overview of Depleted Uranium written by a team from the International Atomic Energy Agency for the Journal of Environmental Radioactivity. The second; *Depleted Uranium,* is a very in depth analysis of Depleted Uranium and its effects on the environment and populations by a team from the RAND Corporation. Reading both publications will give the reader an

in depth knowledge of the use and effects of Depleted Uranium in civilian and military applications.

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Logistics in the Falklands War
By WO2 S. Gibbons

Give me six hours to chop down a tree and I will spend the first four sharpening the axe.

Abraham Lincoln

The new and developing Australian amphibious capability in force projection from troop carrying, supply ships supported by Navy warships and submarines, we can and should draw lessons learned from the Falklands War of 1982. Where the planed and practiced logistical support for land forces, can win or lose a war, if the loading and disembarkation planning do not align. The national plan to commit forces, at short notice with the appropriate resources to complete the task with a logistical plan to ensure what is loaded and unloaded will expedite or could mire a strategic operation and down to a tactical kinetic fire fight. Australia could certainly find its self embroiled in a political situation were it has to assert Military action to resolve disputes of national interests and not have the luxury of red carpet deployments, that being we it is supported by a host nation with access to all weather airports and sea ports, with capable infrastructure. The British had grown accustomed to this form of exercising logistic deployments, until the 1982 Falkland's war were they learnt some bloody lessons from mistakes from their own making.

The contested sovereignty of the Falkland Islands had been on going since1690s having first been charted in 1540 and first recorded as a sea going hazard, a barren and lethal cost line with its country bare of any wood, very windy and cold. The British had no realistic plan to defend or retake the Islands and failed to see the warning signs in the 17 years prior. The increasing assertive diplomatic negations from Argentina, which was escalated and taken to the General Assembly of the United Nations from 1964 until April of 1981. With a destabilised Government the opportunity to seize power was taken by a Lieutenant General Leopoldo Galtieri. Within four months, his popularity was waning and as an act of desperate nationalism, he directed the invasion and annexation of the Falklands that was hugely popular with the population. The Junta had made the assumptions the British government would not contest the occupation in the short term and the ability to deploy a force with the ability to retake the Islands would not be achievable. The British Prime Minister Margret Thatcher with the support of cabinet ordered a Task force to set sail while diplomatic negations were ongoing. Many believed it was a token show of force and that political brinkmanship would be perused and prevail. The logistical effort of sending 25,948 service personnel 8000 miles by sea in the onset of an Antarctic winter and to do it within weeks, to fight a numerically superior enemy at a ratio of ten to one that was only 200 miles from his base, was a logistical nightmare.

The considerations for the deploying forces that were identified as major effects on British operation, that being the logisticians unaware of the operational plan, rushed tactical loading, poor planning data on consumables stores, insufficient deployment of logistics vehicles and personnel, limited medical evacuation plan, loss of heavy lift capability, poor preparations for post surrender and occupation. From the outset of the political decision to commit combat forces the duration of task of undertaking on

such a momentous military that was undermined by political meddling in military operations only compounded the situation in the words of may of the officers it was "close run thing" and "We learnt a lot of old lessons".

Logisticians knowing the plan

Due to the response directed from Government focusing on speed to get underway which the Military planers were pressured to omitted the synchronisation of logistical planning and operational planning, the plan to retake the Falklands did not commence until the floatier was well on route the most expedient response was to enact the NATO emergence plan. The War Maintenance Reserve only held 30 days of combat rations and 5,000 tones of fuels, vehicles and stores. So this was rapidly loaded as it was immediately available. The Royal Navy identified it did not have enough ships for the undertaking and enacted an acquisition system being, Ships Taken from Trade (STUFT) to augment the flotilla. These ships had to be rapidly modified and converted to allow for helicopter landing pads, troop disembarkation access, and casualty gangways and even having to repaint whole a ship to comply with Geneva Convention standards for hospital ship. What was overlooked were the civilian freighters and cruse liners could not be unloaded, other than by dock side cranes and port gangways and at the beach disembarkation; this was to add to the insurmountable problems during air raids. This as one of the critical oversights.

Units began sending their most critical equipment first and as this arrived it was loaded first and commonly in the bowls of the ships that would make it imposable to get the critical equipment out first in preparation for landing phase. Many of the loads were never inventoried making it imposable to know how much of what and were it was located when loaded. The loading of ships was also restricted to the practices of civilian safety and peace time loading and of stores, and example being that the Navy would not load Army full fuel jerry cans, this impacted on the ability to run the generators that powered the Rapier air defence systems. While the Royal Navy was at anchor in Ajax Bay during the landing phase they were repeatedly attacked by Argentinean aircraft that would have otherwise have been destroyed by the very weapons systems that the Royal Navy failed to support during the loading phase. The lessons being when loading combat equipment the rule of Last on, First off should be applied, with the exclusion of logistical planners in the loading of ships that they were rushing and only focused on loading for a rapid departure and maximum use of space, not access, with no consideration for the logical and tactical disembarkation at the other end.

Three examples of logistic personnel effecting the force protection of the operation, by returning components of the new Rapier Air defence systems to the UK mid transit, as unqualified Officers assumed that it was too much equipment for such a system and was unnecessary. Secondly, the placement of the main systems in the bottom cargo to protect them from sea water albeit sensible in transit prevented the rapid deployment during the lodgement phase as it was loaded with dock cranes which were not available at the beach landings. A third and more comical example, being the Command Flagship had the corridors and walkways lined with food stores' canned bake beans' that planning staff would have to squeeze past, just to move around the briefing and control rooms.

The enormity of the task and the political pressure place on the deploy commanders to get underway compounded the rapid loading of ships and put delays on the

unloading at the point of lodgement while the enemy had air superiority which resulted in a number of ships and lives lost. The two arms of Navy and Army had a number of friction points were a Naval officer lacked the joint perspective of amphibious lodgement and ground warfare, shaping Planning which was at odds to winning the ground war and requirements for a secure Brigade Maintenance Area that would allow secure lines of communication and resupply. It would be of benefit that the command and control of air, sea and land have a clear understanding of each others requirements when formulating a plane for such a joint operation.

The right balance of combat logistical support

The restrictions on available space for personal and a fixation on generating combat power had a direct impact on force projection from the landings. The construct of the force contingent selected by the Ministry of Defence was the 5th Infantry Brigade and 3rd Commando Brigade the latter with an integral Commando Logistics Regiment. The Brigades being based on a light, rapid deployable force was the contingency plan available to government. They relied on being relived in place by heavy follow on forces or extracting rapidly from the Operation altogether. The two Brigades were augmented by Guards battalions that utilised different logistical support. This was the phase were the support force was going to strained to breaking point even before it left port.

The Commando Logistics Regiment was paired back from 602 to 346 personnel and of the 3000 vehicles available, only nine motorbikes and fifty four trucks were selected. When only after strong instance, was the consideration to take ten four-ton fuel pod vehicles and nine rough terrain forklifts to support the logistical force. The errors in trying to generate more combat power and with poor, incorrect intelligence on the nature of the terrain, Shaped the decisions to reduce the armoured and transport vehicles to be taken. The alternative plan was to conduct amphibious landings closer to capital and utilise helicopters for the operation. When enemy action shaped the plan, the historical photographs showing long lines of combat troops forming human chains moving stores by hand off the ships at the SPOD and the Extended files of Infantry struggling under the weight of their packs to close with the enemy defensive position. These photos speak 1000 words in the mistakes made in not considering the logistical support for the size of the combat ground forces. The ratios of logistical personnel and equipment to expedite the movement of stores must never be compromised.

Labelling of Stores

The documentation to track the ordering, delivering and location of many of the stores was subject to the limitations technology of the era, Bar codes were in existence, but not as measurable as today, much of the problem was single paper copies and very generalised labelling. Examples were labelled stores being the highest priority ranging from ammunition to ironing boards or undistinguishable difference training ammunition and operational ammunition meant for Navy or Royal Marines. The logisticians were also hampered by vague directions 3rd Commando Brigade South Atlantic or ship name which the intended receiving Unit was not embarking on.

With modern tracking systems used by many world wide business practices use to track and deliver goods, should be adopted and used with all forms of equipment and

in everyday use both in Exercise training and for Operations. This would negate many of the issues experienced with the logging, prioritising, locating, loading and distributing of stores.

Fuels and Consumables

The Usage rate planning figures were implemented during the early loading stages, but became stretched and impacted on off loading stores and onward movement from the assembly areas The lack of logistical bulk fuel handling personnel hampered the rapid distribution of fuel in one case a single soldier was responsible to fill hundreds of 20 jerry cans a day for weeks. The factors in the weather conditions, terrain was known, but not identified well enough to make corrections and usage rates of the limited platforms deployed consumed more than what could be supplied. Once ground base fuelling was established flight times and consumption was reduced on having to go back to the landing supply ships to refuel did make improvements in the tactical situation. One major factor was 8000, 20 litre fuel jerry cans were left on the docks in the UK as civilian Board of Trade refused to lift safety restrictions on transporting full containers. Bulk fuel bladders and pumping equipment was sent, but it was put on a single ship that was sunk along with a bulk of the heavy lift helicopters. A valuable lesson in not putting all the assets in one place at one time, were dispersion may have assured greater chance of avoiding mass loss of assets in a single hit.

Ammunition and the effects of elements

The intelligence briefs of the factors in the weather conditions, terrain was known, but not identified well enough the on set of winter meant there was only eight hours of usable daylight, so longer illumination missions were required in the assault, the high winds effected rounds in flight made registration guns or mortars longer and adjusting fire combined with smoke obscuration reduced. The result was greater amounts of ammunition being fired to achieve the same effect. The wet soft ground then affected the point detonation rounds functioning and delay fuses ammunition lethality was greatly reduced by the depth the round would penetrate the ground.

The lessons learnt from the first attacks at Goose Green where the 2nd Battalion, Parachute Regiment was to bog down, as a direct result of weather and elements on the terminal effects of fire combined with a number of tactical errors in support ratios and intelligence. The British quickly revaluated and made quick corrections for subsequent battalion level attacks on defensive positions in many cases firing 11000 artillery rounds onto one objective. By the time they were in a position to seize the capital most individual guns were down to six rounds each. This was able to be replaced, but with the long lines of supply and shortages of fuel and platforms it would have delayed the rapid tactical advantages gained and potentially allowed the Argentineans the ability to recover.

In a number of cases some of the consolidation of securing objectives the assaulting sources were reliant on captured small arms ammunition literally out of the pouches of dead soldiers, it was identified that if the Argentinean forces used different ammunition calibres it would have effected the British momentum in the close quarter battle.

Prisoners of War

Little to no forward planning in the logistical efforts on dealing with mass Argentinean prisoners of war, it was estimated to be at least 10,000 personnel defending the Islands. After the battle of Goose Green much to the surprise of the British they took 1000 Argentinean prisoners. In a harsh environment with no shelter to accommodate them all, the British were forced to hold them in open during daylight hours for warmth and cram them into sheds at night to shelter from the Atlantic winds. The burden of constructing camps and guarding prisoners of war was to fall on the logistics regiment that was already undermanned by half and hampered by of loading stores on compounded the British in its ability to make advances on the capital. With to total collapse of the Argentinean defences, once surrender was agreed upon the mammoth task of disarming and processing 8000 Argentineans. It was soon discovered that shipping containers full of food and warehouses' full of canned food stuffs, were untouched and was utilised to feed them and the local population. The Argentinean troops had not been resupplied and fed regularly; this was due to their own command, control and logistical failings. This has been reported as a key factor attributed to their lack of resolve from the mostly conscript forces exposed to an Antarctic autumn for several weeks.

It was an oversight with the logistical planning forgetting that the ultimate objective was to force the surrender and removal of Argentinean occupation on the Islands, prisoners would have been a reality. With Geneva Convention requirements of 143 articles directing the care and treatment of prisoners, Articles 25 to 27 relating to Quarters, Food and Clothing was a major issue, the only saving grace was the British were able to load several thousand troops and repatriated them within days to elevate the problems. It was discovered that a number of Argentinean troops had died from exposure even in the first days of the occupation, long before the British had set sail. With Atlantic weather conditions it could have been a humanitarian disaster played out on the world stage and disgraced the legitimacy Operation.

Conclusion

The amphibious force projection demonstrated in 1982 was both spectacular in both military and civilian cooperation and ingenuity to achieve a matter of national pride. Not withstanding the obscurity of the political and strategic situation, the Falklands War was fought and won. When battle was joined, the standard of training and professionalism of the British soldier even when outnumbered against dug in Argentinean conscripts the outcome was proven time and again. The problem was getting them equipped and delivered to the point of kinetic action. With hindsight glaring issues in clear guidance and preparations on how the war was to be fought. A culture of amphibious operations being limited to administrate landings and not having the adequate balance of appropriate supply craft that could operate away from ports was to impede the ability of the British to mass stores to set conditions for ground forces to close with the enemy.

The duration that vessels and personnel were exposed to air and sea threats, combined with effects of the elements on the troops waiting to conduct operations was extended and degraded to overall efficiency of a rapid operation. As a by-product logistical discipline broke down and a number of hijackings of platforms by

forward units to evacuate wounded or receive resupplies took place to resolve local commanders issues but only added that collectively complicated to war efforts.

Amphibious force projection must be planned, trained and practiced for all contingencies away from dock side simplicity. The placement, allocation, entitlements and rotation of resources available for rapid deployment along the tailoring of task group to deal with a threat will be subject to a myriad of factors, what can be factored in are ensuring the logistical planners are included in at all levels and the manner in which logistics can be loaded, accounted, off loaded, distributed and the speed in which it can be done. This is what will win wars.

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The Charge of Beersheba
Application of Basic Tactical Considerations
By MAJ Aaron Cimbaljevic

Men you're fighting for water. There's no water between this side of Beersheba and Esani. Use your bayonets as swords. I wish you the best of luck

Brigadier William Grant

2017 marks a very special occasion for the Royal Australian Armoured Corps (RAAC) with a century passing since the Battle of Beersheba on 31 October 1917 (Figure 1). Numerous ceremonial activities will be held to pay respects to our Australian Light Horse ancestors, who conducted one of the last ever cavalry charges on horseback as part of the British and ANZAC combined arms offensive to secure Beersheba and its wells. This year will also see the final implementation of Army's Plan Beersheba[1], so revisiting the land tactics used to achieve mission success seems appropriate.

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[1] Plan Beersheba: A restructure of the Australian Army that will create a sustainable, three-stage Force Generation Cycle and maximise Army capabilities. It aims to best posture Army to respond to the full spectrum of possible operational commitments. Plan Beersheba involves the creation of three Multi-role Combat Brigades that are fundamentally 'alike' which will enable sustained operations through the application of the Army Force Generation Cycle. Each Brigade will have the following components - infantry, armour, artillery, engineers, logistics and communications; each with a mix of firepower, protection and mobility - essential ingredients required to win on the battlefield. The reorganisation of skills and capabilities across the Brigades will provide each with a mix of firepower, protection and mobility.

Background

The strategic situation prior to the battle indicated that the Turkish line stretched from Gaza inland towards Beersheba (Jones 1983, p 28). The operational plan involved the Allied forces under command of General Allenby aiming to defeat the enemy via a feint on Gaza whilst the main force, consisting of the British 20th Corps under command Lieutenant General Chetwode and the Desert Mounted Corps under command Lieutenant General Chauvel, were ordered to secure Beersheba. Previous attempts by allied forces to secure Gaza had been repelled and securing Beersheba was part of the wider British offensive collectively known as the Third Battle of Gaza (Van-Dyk, 2007).

General Allenby's basic scheme of manoeuvre to secure Beersheba appeared straight forward. The British Infantry 20th Corps were tasked to conduct a dismounted attack from the south west in the early hours of the morning, whilst Lieutenant General Chauvel's Desert Mounted Corps were to provide cut-off to the north and a mounted attack from the east (Figure 2).

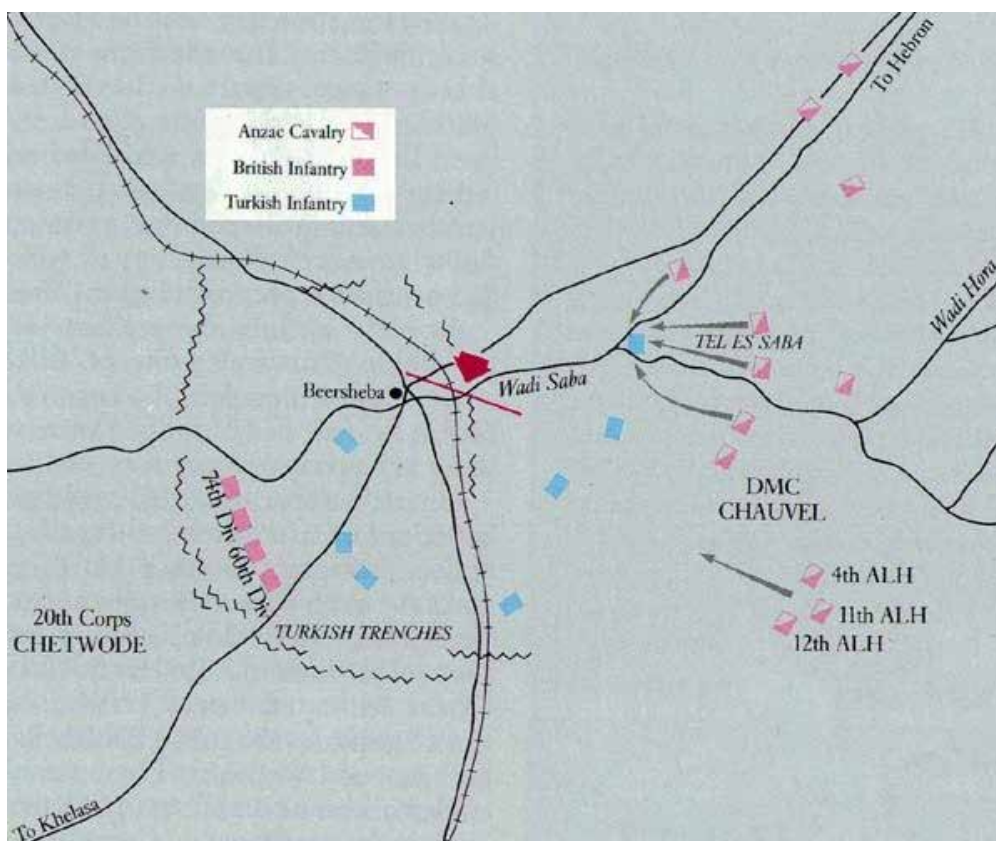Figure 2 – General Situation Map (Curry, 2017)

History confirms the attack was successful, so the point of the discussion paper is to ascertain how effectively contemporary basic principles of the attack were applied and to highlight any trade-offs or calculated risk acceptance. The basic considerations for the attack as defined in LWD 3-0-3 Formation Tactics, will form the scope of this article.

Surprise

The Turks were expecting a dismounted attack, most likely from the 1st Brigade, which had, after seizing Tel el-Saba, made one unsuccessful attempt to rush the town on foot. (Wright 2009, p 105). Lieutenant General Chauvel was subsequently presented with a 'time and space' dilemma to seize the town by nightfall.

The only two feasible fighting elements available to conduct the attack were the English 5th Yeomanry Mounted Brigade under command of Brigadier FitzGerald or the 4th Australian Light Horse Brigade under command of Brigadier Grant. The trade-offs were that FitzGerald's Yeomanry were armed with sabres but further away as opposed to Grant's men armed only with rifles and bayonets, but were three kilometres nearer Beersheba (Rees 2011, p 185). Additionally, both Brigades were in Corps Reserve and dispersed in order to avoid hostile aircraft attack.

Lieutenant General Chauvel made the decision to task the 800 man 4th Australian Light Horse Brigade. In all, over 1000 rifles, nine machine-guns, three batteries of artillery and two aircraft armed with machine-guns and bombs opposed the charge (Jones 1983, pp. 29-30). Surprise and speed must have weighed heavily on his decision making and a very high level of risk acceptance with the unfavourable force ratio.

As far as the charge went, the German officers commanding the Turks believed that, as demonstrated on multiple previous engagements that, the light-horseman would dismount to fight (Rees 2011, p 189). But, Brigadier Grant made the decision to order his light-horsemen to charge cavalry-style, when they would normally have ridden close to an objective then dismounted. (Van-Dyk 2007). This change to the tactical drill surprised the Turks. Consequently, the startled Turks had forgotten to lower their sights as the Australians sped into close range (Rees 2011, p 189).

Although the risk was high, it appears that the use of Surprise was one of the most critical considerations applied. Further validating that, an attack in unexpected strength, from an unexpected direction at an unexpected time, usually has a greater chance of success (LWD 3-0-3).

Concentration

The ability to achieve concentration of combat power was aided through the previous application of surprise. The use of a cavalry mounted charge to maintain mobility at the points of assault at the various trench systems assisted in gaining and maintaining this superiority. Grant chose a formation of two Regiments up (4th and 12th) one back (11th) for the assault. Two squadrons from each forward regiment deployed until they became a continuous line. The horseman were about four or five metres apart, with fifty metres between squadrons (Rees 2011, p 188). This afforded sufficient frontage and enough flexibility to concentrate superior combat power as required and seize objectives in depth.

The enemy position was extended through a series of trenches and redoubts placed on commanding positions with good observation and fields of fire; but on the east and south the trenches were not protected by barbed wire (Van-Dyk 2007). This is likely why the axis of assault was chosen. The light-horsemen covered approximately 3000 metres to the Turkish trenches (Jones 1983, p 31) from the line of departure in

open terrain with no natural cover or concealment. The available light and heavy dust created by the day's artillery fire and troop movements made visibility extremely poor (Wright 2009, p107); affording the Australians partial obscuration across the open terrain.

Concentration of combat power was further enhanced by the tenaciousness efforts displayed by the light-horseman and the inadequate level of preparedness of the Turkish defences. As the troopers reached the last 500 metres, none were hit. They could see the shallow front trench, with nearby earthworks indicating incompletion (Perry 2009, p9). The plan to assault from the south east was validated and the concentration principle adhered to.

Penetration

The light-horsemen were successful in their break into the trench system objective and were quickly reinforced, achieving effective passage of lines with depth. Chauvel's official account said that 'they cleared like steeplechaser' the Turkish trenches (Jones 1983, p 31). Furthermore, while the 4th Light Horse Regiment dismounted at the trenches and tackled their objective on foot many in the 12th Light Horse Regiment were able to get straight through and capture the town (Curry 2017).

The ability of the light-horseman to quickly and aggressively take advantage of the gaps in the Turkish defence was impressive. After penetrating the trench system, Sergeant Charles Doherty wrote "Falling beams from fired buildings, exploding magazines and arsenals and various hidden snipers were unable to check our race through the two available streets that were wide enough for 2 to ride abreast" (Van-Dyk 2007). This rapid penetration had broken the Turkish resistance, allowing the 1st and 3rd Brigades, which had struck fierce resistance in the east, to break through, creating an enemy melee that surged through the town and out to the hills in the north (Perry 2009, p12).

Additionally, the light-horsemen captured a German Officer and prevented him from detonating explosives planted around Beersheba. As a result, only two wells were destroyed and two others damaged out of the seventeen. Several valuable maps depicting artillery positions throughout Palestine were found on the Officer and proved very useful in later operations (Rees 2011, p199).

The principle of penetration was adhered to via the weakness identified in the enemy's defensive layout to the south east of the town. This permitted the light-horseman to break into the enemy's defensive line and attack defences of the township in depth. A narrow front was not required at the point of decision and sufficient frontage of assaulting force allowed a rapid passage of lines for reinforcements. This created chaos, and this is where the troopers thrived (Perry 2009, p11).

Fire Support

On the morning of the attack, Lieutenant General Chetwode's three British divisions attacked the Turkish positions around Beersheba from the west and south supported by a sustained artillery bombardment of over 100 guns (Van-Dyk 2007). The conditions were highly suitable for field artillery with limited wind affording the gunners to accurately achieve target rounds. But, as mentioned earlier this dust and

smoke lingered. This gave the Turks obscuration, but it also allowed British scouts to move forward, unseen, and cut the barbed wire that the shrapnel from the shells has missed (Wright 2009, p 99).

The fire support for the attack on Tel el-Saba was less effective. A heavy barrage of British Artillery fire from close range was intended to disrupt the Turkish defenses, but did little to affect the enemy. The attacking force was relentlessly peppered with machine-gun fire from the top of the great mound (Wright 2009, pp. 102-103).

However, the fire support for the charge was more effective. Immediately after the Turkish machine–gunners adjusted the sights at maximum range to engage the advancing light-horseman; an Essex Battery on the left of the charging Australians spotted the source of fire almost in line with them. By either a fluke or good management, the first shower of shells killed all the Turkish machine-gunners. (Perry 2009, pp. 8-9). Lieutenant Colonel Preston of the Australian Mounted Division witnessed the charge from the high ground, where the guns were directed at the Turks stating "our own shells burst like a row of red stars over the Turkish positions" (Rees 2011, p 189).

The fire support plan was adequate enough in achieving the priorities and objectives of mission. For the light-horseman, field artillery was instrumental in disrupting the Turkish defensive positions assisting the assault force to close with its objective.

Security

Maintaining both operational and physical security was paramount and numerous forms of deception were employed to set the conditions for a surprise Attack. On the gruelling night marches to re-posture the main force prior to D-day when light-horseman abandoned a camp, they left tents standing. Each night the camp fires continued to burn and lamps were even lit inside tents, while a skeleton crew stayed behind to hoax Bedouin spies and Turkish forward scouts (Wright 2009, p 94).

Additionally, Gaza was shelled relentlessly by the British Artillery and Naval Gun support as part of the ruse. The Allied Military Intelligence used disinformation to deceive the enemy; deliberately dropping a note detailing the impossibility of an attack on Beersheba due to lack of water, which the Turks 'found' and believed (Curry, 2017). This information dominance and influence (ID & I) plan appeared to have worked on the German higher headquarters. They believed the allies were only making a feint against Beersheba refusing to believe the reports of the Turkish commander of the III Corps, Colonel Ismet Bey, that the town was under major attack (Jones 1983, p 29). As a result, the Turkish forces were not reinforced or ordered to withdraw.

Flank security was established by the 20th Corps with the infantry, having achieved all its objectives, being ordered to hold their position to the south west and north of the town. But this came at a cost and perhaps higher risk acceptance then today's commanders would tolerate. An estimated 1200 British troops were seriously injured with perhaps a third of them assessed as killed (Wright, 2009).

Tel el-Saba (Key terrain 5km east of Beersheba) was also required to be cleared prior to any attempt to assault Beersheba. It was not until approximately 3.00 pm that the New Zealanders, having been reinforced by the 1st Light Horse Brigade and

supported by artillery and machine guns, managed to secure Tel el-Saba. (Rees 2011, p 184). Meanwhile, the 2nd Light Horse Brigade successfully blocked the Hebron road to the north to cut off the escape route and prevent reinforcements arriving (Curry, 2017).

The operational security measures applied by the Allied forces, such as the deception plan and ID & I actions, had the desired effect on the enemy both at the operational and tactical level. It is clear that the security measures applied set the conditions for a successful attack and further validated one of the most quoted Sun Tzu sayings that all warfare is based on deception (Giles, 1910).

Tempo

The key to the entire plan was the rapid capture of Beersheba and its wells on the first day of the offensive (Rees 2011, p 169). Lieutenant General Chauvel displayed a bias for action and it is said, gave the issue but a moment's thought. 'Put Grant straight at it' Chauvel ordered (Wright 2009, p106). The decision was made to charge Beersheba with two of Brigadier Grant's regiments, the 4th and the 12th Light Horse (with the third regiment of the brigade, the 11th, in reserve). Most of the Walers in these regiments (like the other horses of the corps) had watered between 26 and 30 hours before (Jones 1983, p 27). Therefore, the emphasis on rapid execution was tremendous in order to secure the wells as there was only about an hour of daylight left. Lieutenant General Chauvel accepted a high level of risk knowing that if the mission failed, the consequences of not securing the water supply for both soldier and Waler in order to maintain operational viability would have been catastrophic.

As stated earlier, the 4th Brigade was dispersed over a wide network of valleys (wadis) in order to avoid being targeted by German aircraft. The light horse displayed tempo by quickly transiting from its reserve tasking, with two regiments forming up at the line of departure and commencing the assault with enough daylight to spare. This example is still very relevant today with our understanding of 'notice to move' states in an Armoured Cavalry organisation.

Tempo was achieved during the assault through sound command and control by Brigadier Grant. He initially rode in the lead, but once the column was headed in the correct axis of assault, he dropped back to the reserve line to better direct the attack. This was further aided when the lead scouts used a clearly defined reference point for the assault force being the Beersheba mosque, shining white in the setting sun (Wright 2009, p189). With the rate of advance relatively unhindered due to the shock action effects created on the Turks.

The light-horseman also achieved Tempo by transitioning quickly from one task to another. An example being during the fight through the objective; the tidal wave of horses was reined in amid an encampment of tents and huts. Then the cavalry morphed into infantry. They dismounted. One trooper in each section designated to gather the horses did his job. Furthermore, the Turks were unable to effectively respond; some Turks resisted with steel and rifle, but only a few, and too little effect (Perry 2009, p 10). The objective was secured in less than an hour. Again this is a valid point today with RAAC soldiers and officers trained to fight mounted and dismounted regardless of the armoured platform they are in.

Lieutenant General Chauvel's decision to select the 4th Brigade when applying the principle of Tempo was vindicated. Brigadier Grant had accomplished in a few minutes, with two regiments and with fewer casualties, what it would have taken two dismounted brigades considerably longer to achieve (Rees 2011, p 206). It is clear that the principle of Tempo was applied by the light-horsemen. Their ability to rapidly execute successive kinetic engagements quicker than the Turks paid dividends. The success of the charge was in the shock value and sheer speed by which they took the town before it could be destroyed by a retreating Turkish force (Van-Dyk 2007).

Rapid Reorganisation

The Speed of reorganisation was quick and the light-horseman established a small series of outposts until further support arrived. Between 8.00 pm and 9.30 pm the 11th Light Horse Regiment and the 4th Brigade Machine Gun Squadron came in. By nightfall, 58 500 men and 100 000 animals swarmed over Beersheba all seeking to slake a well-earned thirst. (Rees 2011, p 204). This rapid reorganisation would have afforded the force the ability to prepare for counter attack or resume offensive action.

Enemy Reserve

General Allenby's overall plan to seize Gaza involved turning the Turkish flank at Beersheba and moving to encircle the forces defending Gaza. The chain of deduction was that the attack on Beersheba would force the Turks to shift their reserves away from Gaza (Rees 2011, pp. 168-169). This thinking proved correct and the Australians were not significantly impacted by enemy reserves. Further dislocation and disruption of the enemy reserve was achieved by the 2nd Light Horse Brigade successfully blocking the Hebron road to the north to cut off the escape route and prevent reinforcements arriving. (Curry, 2017).

Brigadier Grant's foresight proved invaluable with the enemy reserve demolitions being unsuccessful due to the rapid clearance of the town. "From the movement of enemy troops, I formed the opinion that he was then fighting a delaying action and would retire under the cover of darkness after destroying the wells. I therefore ordered a mounted charge to smash through the defence and prevent this" (Rees 2011, p185).

Objectives and Phases

The objectives for the overall securing of Beersheba can be broken down in to five key or decisive terrain locations linked to the phasing of the operation. The first was the clearing of the Turkish trenches in the complex high features south west of the town by the British Infantry of the 20th Corps. The second was blocking the north-eastern withdraw route to Hebron by the 2nd Light Horse Brigade. The third was the securing of the key terrain of Tel el-Saba by the New Zealanders and the 1st Brigade. The fourth was the clearing of the trenches 3000 metres South East of the Town by the 4th Brigade. The final and most important objective was the securing of the decisive terrain of the Township itself containing the vital wells by the 4th Brigade and reinforcements.

Clear objectives were given and the phasing appeared flexible enough to incorporate initiative. As alluded to earlier, the choice to use Grant's 4th Light Horse Brigade was made as circumstances presented itself on the ground and due to time constraints.

Additionally, Lieutenant General Chauvel knew, from aerial photographs, that the Turkish trenches in front of the town were not protected by barbed wire (Australian War Memorial London, 2017). By lacking protective obstacles, the Turkish defensive plan had limited effect on disrupting the attack. It certainly had minimal impact on dislocating the Light Horse 1st echelon forces from the 2nd echelon depth.

The risk mitigation that was employed operationally and tactically with the clever use of deception, surprise and fire support lead to relatively low causality rates. Only thirty-one of the 800 men who took part in the charge were killed; thirty-six more were wounded. The 4th and 12th Regiments took prisoner thirty-eight officers and 700 other ranks, and captured nine field guns, three machine-guns, a large number of transport vehicles, and much other material (Rees 2011, pp. 206, 210).

As stated earlier, General Allenby's overall objective was to secure the strategically important and historical wells of Beersheba in order to outflank the Ottoman forces in Gaza. Ultimately, the capture of Beersheba enabled British Empire forces to break the Ottoman line. The plan was successful, Gaza fell a week later and on 9 December 1917, the British troops entered Jerusalem (Australian War Memorial London, 2017).

Conclusion

History cannot promise answers to every tactical dilemma; however, past actions repeatedly are found to be similar to present problems. Though technology has transformed the speed and the viciousness of war, many of the problems faced today are similar to previous challenges. Learning the facts of our historical past from battles such as Beersheba, analysing them in light of long-term principles, and reviewing them allows individuals to draw on the experience of historical planners and leaders who faced similar problems and solved them.

By retrospectively validating the tactical plan used at Beersheba a century ago, it is clear that the principles of the attack were applied with mitigated risk accepted by key commanders. The sound and timely decisions made by key commanders when combined with the physical courage and determination of the light-horsemen ultimately shattered the enemy's cohesion and achieved mission success.

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Battle of Kursk – Employment of Armour
By LT Julien Brunero

The will for victory which gives a commander the strength to see a grave crisis through is something very different from Hitler's will, which in the last analysis stemmed from a belief in his own 'mission'. Such a belief makes a man impervious to reason and leads him to think that his own will can operate even beyond the limits of hard reality - whether these consist in the presence of far superior enemy forces, in the conditions of space and time, or merely in the fact that the enemy also happens to have a will of his own

Erich von Manstein, 1958, *Lost Victories*

The Battle of Kursk which played out on the Eastern Front in the summer of 1943 is commonly known as the greatest tank battle of all time. While both German and Soviet propaganda may have distorted the reality of events here to some extent, the sheer weight of armoured forces involved and the large scale of mounted manoeuvre at the operational level was unprecedented. The outcome of this 1943 battle, a result of the Wehrmacht summer offensive, known as 'Operation Citadel', was to be the nail in the coffin for Hitler and the Oberkommando des Heeres (OKH – High Command of the Army) and the complete loss of operational initiative on the Eastern Front. As a result of the defeat of the German operation, the Soviet High Command of the Armed Forces (STAVKA) launched a counter-offensive that would see the Red Army advance on the German powers until reaching Berlin in 1945 at the wars end. This paper aims to analyse the Battle of Kursk in terms of principles of the employment of armour at the operational, and to an extent, the tactical level. This will be achieved by providing operational and strategic context for the battle and by outlining the adherence or not to the principles of the employment of armour.

This essay will firstly detail the operational strategic setting in which Operational Citadel took place. This will include the Wehrmacht and Red Army dispositions and the operational context on the Eastern Front originating from 1941. Secondly an analysis of the opposing forces will portray the state of the forces in terms of men and equipment as well as the opposing prominent commanders. Lastly, the Battle of Kursk will be explained, focusing on event from 4-12 July 1943. Subsequently these events will be assessed in terms of both the principles for, and limitations of, the employment of armour.

Operational and Strategic Setting

The war on the Eastern Front began with anti-Soviet rhetoric from Hitler in 1940 which was the progenitor for Operation Barbarossa in 1941. Babich and Grazhdan (2011) details Hitler's logic for opening up a war on two fronts in 1941. Hitler portrayed an ethnic superiority towards his Eastern neighbours and a desire to squash Jewish Bolshevism and communism which was manifesting in Soviet Russia. He also identified the need to have complete superiority in Europe for both the resources it would provide and to prepare for the eventuality of the US entering the war. These notions developed into the 1941 Operation Barbarossa which intended to defeat the Red Army before winter which was essential as the Wehrmatch wasn't equipped to withstand a Russian winter. Grazhdan (2011) explains the dire state of Soviet forces at the beginning of the campaign and the ease at which the Wehrmacht made initial

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gains. Grazhdan indicates that the poor state of the Red Army in 1941 was due to a variety of factors, namely; the infamous 'Purge' ordered by Stalin of the senior military command in the late 1930s, the lack of particularly armoured manoeuvre doctrine, the poor quality of training provided to soldiers and the obsolete equipment notably the BT-7 tank.

The initial stages of the Russo-German war in 1941 consisted of the Wehrmacht making large territorial gains and experiencing decisive victories on the battlefield. However, a failure to capture the 'soul' of the Soviet Army by seizing Moscow, the defeat at Stalingrad, the extension of the campaign over the winter of 1941/2 and the qualitative and quantitative improvement of the Soviet Army began to change the nature of the Eastern Front. By late 1942, most of senior command in OKH agreed that operational defeat of the Soviet Army was increasingly unlikely. Hitler, who maintained an 'all or nothing' ideology would accept nothing but total defeat of the Red Army and pushed for an operational victory over a mutually beneficial diplomatic solution. Eric von Manstein, perhaps the greatest German tactician of the war was of the opinion that a series of victories over the Soviet Army which inflict high casualties would force Stalin to enter into diplomatic talks. Prior to the Battle of Kursk, Manstein orchestrated the capture of Kharkov by using mobile defence and giving has armoured units the manoeuvre space to flank a shaped, overstretched and exhausted advancing Soviet force.

The prominent Kursk Salient which pushed into the German front was the obvious location for an offensive when planning began for the spring of 1943. The OKH nominated Army Group Centre and Army Group South to conduct a concentric envelopment of the salient which was narrowest along the base along the Orel-Kursk-Belgorod axis. Not only was this an obvious method of attack in terms of battlespace analysis but the 'Lucy' spy ring in OKH and British intelligence gained via enigma notified STAVKA not only German intentions but the actual operations order document produced by Hitler. The Soviet Army proceeded to fortify Kursk with the intent to attrite the panzer forces as much as possible before launching a counter-offensive of their own. German aerial reconnaissance identified the extent of the defensive preparations at Kursk yet the plan remained unchanged, the logic of which is hard to comprehend. The original plan for an offensive at Kursk was delivered by Manstein with the intent to attack post-Kharkov in March with momentum and before any substantial defences had been developed. This option was disregarded as Hitler wanted to wait for, what ended up being three months, in order to include the new Panther and Tiger tanks in the offensive. This was to prove a costly decision as Kursk became the most heavily defended position in warfare and from here, the conditions for the Battle of Kursk was set.

The Opposing Forces

The winter campaigns had resulted in significant infantry losses for the Wehrmacht which resulted in a restructure of the German infantry divisions from nine battalions to six, (Healy, 1999) which totalled approximately 900 000 men. Jukes (1969) describes that the Germans had 2 700 panzers to deploy for Operation Citadel which was to include the newly developed Panthers, Tigers and Ferdinands. Healy (1969) describes the dire state of the Panzer Corps who by design consisted of divisions of 150 to 200 panzers yet fielded an average of 75 for Citadel. In support of the panzers and infantry, the OKH had 10 000 artillery pieces and the Luftwaffe assembled 1 800 aircraft in the form of two separate air divisions.

The northern assault was to be conducted by Army Group Centre which was under the command of Field Marshal von Kluge. He allocated Colonel-General Model's Ninth Army for the attack. Model's forces consisted of three panzer corps (41st, 46th, 47th Panzer Corps), two army corps and were supported by Luftflotte Six (Crow, 1985). The southern assault was to be conducted by Army Group South which was under the command of Field Marshal von Manstein. He allocated Colonel-General Hoth's Fourth Panzer Army and Army Detachment Kempf for the attack. Manstein's forces consisted of three panzer corps (2nd SS and 48th Panzer Corps – Fourth Panzer Army, 3rd Panzer Corps – Detachment Kempf), three army corps and were supported by Luftflotte Four (Crow, 1985).

As was seen by Manstein in his 'strike from the backhand' manoeuvre of the Panzer forces in the Capture of Kharkov in the winter of 1942, the Wehrmacht was well versed in Blitzkrieg tactics. This methodology allowed the Panzer forces to be employed to full effect as they were given manoeuvre space and mission command (Kilback, 2010). Operation Citadel did not allow for this freedom of action with narrow movement corridors and strict control measures in terms of time, location and axis for attack. As the Soviets had adopted the German pakfront (massed anti-tank guns at a strong-point for coordinated execution), a counter was needed for Kursk which necessitated the creation of panzerkeil. As described by Schowalter (2013), Panzerkeil was an armoured wedge formation wherein the heavier tanks being the Tigers were located at the points, Panthers were on the base or outer-most edge and the Panzer III's and Panzer IV's filled the diagonal. This was to achieve the following; allow engagement at maximum range from the leading callsign (Tiger's), protect the less armoured III's and IV's and force anti-tank gunners to consistently change the range of their armament to engage different targets. Panzerkeil had varied effectiveness in the Battle of Kursk. The lack of infantry for Operation Citadel required heavy support from the Luftflotte which in turn require localised air parity to provide fire support. This again was difficult to achieve and was no supplement for integral infantry support of advancing panzer units.

The Soviet introduction of the T-34 tank in 1941 proved to be a competitive armoured capability to the current Panzer III's and Panzer IV's being employed on the Eastern Front. To counter the T-34 Hitler requested that German industry developed new Panzer models, which resulted in the Panther, Tiger and Ferdinands. In 1943 however, there were up to five tank models being produced and the production process was not at all streamlined, inhibiting the rate of tank production to 50 Panthers and 25 Tigers per month in April 1945 (Crow, 1985) compared to the T-34 being produced at a rate of 1 000 per month. The Panther, Tiger and Ferdinands had an increased armour density at 100mm frontal and 45mm, 60mm and 85mm respectively, which was to cope with the 76.2mm F-34 gun of the T-34. The Panther employed the 75mm KwK42 L-70 as its main armament, the Tiger employed the 88mm KwK36 L/56 and the Ferdinands tank destroyer had the adopted antitank gun the 88mm PaK 43/2 L/71 (Healy, 1999). Adapting to the Russian winter and learning from the T-34, these tanks also incorporated wider tracks to deal with the snow and quagmire like conditions. Whilst the new breed of Panzers was a high-quality tank and superior in terms of tabulated data, the rush to include them in the Battle of Kursk proved to be their weakness. Inadequate testing, unresolved mechanical issues, an unrefined production process and the failure of the Ferdinands to include a secondary machine gun to counter infantry in close quarters assaults were all to play a part in Operation Citadel.

The Red Army had divided the Kursk salient in half, with the Central Front commanded by General Rokkossovsky in the North and the Voronezh Front commanded by General Vatutin in the South. The reserve force for the Battle of Kursk was the dedicated Steppe Front commanded by Colonel-General Konev (Healy, 1999). Overseeing the Battle of Kursk, representing STAVKA was Marshal Zhukov who answered directly to Stalin. Jukes (1969) indicates that a Soviet army corresponded in size to a German army corps, however the numerical superiority of the Red Army was overwhelming. For the Battle of Kursk, Zhukov had under his command 1 800 000 men, 4 800 tanks, 28 500 guns, mortars and rocket launchers and 2 650 aircraft. Crow (1985) depicts the current evolution of the Armor and mechanised corps of the Red Army of 1943. Armoured corps consisted of 180 tanks and 10 000 men, mechanised corps consisted of 200 tanks and 15 000 men whilst independent tank brigades had 107 tanks with no organic infantry.

The Central Front contained the 13th, 48th, 60th, 65th, 70th, and 16th Air Armies with the 2nd Tank Army in reserve (supplemented with the 9th and 19th Independent Tank Corps). Rokkosovsky's force consisted of 711 575 men, 1 787 tanks and 11 076 guns and mortars (Waddel, 1983). The Voronezh Front contained the 6th Guards, 7th Guards, 38th, 40th, 69th and 1st Tank Armies supported by the 2nd Air Army. The Voronezh Front reserve force included the 5th Guards and 2nd Guards Independent Tank Corps. Vatutin's force consisted of 625 591 men, 1 704 tanks and 8 718 guns and mortars.

The reinvigoration of the Soviet armoured formations came through the development and mass production of the T-34 medium tank and the KV-1 heavy tank. These two tanks employed the 76.2mm F-34 main armament and boasted frontal and side armour of 47/60mm and 75/75mm respectively (Healy, 1999). The T-34 was the first armoured capability the Soviets put forth on the Eastern Front that gave them a platform advantage. The wide tracks of the T-34 distributed the weight of the 30-tonne tank in a way that still gave it manoeuvrability and functionality in the Russian winter. This factor combined with the armament overmatch when compared to the Panzer III and IV gave the Red Army an equipment based edge. In terms of the 42-tonne heavy KV-1 tank, its high-density armour optimised it for use in specialised breakthrough regiments (Crow, 1985).

On the 12 April 1943, Marshal Zhukov made an audacious call in the Kursk salient, deciding to enter into a deliberate defence and absorb the Wehrmacht assault rather than attempting a pre-emptive offensive. Early warning from the 'Lucy spy ring' and information passed on through British intelligence combined with general enemy analysis led to ample time for the development of an area defence. Defensive preparations began with the assistance of up to 300 000 civilians, under the direction of Army engineers and by July Kursk was the largest defensive fortification of a position seen in warfare (Kasdorf, 2000). The defence was organised into belts which included an extensive trench system, built up anti-tank strong points, high-density minefields and dug in fire support positions (Healy, 1999). Guns, tanks and anti-tank rifle teams were concealed to great effect and rural townships were heavily fortified. Pakfronts were well integrated with anti-tank mines and anti-tank ditches to develop effective armoured killing grounds. The depth of the defensive belts in the salient was 8 belts deep which equated to 175 kilometres and did not include the Steppe Front to the east which was acting as an operational reserve. Zhukov intended to attrite the Panzer forces from both Army Group Centre and South (Waddel, 1983) before launching a massive counter-offensive to Orel (in the North) and to Belgorod (in the south).

The Battle of Kursk

The Soviet Army, through intelligence reports, was able to provide artillery fire on to assessed assembly areas two hours before Operation Citadel at 0500 on 5 July 1943. In the north, the attack began with heavy artillery and aircraft support as the first wave of Model's force advanced, soon realising the extent of the Soviet defences. Model counter-intuitively diluted his panzer divisions across his formation and also used the outdated tactic of tasking the infantry to breach the defences before the armoured units were deployed to exploit the breach. The well-developed engagement areas, littered with mines, anti-tank defences, anti-tank rifle teams and trench systems made progress very slow. Model's forces only managed to penetrate up to 15 kilometres to the south until a massive counter-offensive was conducted by the Soviets on the Orel Bulge to the north. This forced Model to cancel his unsuccessful attack and to redirect his forces. Manstein's attack from the South had much more success and got as far as 50 kilometres to the south of Kursk. This potential breakthrough had forced Vatutin to employ all his Voronezh Front reserves and eventually ended up requiring Zhukov to deploy two armies of the Steppe Front on the 12th of July. Further, the Allies landing in Sicily result in a knee-jerk reaction from Hitler ordering a drawback of forces from the Eastern Front to reinforce the Western Front. This order was against the plea of Manstein who felt he could obtain a strategic victory in Kursk through the attack from Army Group South and reasoned that the units taken out would arrive too late to affect the allied landing. Hitler did not agree and on 13 July Operation Citadel was said to be over. Panzer losses in the battle were surprisingly low at approximately 262 in contrast to the Soviet tank losses at 1614.

Analysis of the Employment of Armour

The extent to which the Wehrmacht employed mission command with armoured formations needs to be contextualised and assessed at both the strategic and operational level. Hitler wanted to gain the strategic initiative on the Eastern Front and therefore envisaged that his objectives could only be accomplished operationally through an aggressive, overwhelming, battle of attrition rather than adopting a manoeuvristic approach. Subsequently, Manstein and Model were given almost no mission command at the operational level. The day, time, axis and method of attack were all dictated by Hitler in operations order six. Even proposed courses of action to avoid a direct attack on the heavily fortified positions to target the Steppe Front to the east as the first objective, or to attack from west to east along the salient which were far more feasible were denied. However, below the senior command, the Wehrmacht gave mission command were possible with Hoth demonstrating it to great effect in his attack. Hoth after the initial breakthrough, instead of moving straight to Oboyan, manoeuvred to where he assessed would be the flank of Steppe Front reserves as they moved south to reinforce Vatutin. He therefore wheeled his formation north-east after the initial breach of the first defensive line, bypassing the 1st Tank Army and targeting the reserves in Prokhorovka.

Army Group South and Army Group Centre both undoubtedly had combined arms teams to complete their respective attacks but it was lacking in terms of the proportionalities required to breach the Kursk fortress. The effectiveness of groupings in the North were far lower than that of the south. For instance, Model only integrated a full armoured division with the infantry on his main axis alone in the form of 20th Panzer Division and two Tiger Regiments attached to 6th Infantry Division. On the flanks of the first wave of his assault, were infantry divisions with no armoured support

and subsequently casualties were high with gains made were low. Tactically, there was at times a lack of capability integration. This was evident when the Ferdinands attached to the 292nd Infantry on the eastern flank of Model's attack drove through the Soviet defensive belt which resulted in Soviet forces resealing breach sites and then targeting isolated infantry and unsupported tanks. The most successful combined arms grouping of the battle was the 2nd SS Division as was seen by their near breakthrough just 50 kilometres south of Kursk. This was made possible due to the density of armoured firepower, with supporting mechanised infantry and artillery as well as close air support from Luftflotte Four.

The recent and relatively untested platforms of the Panthers, Tigers and Ferdinand provided a capability edge in terms of firepower and armour. However, there were sustainment and logistic issues which claimed more vehicle casualties then the T-34s. Due to the low numbers of them produced at the time of Operation Citadel and therefore the rarity of spare parts, combined with the fact that the majority of the recovery and maintenance was conducted in Berlin provide friction points for Panzer commanders. This is in wild contrast to the T-34 which was of a lower (yet still effective) quality which was produced in large quantities and had ubiquitous spare parts; able to be moved via rail to Kursk with relative ease.

The value of providing armoured formations manoeuvre space was evident to the OKH from Manstein's counterstroke at Kharkov and it would be assumed the theme would have continued. Both the Soviets and the Germans provided examples of restricting and giving manoeuvre space to armoured divisions which reinforced its inclusion as a principle for employment. The terrain for Models attack was very narrow being only 40 kilometres wide which greatly restricted his axis. This therefore increased the effectiveness of Soviet artillery and transformed the battle into one of attrition. In the south, as Mansteins Fourth Panzer Army advanced Vatutin proposed deploying the T-34s and KV-1s of Katukov's 1st Tank Army to a counter attack on its western flank. This would have been achieved by granting them a huge western corridor to operate in and utilise tactics that had worked in smaller scale armoured skirmishes thus far in the campaign. It was unfortunately argued that too many tanks had been openly destroyed by tigers and panthers and the 1st Tank Army instead opted to dig the tanks in, in order to block the axis to Oboyan and support the 5th Guards Tank Army.

Due to a lack of infantry, the Wehrmacht relied on the Luftwaffe to provide close support to exploit the Soviet armour's vulnerability to air attack. However, the Panzer's had experienced sizable tank losses due to the Soviet aircraft sorties and therefore the battle for air parity was crucial. In the south, following the initial artillery exchanged of 5 July, the Soviet 2nd Air Army had attempted to destroy Luftwaffe aircraft on the airfields but were identified by long range radars allowing the fleet to get airborne. This resulted in an air battle which gave the Luftwaffe air superiority in the south for the initial stages of the offensive. This was crucial in accounting for the numbers of T-34s fielded by the Soviets. However, in the North it was a more even affair with armoured vehicles on both sides falling to either 30mm or 37mm strafing.

The difficulty of armoured vehicles in holding ground also caused an underpowered force from Army Detachment Kempf to advance north in support of the Battle of Prokhorovka. This was again due to a lack of infantry and a requirement to therefore have armoured units defending the eastern flank of Manstein's attack as it moved north. This resulted in, as of 6 July, 30% of Manstein's armour being used to defend flanks and reducing the concentration of force Manstein could affect for the attack. In

the north, the Soviets – knowing the superiority of the Tiger and Panther to the T-34 and therefore opting not to become involved in cross country mounted warfare – improvised to mitigate the inherent limitation of armour in holding ground. In a major attack from Model launched on the axis of Olkhovatka (as assessed by Rokkossovsky), it was ordered that all T-34s were to dig in and adopt hull down fighting positions in order to negate some effect of the range and penetration of the Tigers. This was done so to good effect and bolstered the defensive belts with increased firepower and acted as a handicap to assist the T-34s in holding ground.

The ground and obstacles seen at Kursk acted as a limitation to the Panzer unit's attack and rendered the salient as an easily defendable piece of terrain. Observation in the salient was generally at a range which extended passed the maximum effective range on the flat, relatively featureless ground, with only corn fields and rivers breaking up the ground. There was very limited concealment except for high corn to obscure the identification of dismount and almost no cover. The rivers that segmented the salient shaped the mounted avenue of approach to only one axis. Roads, highways and rural townships became key pieces of terrain, especially considering the effect rain had on the ground essentially turning the cornfields into impassable quagmires. The salient was therefore naturally defensible and to add to that, the Soviet Army had three months to prepare the ground. In the north, limited cover and concealment, well developed engagement areas and well sited anti-personnel mines hampered progress for Model's attack. Anti-tank mines and ditches were used to good effect by the Soviets to channel the panzers into developed engagement areas. In the initial days of the attack, Soviet mobile engineers lay 6 000 mines to channel and disrupt the oncoming panzers.

Conclusion

The Battle of Kursk in the operational context was not a decisive action of World War II with the momentum of the Eastern Front firmly in the Allies favour by 1943. However, the opportunity to study the manoeuvre of armed formations to the scale of that seen in Operation Citadel is certainly worthwhile. Analysis of the battle reinforces the considerations and limitations for the employment of armour. It heeds warning to contemporary armies of the dangers of not observing these principles in the face of a new and improved armoured platform and echoes the value of allowing armoured vehicles the manoeuvre space and mission command to make an effect on the battlefield.

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The Disruption of Junior Officer Pursuit of Mastery
By MAJ Benjamin Gray

At this time as modern military organisations pursue greater capability via increasing levels of modernisation, digitisation and technological advancement. However, resultant second and third order effects are retarding the pursuit of mastery by junior officers. The Australian Army aspires to levels of connectivity, technical capability and platform lethality never before achieved, but potentially at the cost of disruption to junior officer excellence. Task saturation, intermittent professional fulfilment, paradoxical military culture and a pervasive self-sabotaging arrogance are all factors that in some way influence junior officers. There is an expectation that military professionals unceasingly strive to improve themselves; crucially, self-assessment is expected with subsequent self-study to diminish weakness. Nevertheless, unless command priorities and conditions are geared to energise self-investment and a drive for excellence, disappointing and pervasive mediocrity will endure.

Junior officers are being functionally dislocated from achieving optimum development due to organisationally imposed friction points. These points significantly dilute the physical, moral and intellectual conditions permitting the pursuit of professional mastery. Individual responsibility and drive are key, however the creation of an organisational environment that generates the conditions for this is essential. This should not be taken as advocacy for any specific fresh solution or 'innovation', but to highlight and isolate key trends and themes of friction that are at cross-purposes with the Army's declared organisational atmosphere. The key factors are that disrupt a junior officers pursuit of mastery is a lack of professional nourishment and ego-based attitudinal toxicity.

Professional Mastery

Mastery involves comprehensive knowledge or skill in a particular specialty or occupation. It encompasses proven skill or technique, exhaustive knowledge, and the ability to display pronounced proficiency or accomplishment. In context of Australian land forces mastery encompasses tactical acumen, practical experience, a knowledge of history and culture, social intelligence and dedication to a continual re-examination and self-study. However, frequently it can seem that professional mastery is reserved only for one's betters, a goal few aspire to and even fewer reach. But the pursuit of mastery is fundament to the novice and veteran alike. Professional mastery binds the intellectual and moral components of fighting power and is fundamental to generating warfighting capability[1]. The Australian Army's capstone piece of doctrine *LWD 1 The Fundamentals of Land Power* stresses the responsibility to study and meditate on the profession of arms:

> A soldier without either interest in, or knowledge of, the history and theory of warfare – the intellectual content of the military profession – is a soldier in appearance only. Self-directed study in the art and science of war, appropriate to one's rank and trade, is at least equal in importance to maintaining physical condition and should receive at least equal time[2].

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[1] *Land Warfare Doctrine 1 The Fundamentals of Land Power*, Australian Army, Department of Defence, 2014, 52.
[2] *Land Warfare Doctrine 1 The Fundamentals of Land Power*, Australian Army, Department of

However, for many junior officers, professional mastery appears entirely unattainable, an ethereal concept espoused in doctrine but seldom revealed. Digitisation, modern platforms and network system have all improved connectivity from both deployed operational and domestic raise, train and sustain perspectives. However, from a human capacity and improvement perspective advances in professional development have not kept pace with the increased modernisation. There is an expectation that junior officers invest in their own skills and knowledge, demand high standards of themselves and those around them, and seek excellence in the small things. But for all the innovation and improvement many junior officers are not reaching their full potential, due to either a lack of opportunity, context or aspiration. Obviously this is not all the fault of the system – as part of a profession an individual is expected to expand, develop and advance themselves. However, it is equally expected that the organisation endeavour to advance the individuals contained therein to the betterment of the whole, but the provision of conditions that facilitate this. Importantly, not all officers have discharged themselves of the desire to master their profession. The issues of a lack of professional nourishment, over-governance, cultural dissonance and attitudinal toxicity are infrequently applicable to a whole individual. The majority of junior officers genuinely desire to be professional and achieve mastery, but they constrained by an environment where adequate is the standard, intellectual and tactical acumen is severely undervalued and being proficient in administration is considered a reflection of leadership and overall competence. The majority of junior officers desire investment, want to lead, want to command and want to contribute to the Army in both an intellectual and tangible fashion; but they face multiple organisational hurdles and most often surrender to the grind of staff churn, the next audit and meeting inconsequential but easily quantifiable metrics for higher headquarters.

The generation of land power requires the harnessing of the national economy, industry, and will to produce the vital components of its land force, but the most important factor is those humans that function within and provide the rhyme and reason[3]. The Australian Army is reliant on a 'large reservoir of human talent' to provide the foundation of 'capability, effectiveness and reputation[4]'. It recruits a raw product from its home society of some of the finest young men and women on offer, and they act as the principle mechanism within the military aparatus[5]. But like any piece of military equipment they require inspection, maintenance and at times repair. Take a sword as example, it is forged, quenched and tempered over a period of time. It is shaped, sharpened, polished and then continuously maintained….if the bearer is dedicated to using it effectively and wants to guarantee that it doesn't fail during employment. But it can be chipped, scratched and dented, it can rust and degrade, and its edge dulled. Emotion and morale are infinitely easier to damage and or neglect than a sword, and settling for mediocrity only too easy. Like a weapon Army's human capital requires maintenance, care and constant upkeep; neglect of any facet will degrade its utility in employment. Junior officers must be nurtured and invested in, preferably in a way which is constructive, ignites the soul and excites imagination.

Defence, 2014, 49.
[3] *Land Warfare Doctrine 1 The Fundamentals of Land Power, Australian Army, Department of Defence, 2014, 20.*
[4] *2016 Defence White Paper*, Department of Defence, 2016, 25; Land Warfare Doctrine 1 The Fundamentals of Land Power, Australian Army, Department of Defence, 2014, 20.
[5] Campbell, A. 'Securing Army's Future: Enhancing Career Management', *Australian Army Journal*, Vol. x, No. 3 (2013), 142; Ryan, M, *The Ryan Review: A study of Army's education, training and doctrine needs for the future*, Australian Army, 2016, 6.

Professional Nourishment, Disenchantment and Emotional Fatigue

A lack of professional nourishment is inhibiting moral and ethical development of junior officers from Lieutenant through to junior Major. Numerous junior officers are frustrated, disenchanted and disappointed with many aspect of their military service. Broadly, this can be attributed to them not genuinely reaching a consistent level of job satisfaction or the intellectual/emotional salary they expected to receive as Army officers. Generally, they perceive the wider Army as fragmented and lacking coherent direction, and ambivalent to the development of basic proficiency. In some ways they are experiencing a dissonance between developing into a professional military commander and enforcing measures that detract rather than enhance capability at the coalface. They exhibit a desire for investment and nurturing in the areas of tactical acumen, ethos and knowledge. However, there is little balance between admin/governance and training, as such they receive little satisfaction from their job and in many ways they are miserable. Upon graduation from RMC they expect, and are told, they will train and lead a platoon or troop, but the reality is that in many cases they assume the role of admin supervisor not commander. From their perspective, arguably quite accurate, they are unable to learn and/or ply their trade as they spend the majority of time overburdened by governance, are temporally dislocated by ever changing priority initiatives or have training functionally dislocated by a "dog and pony's" or other unplanned disturbance. In addition, the Australian Army operates in an environment of relative austerity, being asked to do more with less across a spectrum of tasks that ranges from domestic disaster relief through to preparedness for high intensity conventional war. This is nothing new and operating within fiscal restriction is the norm for almost all modern armed forces, and existing as a moderately small but extremely effective force has been a trademark of the Australian Army since the conclusion of World War Two. However, there is an ongoing collision between the customary norms of day to day raise, train and sustain functions and the increased governance, supervision, and management that technological advances (radios, computers, email, handheld devices, ect..) has produced. Unfortunately, the advancement of technology and increased communication has give rise to widespread task saturation, dangerous single-issue zealotry and unacceptable risk aversion.

In addition to this, "Box-Tickers" are frequent – those who do not aspire to advancement and are openly using the military as an academic support tool for transition or to maintain lifestyle – they learnt that they can get by through bluster and that there is very little consequence as long as they keep low and occasionally cultivate the ego of their commander. These individuals undermine an otherwise professional environment and spread discord. In some officers it is obvious that they have taken time to ruminate on their trade, evidenced by knowledge of history, culture and ongoing intellectual debates, but for the majority knowledge is almost non-existent. Broadly, understanding of the history, culture and traditions of the Army is very poor, limited to what officers have been taught at Australian Defence Force Academy (ADFA) and Royal Military College - Duntroon (RMC), whereas knowledge of the contemporary operating environment, challenges of the future and present security challenges is equally poor limited to cursory readings from Blogs. In the majority of cases this is due to a lack of time and impetus to grow. It is essential that junior leaders are provided more time, encouragement and drive to intellectually improve themselves – currently problematic due to the stress, fatigue and tasking many presently experience. The Australian Army have never been more educated,

and there are a multitude of official corps, service and defence journals that invite the submission of articles, and there now exists a horde of blogs and discussions forums available. But there still remains a paucity of young officers writing and submitting papers. Our junior officers need to be sustained intellectually; this involves not only facilitating the development of their own ideas and concepts, but also via expanding the Army's intellectual capital by sharing them. They should be ruminating on their vocation continuously and frantically submitting their ideas both to the chain of command and to the aforementioned journals. Writing is not just an accurate and effective process of communication; it serves as a tool for stimulating critical thinking and 'robust, honest debate'[6]. The act of producing a piece of written work in itself forces study, analysis and deductive reasoning. Concurrently, via the process of writing one is able to examine their own perspectives through a process of critical thinking. Such scrutiny is instrumental in identifying and resolving imperfect arguments or perspectives.

The Australian Army recruits, trains and commissions the young people to command and lead soldiers, be challenged and to be part of a national institution of significance. ADFA and RMC educate and train young officers to lead in the contemporary battlespace; with the promise of a complex environment imbued with challenges and opportunity, requiring 'virtues and values' as obligatory traits[7] with all the shared history of the Army as a example[8]. However, once commissioned many find the scope of their responsibilities and service to be far below their expectations and the training they have been provided. A genuine lack of job satisfaction exists amongst young officers who are not receiving the intellectual and emotional payment they expected when they joined the Army. Where they expect to command their men and women, take responsibility and make decisions, they feel that they exist in a task saturated void of risk adverse over governance, smothered by higher command and a diluted military ethos. Crucially, many officers demonstrate alarming levels of fatigue and exhaustion (mental and morale). Some are simply burnt out, not by an operational tour, but by the routine of governance, admin, task saturation and an organisation continuously asked to do more with less. The level of stress and cumulative fatigue in young officers mentally and emotionally inhibit their ability to develop and pursue excellence. The Army is burning out Lieutenants and Captains; customarily they have many years before they should be expected to experience mental and moral exhaustion. The Army mission is to 'fight and win the joint land battle'[9], delivered via people possessed of mental and physical toughness, imbued with courage, initiative and loyalty – this comes with the supposition that members would be allowed to act as such. Most junior officers feel that this is not the case. Critically, it matters very little if this is not true, it genuinely doesn't. What matters is that they feel authentically jaded and disenchanted by their profession. These are the future leaders of the Army, and those who will be trusted to be custodians of culture, custom and tradition. Of course they feel pride in their profession, they are generally well trained and highly educated, and they receive partial satisfaction by performing their assigned roles, but it is profoundly dubious as to whether they feel professionally contented in the long term. For some this translates to the pursuit of

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[6] Ricks, T, 'Yes, Junior Officers Should Write. But First, They Should Consider These 7 Pointers'. *Foreign Policy*. 08 Jan 2015.
[7] Phelps, M, 'The Australian Army's Culture: From Institutional Warrior to Pragmatic Professional', *Australian Defence Force Journal, No. 123, March/April, 1997, 38.*
[8] *Hill, A, 'Military Innovation and* Military Culture', Parameters, No. 45, Spring, 2015, 86.
[9] 'Who We Are | Australian Army', *Australian Army*, N.p., 2017, Web 29 Apr 2017.

mediocrity, for others a jaded outlook leading to transition, and others suffer within the grind hoping to eventually find the professional nourishment they desire.

Inconsistent Professional Environment

The Ryan Review stated that 'Army must remain alert to evolving needs of its people in their development of individual and collect professional mastery' and that where 'expectations or learning needs change, adjustments to training and education must be assessed, tested and applied[10]'. Increased operational tempo, the demands of the force generation cycle and increased digitisation has resulted in a new workplace paradigm that has placed an inappropriate impost on the human element contained therein. The First Principles Review was aimed at identifying ways to improve the strategic and departmental processes, and it identified a great raft of issues. These issues are in many ways as apparent at the 'tactical' level as they are where services intersect with the Department in Canberra. The removal of civilian resource officers, consolidation of unit orderly rooms into APACs and centralisation of travel clerks all contributes to process that are 'complicated, slow and inefficient in an environment which requires simplicity, greater agility and timely delivery'[11]. In the same way that Defence was afflicted with a 'proliferation of structures, processes and systems with unclear accountabilities' so is the environment where Army demands that it's junior officers flourish. However, as the review identified at the higher level the environment actually results in 'institutionalised waste, delayed decisions, flawed execution, duplication, a change-resistant bureaucracy, over-escalation of issues for decision and low engagement levels amongst employees'; all this results in cumulative levels of emotional, intellectual and professional fatigue. Task saturation is commonplace, and as it increases junior officer's start shutting down, unable to continue to perform effectively or safely. Task saturation is normally coupled with its equally ugly cousin, task fixation. This is the organisational obsession on that which can be easily quantifiable: AIRN, AIMS reports, Non-Techs, ect.…and very little focus on that which is difficult to measure but infinitely more important, such as leadership, mentoring, morale and culture. Fixation causes all cognitive capacity to be focused on one task; this can happen to entire units and not just individuals. As stressed in the Ryan Review, 'mastery of the profession of arms is, at its heart, about people – preparing our soldiers to fight and potentially die to achieve their mission'[12]. But as the organisation continues to ask junior officers to do more with less it is leading the Army from possessing a *can do* attitude to one of *make do*, and this is dangerous and neglectful. Saturation results when the individual takes on the maximum amount of work they can handle – working at full capacity – yet more and more tasking and/or responsibility is forthcoming.

Amongst many Australian junior officers there is a substantial prevalence of ego-based attitudinal toxicity undermining their ability to meaningfully pursue mastery. This is best broken down into three aspects: Pride, Arrogance and Fear. These disrupt an officer's ability to learn and develop in any environment. For some officers, the receipt of frank, fearless, and honest appraisal is devastating; particularly when an assessment does not coincide with self-perception. Officers are advised throughout their career to be honest with themselves about their performance and

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[10] Ryan, M, *The Ryan Review: A study of Army's education, training and doctrine needs for the future*, Australian Army, 2016, 24.
[11] *First Principles Review: Creating One Defence*, Department of Defence, 2015, 13.
[12] Ryan, M, *The Ryan Review: A study of Army's education, training and doctrine needs for the future*, Australian Army, 2016, 50.

accept criticism as part of their professional development. However putting aside pride, arrogance and fear of failure can be extremely difficult if not appropriately led, mentored or provided with organisation impetus. These three aspects are only in very rare situations applicable to a whole individual, however the majority of junior officers will assume one of these traits in some form in a way that significantly inhibits their development.

The majority of junior officers in the Army are appropriately proud of their achievements, however at times this can undermine a need to ask for help from either peers or commander. Some officers go a step further and 'drink their own 'kool-aid', exalting themselves beyond their peers and subordinates with just cause, and rather than being humbled by the vastness of their profession they begin to develop an exaggerated sense of own importance and abilities. For both types, they are fearful of displaying weakness or a lack of knowledge (perhaps to an environment where they are ranked by number based off intangibles), of being derided or shamed publicly (due to experiences within their early trailing) or are fearful of being identified as an imposter masquerading as a professional; as they do not possess confidence in what they have been taught or that they have been taught correctly.

Distressingly some junior officers display an alarming level of arrogance, which drifts into hubris. This undermines their ability to receive guidance or feedback, drives them to externalise weaknesses and ultimately weakens their ability to learn from mistakes. These officers come undone very quickly, either through performing at a below job ready standard, or by alienating themselves from their peers and subordinates. They characteristically exhibit an adversarial approach to negative or constructive feedback, fail to take on board advice and argue obvious faults to the point of absurdity. Additionally, arrogance discontinues the acquisition of knowledge via supporting of ignorance. Arrogant officers are indifferent to the views of those around them, and do so under the misconception of intellectual authority. Arrogance disrupts the pursuit of mastery because it makes an officer believe that they have all the answers and they will rarely admit mistakes (and will therefore miss learning opportunities). Unchecked arrogance also instils in officers a self-perception that of superiority and personal ascendency. As such they stop striving for self-improvement, no longer seize development opportunities, and disregard the lessons of others experience. The pursuit of mastery is a pre-emptive action that demands effort, and cannot be accomplished via a passive approach. Simply, those who have allowed confidence to grow into arrogance are unable to pursue mastery because they believe they already know everything, and are unresponsive to advice or guidance for the same reason.

There is a pervasive and very real fear of assessment, grading and appraisal. The aspiration should be that officers lean into assessment as another chance to either validate their skills or find a weakness to address and build competence – commonly the transverse is the case. This fear translates into the fixation on deliverables and that which can be quantifiable, undermining the development of innovation and adaption. This fear or failure leads to risk acceptance being absent, willingness to demonstrate flair or panache rare, and often comportment attempts the mediocre rather than to strive for excellence. In some ways Army has driven the risk taker out of them, by not permitting a safe space for them to develop as a young person, and has given them an overly cautious approach to their own social comportment and decision making, this has contaminated their military thought process. Simply, via the

social and professional construct they have all colour, flair and risk-taking 'trained' out of them – resulting in a future commander hesitant to take calculated risks.

Mitigating issues associated with deficient professional nourishment, disenchantment and fatigue required direct, relevant and genuine investment from mentors and commanders. These officers must look to shape tactical competence, mindset and character; tasks that must be forefront in the mind of officers during their tenure in command. This also involves taking measures to provide time, space and encouragement to ruminate on the profession of arms – deep thought is important for both intellectual and moral development. To create this space, the identification and negation of dangerous single issue zealots is required, coupled with the elimination of disruptive over governance (both of which are primarily responsible for task saturation and fixation). Furthermore, throughout their career junior officers should be undergoing tempering of attitude and ego, whilst also being encouraged to pursue excellence. Importantly, when a junior officer fails to demonstrate the appropriate qualities and attributes this should be immediately and forcefully treated. They must be provided assistance in mitigating their weaknesses; however officers who exhibit complacency, laziness, belligerence or an inability to receive criticism demonstrate either a temporary or permanent character flaw. Equally, when an officer demonstrates superior loyalty, dedication, ethos and commitment this should also be incentivised.

Conclusion

A soldier who goes into battle with an unsharpened and rusty blade is a fool, likewise neglect of motivation and moral is equally imprudent. If a professional organisation requires its members to continually improve themselves, an environment must be developed that provides both incentive and opportunity. However, a deficiency of professional nourishment, intermittent disenchantment and omnipresent emotional fatigue significantly weakens the conditions that incentivise the pursuit of mastery. Paradoxically and the most frustratingly, encouraging innovation, risk acceptance, leadership and self-development is at complete odds with the reality of the day to day requirements of service; resulting in a generation of officers that lack professional sustenance and conviction in their own system. Shackling ego and tempering pride with humility is important, encouraging investment in self-study and development is critical, and generating conditions that inspires excellence is essential.

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Shock Action
Approaches from Platoon and Troop Level
By LT Gerard Donnelly

Without shock, fighting tends to be protracted and indecisive.

Dr Jim Storr[1]

Shock action, when effectively generated, can degrade enemy capabilities and will to fight. However, a poor understanding of the application of shock action exists at junior command levels within the Australian Army. During the planning and execution of an operation, we do not consider how we can defeat the enemy utilising shock action. This is principally because Land Warfare Doctrine (LWD) such as *LWD 3-4 Operations, LWD 3-0-3 Formation Tactics* and *LWD 3-3-4 Employment of Armour* do not provide junior commanders with methods of actually achieving shock action. Rather, it is explained as an axiom and the method of achieving it is never truly examined in practical terms.

The purpose of this paper is not to revolutionise the theory of shock action. Instead, it will propose a number of practical ways that junior manoeuvre commanders at platoon and troop level (herein platoon) can achieve shock action to seize the initiative, create exploitable opportunities and win the close fight.

Shock is not just a word

"Shock is the paralysing effect created by rapid and simultaneous actions that render an enemy incapable of making an effective response. Armour achieves shock by combining surprise, concentration of force and aggression (both physical and psychological). Shock action disrupts the enemy's plans, destroys their cohesion, saps morale and weakens their will to resist." [2]

The term shock action is not synonymous with 'tank', 'surprise' or 'firepower' – nor should it be confused with simply killing the enemy. You can achieve surprise and the enemy is only surprised; you can mass firepower, and the enemy is only suppressed or neutralised; you can manoeuvre with speed and aggression, but when the enemy is prepared for your assault, your actions are frivolous. The art of achieving shock action lies in the orchestration of these elements. Surprise combined with aggressive manoeuvre and massed firepower are the preconditions for achieving shock action, and elements other than tanks can achieve it. Shock action is scalable and can be achieved at all levels of command commensurate with that of own force capabilities versus enemy capabilities. In simple terms, it is not necessary to have a battery of howitzers supporting a tank assault to achieve shock action (though this is definitely a workable method). An infantry platoon who sets the right conditions can achieve shock action, but this requires an acute understanding of own force capabilities and a robust understanding of enemy vulnerabilities.

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[1] Dr Storr, J. (2010, Feb). High Explosive: Shock Efect in Dismounted Combat. *Infantry: Capability, Burden and Technology,* p. 56.
[2] LWD 3-3-4 Employment of Armour, p. 11.

Understand the enemy's centre of gravity

"Shock action is most effective when directly targeted at the enemy's centre of gravity and critical vulnerabilities"[3]. This is not to say that shock action cannot be achieved without physically targeting the enemy centre of gravity. In fact, in some cases it would be unwise to directly target the enemy centre of gravity when own force capabilities are not suitable or commander's intent does not deem it necessary within the chosen scheme of manoeuvre. However, the budding manoeuvrist's failure to target or *undermine* the enemy's centre of gravity is an opportunity wasted.

To be truly targetable at the platoon level, the enemy centre of gravity or critical vulnerability must be a physical 'thing' – something that exists in time and space and is therefore targetable. The centre of gravity should be something that the enemy draws strength from; without it, the enemy's thoughts transition to self-preservation, his cohesion is shattered and his instinct and will to fight is crippled. As junior commanders, we must identify an enemy centre of gravity that we have the ability to influence or target. Fanciful centre of gravities such as 'the enemy's ability to remain below the detection threshold' is not targetable and therefore not useful. For example, during Operation Desert Storm in 1991 one of the many enemy centre of gravities identified at the operational level was the Iraqi integrated air defence system. This is not targetable at troop or platoon level. The enemy's centre of gravity at the small unit level was identified as the Iraqi defensive bunker complex[4] – still too broad. To make this truly targetable for junior commanders, analysis during Intelligence Preparation of the Battlespace should focus on terrain and enemy at the relevant level. This will enable the commander in this example to identify a key position in the bunker system that needs to be destroyed, targeted or bypassed to achieve break in. This could be as specific as a weapon emplacement. Once this physical 'thing' is identified, a junior commander has the ability to strike or undermine the enemy's centre of gravity once the appropriate conditions are set.[5]

Achieve Surprise

Achieving surprise is a key precursor to shock action.

"Surprise is achieved by acting at a time or place the enemy does not expect and in a manner for which they are unprepared… Surprise induces a period of shock and disorientation in the enemy which can delay the enemy's reactions and overload and confuse command and control systems."[6]

Surprise places a commander under strain to act immediately and thus reduces his decision cycle. It aims to force the enemy into unplanned actions, thereby leading them into forced and unforced errors.[7] In a study conducted by the British Army Working Review, the ability of an armoured force to achieve surprise on the enemy was shown to increase the probability of success by around 30 percent. Furthermore, an infantry force who achieved a combination of surprise and shock had casualties

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[3] LWD 3-3-4 Employment of Armour, p. 11.
[4] Dr. Strange & Colonel Iron, *Understanding Centers of Gravity and Critical Vulnerabilities*
[5] Ibid, p. 4.
[6] LWD 3-0 Operations, p. 53.
[7] LWD 3-0 Operations, p. 29.

reduced by an average of 65 percent.[8] The importance of achieving surprise to inflict shock cannot be understated; but to understand how to achieve surprise, we must first understand enemy preparedness.

"Most of us tend to envision enemies that are constantly manning their guns and expecting our arrival… during wartime, our tank is most often ill disposed for fighting, because it is only partially crewed, moving through bad terrain, refuelling, undergoing maintenance, or involved in countless activities other than combat. Yet, when we think about a tank, we almost invariably picture it in one of those few moments when it is ready to fight."[9].

The natural state for a military unit is unpreparedness, and thus the principle of achieving surprise rests largely on that fact. To capitalise on unpreparedness, we must visualise this as the enemy's natural state and then understand what causes the enemy to transition into being prepared.[10] "The answer is simple: the detection of a threat. When a threat is detected, the unit stirs itself and attempts to come to full battle readiness before the threat can harm the unit"[11]. Though lacking external assets and BOS enablers, a platoon is more than capable of achieving surprise. To exercise this point, the following is an adaptation of an example demonstrated within *Fighting By Minutes*.

An infantry platoon approaches an enemy defensive position. The enemy emplaces an observation post (OP) or early warning in a position that allows him to detect the platoon approach. Like friendly forces, the enemy conducts analysis that considers the rate of advance the approaching platoon is capable of achieving and importantly the type of terrain they are traversing. This time-distance calculation (*Time A*) assumes the enemy will travel along the detection-contact (D-C) line in a doctrinal fashion which then informs the distance that the commander needs to emplace the OP from his position. The second calculation the enemy undertakes is the time it takes for his force to adopt their defensive position after the platoon approach is detected (*Time B*). When emplaced correctly, the intent is that *Time A* is greater than *Time B*, and therefore the enemy will be prepared prior to contact. To achieve surprise, "the force that is attempting to surprise the opponent must think in terms of the D-C line… surprise occurs when the subject force can shorten the D-C line of the enemy."[12] In summary, the assertion is then that if *Time A* becomes shorter than *Time B,* the enemy will be unprepared, and surprise will be achieved.

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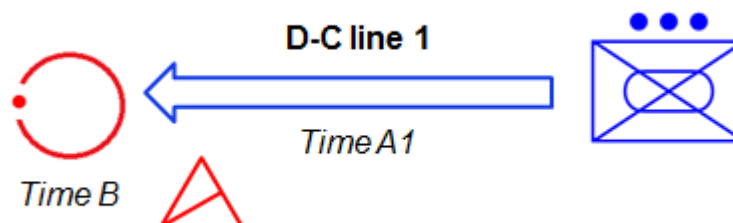
[8] Rowland, Speight, & Keys, 1993, *British Army Working Review*
[9] Leonhard, R. *Fighting By Minutes* (1994), p. 136.
[10] Leonhard, R. *Fighting By Minutes* (1994), p. 136.
[11] Leonhard, R. *Fighting By Minutes* (1994), p. 135-136.
[12] Leonhard, R. *Fighting By Minutes* (1994), p. 140.

To shorten the D-C line and achieve surprise with the intent of inflicting shock action, two antithetical necessities must be balanced; the ability to delay detection and fast, aggressive manoeuvre.[13]

Delay detection

At the platoon level, adherence to basic field craft principles will assist in achieving shock action. The ability to delay detection whilst manoeuvring and remain undetected whilst at the halt is crucial. For example, when moving to occupy a form up point, a covered and concealed route along an unexpected avenue of approach is an obvious way to shield intent and delay detection.
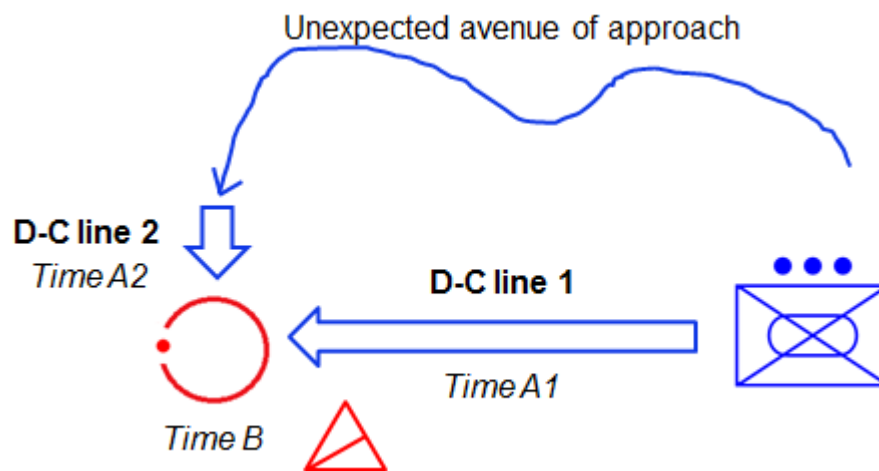
By utilising an unexpected or covered and concealed route to attack an enemy position, the D-C line becomes shortened due to the enemy not expecting the approach. Early route planning and reconnaissance will enable junior commanders to confirm the validity of routes prior to execution. Movement, where possible, should be at night as this will reduce movement signature and decrease the likelihood of detection. Small forces should begin to culturally develop the concept of night operations as the 'norm'. It is the responsibility of junior commanders to ensure that their platoon is adequately prepared to operate at night by conducting realistic training and rehearsals.

When at the halt, basic hide and harbour discipline is critical in maintaining surprise. Terrain selection, camouflage and concealment and stringent noise and light discipline are basic field craft skills that when adhered to will decrease the chances of detection and increase the likelihood that a force can reveal their hand at a time of their own choosing and therefore inflict shock.

Signature reduction in the electromagnetic spectrum is crucial in delaying detection; a disciplined approach to the use of communication systems is essential in achieving surprise. Experience shows that at the small team level there is an overburdening reliance on VHF LOS communications – this needs to change. VHF radio transmissions are widely considered as one of the most detectable and targetable forms of communication in the electromagnetic spectrum. When the use of VHF is

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[13] Leonhard, R. *Fighting By Minutes* (1994), p. 141.

required, minimising power and transmission time drastically reduces the chances of being detected and targeted. Conversely, HF is the one of the hardest type of radio transmission to detect and jam. Small team organisations should always seek to minimise exposure to EW threats through the use of scheduled radio communications, the use of HF where possible and practice the use of hand signals and radio silence during periods of inactivity or prior to critical moments. This practice will decrease the chances of detection and increase survivability. Scheduled reporting poses a risk of delays in delivering information to parent callsigns. This risk must be mitigated through developing detailed synchronisation matrices which aid in understanding the movement of callsigns in time and space. Synchronisation combined with orders that clearly articulate PIRs and detailed actions on will reduce the need for consistent reporting and ensure time critical information is delivered when appropriate. This level of planning is a responsibility of not only platoon commanders, but also sub-unit and unit commanders.

As peer threat capabilities continue to develop and grow, electromagnetic discipline has never been more crucial. Russia maintains dedicated large units to electronic warfare, with the ability to destroy command-and-control networks by jamming radio communications, radars and GPS signals[14]. On the 11th of July 2014, a Russian battalion tactical group conducted a pre-emptive strike in Zelenopillya on Ukrainian units postured in assembly areas preparing to conduct offensive action against Russian and partisan forces. The strike resulted in dozens dead and wounded and the destruction of more than two battalions of combat vehicles. The strike was preceded by heavy drone activity and cyber-attacks which crippled Ukrainian communications[15].

Upon detection, the enemy will begin transitioning into a state of readiness. The second component of achieving surprise and shock action is to close rapidly and decisively on the enemy with overwhelming combat power after detection occurs in order to deprive the enemy of the time it requires (*Time B)*[16].

Manoeuvre with speed and aggression

"Unpredictability and boldness will enhance the surprise achieved." [17] By manoeuvring with speed and aggression, particularly against a flank, the enemy has to further divide their forces to respond. Napoleon wrote, "Cavalry charges are equally as good at the beginning, during, or at the end of a battle; they ought to be undertaken whenever they can be made against the flanks of infantry, especially when the latter is engaged in the front."[18] Moving aggressively and with speed will incur surprise on the enemy forces, resulting in psychological shock and fractured cohesion. The execution of a platoon level raid is an excellent example of how shock action can be achieved with the limited assets a junior commander owns. Executed rapidly and violently, the successful raid is by its very nature shock inflicting. The combination of surprise and massed combat power with fast, aggressive manoeuvre causes "significant dislocation and disruption, with results normally out of all

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[14] Gould, J. (2015, August 02). Electronic Warfare: What US Army Can Learn From Ukraine. Retrieved September 20, 2017, from Defense News
[15] Fox, A, *The Russian–Ukrainian War: Understanding The Dust Clouds On The Battlefield*, Modern War Institute, (17 Jan 2017)
[16] Leonhard, R. *Fighting By Minutes* (1994), p. 150-152
[17] LWD 3-0 Operations, p. 53.
[18] Major Shaffner, 2015, *Napoleon's Cavalry: A Key Element to Decisive Victory*

proportion to the size committed."[19] As commanders of small forces, we should always seek opportunities to achieve disproportionate successes.

Another way junior commanders can inflict multiple dilemmas on the enemy is by attacking on multiple fronts. An obvious but practical example is through the use of support by fire positions or multiple attack by fire positions coordinated with simple control measures. When an enemy is faced with multiple threats simultaneously, he cannot mass his forces against a single threat without ignoring another. Thus, he is forced to divide his efforts against each.[8]

Alternatively, where simultaneity is not possible due to time/space restrictions, overwhelming force via the application of disproportionate and unexpected violence can achieve a comparative effect. This is well evidence by an action in 2004, where a small group of British troops was ambushed in Basra by a force of roughly 100 militiamen. When ammunition of the British force ran low the decision to fix bayonets was made. The force prepared for a direct assault and charged nearly 200 metres across open ground to engage in hand-to-hand combat with the enemy. Afterwards, Corporal Brian Wood stated "I wanted to put the fear of God into the enemy… I've never seen such a look of fear in anyone's eyes before." Three British soldiers were injured, whereas 20 militiamen were killed in the charge.[20] Bold and aggressive manoeuvre will assist in achieving psychological shock and cripple a commander's ability to maintain control.

Following basic field craft principles increases the likelihood that a force can reveal their hand at a time of their own choosing and therefore achieve surprise. However, an enemy can somewhat mitigate surprise with actions on, standard operating procedures and drills. The combination of surprise with the massing of forces and firepower seeks to deny the enemy the ability to react effectively.

Mass Forces and Firepower

The devastating effect on troop cohesion and morale when receiving heavy and unrelenting firepower has been well documented throughout history. Massing forces and firepower on the enemy at the right time and place is essential in achieving shock action. When the enemy is receiving massed firepower, his ability to maintain command and control is weakened.

"…the arrival of their solid cannon-balls were so frequent, the effect of the balls on human flesh so destructive, the apprehension of those temporarily spared so intense that the cannonade came as near as anything suffered by the British at Waterloo to breaking their line."[21]

Firepower is central to manoeuvre warfare. Forces and firepower should be concentrated at decisive points, particularly on known objectives or critical vulnerabilities to destroy enemy elements when the opportunity presents itself.[22] Massing of fires is defined by the terminal effect on the enemy and not by the number of rounds fired or systems firing. "Massing fires is not 14 vehicles all destroying one

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[19] LWD 3-0-3 Land Tactics (Obsolete), para. 6.124.

[20] Walker & Halpain, 2009, *Bayonets in Basra – A Case Study on the effects of Irregular Warfare*
[21] Keegan, 1983, *The Face of Battle: A Study of Agincourt, Waterloo, and the Somme*, Loc 2474
[22] Warfighting - United States Marine Corps, 1997

target. True massing of fires is 14 vehicles destroying 14 different targets."[23] By achieving massed firepower, the enemy is presented with multiple dilemmas and his command and control is weakened. At the platoon level, weapon systems should be commanded at the highest level within the organisation as necessary to enable concentrated fire. The method of achieving calculated and coordinated firepower to achieve shock action is through the use of clear fire control orders. Fire control orders should always be coordinated and enhanced with control measures to enable focussed fire. Crippling firepower is essential in exacerbating the shock and surprised achieved.

Conclusion

The psyche of troops in battle is said to depend fundamentally on how their commander was able to maintain order and handle different situations.[24] The foundation of shock action lies in the ability to orchestrate the effects of surprise, aggressive manoeuvre and massed firepower directed at the enemy COG or critical vulnerabilities. By orchestrating these effects, a commander is posed with multiple dilemmas, and his to react appropriately to a situation is fraught in turn fracturing troop morale and cohesion.

Despite a lack of doctrinal guidance in the art of generating shock action, it is not unrealistic for platoon commanders to achieve. As junior commanders, we should not confuse killing the enemy with inflicting shock action – there is a difference. Shock action is aggressive and selective attrition which delivers a disproportional psychological and physical blow to the adversary. It is important to defeat the enemy by inflicting shock action wherever possible, as this will preserve life whilst also achieving freedom of action. We should always seek opportunities to defeat the enemy by making his situation "psychologically intolerable" and thus "dissuading the rest from wanting to fight anymore"[25]; shock action is the best way to achieve this.

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[23] Major Miller & Captain Averna, 1993, *Direct Fire Planning*, p. 5.
[24] Lopez, 2008 "Shock Tactics on the Ancient Battlefield.
[25] Keegan, 1983, *The Face of Battle: A Study of Agincourt, Waterloo, and the Somme*, Loc 5382

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The Extent Mao Succeeded As A Leader

By CAPT Ahmad Faisal Muda Malaysian Army

> *A revolution is not a dinner party, or writing an essay, or painting a picture, or doing embroidery; it cannot be so refined, so leisurely and gentle, so temperate, kind, courteous, restrained and magnanimous. A revolution is an insurrection, an act of violence by which one class overthrows another*

Mao Tse Tung

A leader with certain traits that achieves his or her desired goals can be defined as a successful leader. In relation with this essay study, this particular leader uses the basis, movement, and hardship of the life as a tool to improve his society together with the support of his people as a dominating figure whom kept his goals clear throughout his rule. Mao Tse Tung printed his name in the group of the countable great political men in our history by all standards. Mao's call for revolution goes far beyond the original people of his native land and influenced surrounding states. However his big role, many people have never been touched by his presence, whether in admiration or hatred, in respect or scorn. His name has become the label for revolutionary extremists throughout the world, "the Maoists," yet it is Mao Tse Tung with whom leaders throughout the world seek audiences.

When China was ruled by Mao Tse Tung he promoted many controversial plans. This essay will examine his well known plans which are The Long March that happened for a year starting October 1934, then the Great Leap Forward on 1958 to 1962, and the Cultural Revolution which took place from 1966 until 1976. While searching the answer behind the success or failure of Mao's policies and reform movement, a comparison of his leadership style compare to existing leadership theory will be analysed which conclude the aim of this essay.

Top Leadership Theories

For many years, the theory of leadership has been the source of many studies. In reality and in practice, many people try to determine what makes notable leaders stand out from the masses. According to MD 0.0 TD, the Malaysian Army stressed upon two important leadership model that is best related to military leadership which are Transactional and Transformational Leadership. Transactional Leadership is related more towards management while Transformational Leadership is more towards leading.

Transactional leadership considers the relationship between a leader and his subordinates as a transactional in which followers' needs are met if their performance comes up to the explicit or implicit contract with the leader. The transformational style on the other hand as the name suggested "transforms" subordinates by challenging them to rise above their immediate needs and self-interest. The transformational style is developmental: it emphasizes individual growth (both professional and personal) and organizational enhancement.[1] In this essay, Mao is interpreted as one of the Transformational Leader although his ideas of transformation failed most of the time. Some examples are provided in later heading of this essay.

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[1]MD 0.0 TD Command, Leadership and Management (Provisional) 2007, p3-8, 3-9.

Background of the Personality

The public record reveals that he was a man from rural China, a man of the peasantry, who knows the myths and folklore of traditional China. Mao Tse Tung was born in 1883 at the central of China, in Hunan Province. He received a traditional Confucian education on the local primary school, further attended a 'radical' new Western-style school at the age of sixteen. Mao was part of the first full generation of Chinese to explore Western knowledge. However, his education was overwhelmed by the rush of political events. Sun Yat Sen was preaching cultural and political revolution. In 1911 the revolution broke out against the Manchu Dynasty. Mao joined the army with brief and unimpressive military service. He continued with his study and eventually exposed to Marxism-Leninism at Peking University and became one of the founders of Chinese Communist Party. He led his party ventured with Sun Yat Sen's Nationalist Party (Kuomintang) against the imperial government in Peking. Chiang Kai Shek became of the Kuomintang and broke with Communist Party after the death of Yat Sen in 1925. Then the first event, the Long March occurred that moulded Mao to become the figurative leader of the Chinese Communist guerrilla struggle with multiple strengths and capabilities such as military man, ideologist, strategist and politician. As a win over the ruling system, he immediately visualised beyond the administrative issues to form a new social and provided human purpose as well as vision for his countrymen.

The Long March

In 1934 to 1935, Mao Tse Tung led avoidance of military Chiang Kai Shek's who was the nationalist leader of the Kuomintang in China. For thousands of miles they had to catch up with the long march of Mao's and his supporters.[2] The number of victims of the long march was the result of constant war and a continuous movement every day. In 1949, Kai Shek and his followers went to Taiwan and provide opportunity for Mao Tse Tung declared China's as a communist state and adapted a new name as the People's Republic of China (PRC). As the Head of China, chairman Mao supporters and the red army have the power. Mao's gained Chinese public support because he represented the people. He was a dictator who wants all people to be equal.[3] When he began his rule over China, Mao Tse Tung received the Soviet Union's cooperation and followed the five steps after Joseph Stalin. The importance of the industry's in the five-year plan with the Soviet-style development strategy proved to be a successful economic growth.[4] Although Mao efforts have paid off to help the Chinese economy, Mao believes that the agriculture-based economy should continue, and to leave or break away from the Soviet Union because their thoughts are slightly different.

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[2]Michael Lynch. Mao. Abingdon, Oxon: Routledge, 2004.

[3]Roderick MarFarquhar, John K. Fairbank, and Denis Twitchett.Cambridge History of China: The People's
Republic, Part 2 : Revolutions within the Chinese Revolution. Oakleigh: Cambridge University Press, 1991.

[4]Maurice J. Meisner. Mao's China and after: a history of the People's Republic .New York: The Free Press, 1977.

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Great Leap Forward

In order to compensate for the reduction in Soviet aid, Mao began the Great Leap Forward (GLF) panning. Chairman Mao planned GLF with a view of modernization to catch up with the west. Mao Tse Tung reign of China hopes to develop and challenge the Soviet Union to become the leading communist country.[5] GLF stressed the importance of agricultural and industrial development. It was planned to promote and maintain population groups to improve industrial productivity with the government's aid. However, the results of it were starvation to the peasants and the economy become unstable. Natural Resources deficit of China needs to be implemented in this plan and suffer the results of slow economic development.

The Great Leap Forward failure led to Liu Shao Qi (Mao Tse Tung's successor), hope for Chairman Mao soothing strength of ruling. Liu had a plan in 1962, for farmers to create a new economy for the market. Mao then reform plan to encourage the seed to grow in China for fear of the capitalist state. The socialist education movement of China Mao helped to make all the agricultural reforms; however, Mao Tse Tung's political leaders and the media questioned.

The Cultural Revolution

Mao Tse Tung's plan of Cultural Revolution responded. The Cultural Revolution includes political, social and economic changes. Chairman Mao aimed to purify the People's Republic of China through a radical change under this reform movement.[6] He wants to remove all traces of ancient Chinese and bureaucratic levels and emphasize inequality. Mao Tse Tung formed The Red Guards which are the young revolutionary group who led the struggle against the Chinese elite. Red Guards scare and threatened people, especially those who do not follow the party line. China became a disaster when the Red Guards started to become violent. Together with the forming of the Red Guards, Mao Tse Tung destroyed China's imperial bureaucrats and the remnants of schools and universities.[7] Focus on basic education, so that all have the opportunity to learn, read and write, but the destruction actually has increased the inequality of knowledge.

Analysis of the leadership style of Mao Tse Tung

All these struggles were led collectively by the whole party, but Mao, because of his farsightedness and readiness to respond to the initiatives of the masses, played a crucial role. As Mao Tse Tung's military victory on the long march, Mao Tse Tung's strength has been strengthened, and the movement becomes stronger. However, the red army was humiliated by millions of Chinese peasants affected by the fighting.[8] Mao has always been focused on turning China into an agricultural society-based goal, and has become the main communist state and the means used to achieve this goal without any restrictions. Mao Tse Tung focused to maintain the global help eagerly places Mao's era of China as a positive light in front of China; however, Mao's inherent love can be deemed as fear of the Chinese people. Mao Tse Tung has a strong army to train young people to conduct action against any Chinese who

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[5]Stuart Schram. Chairman Mao Talks To The People. London: Penguin Books, Ltd., 1974.
[6]L. Cheng, and A. So."The Reestablishment of Sociology in the PRC."Annual Review of Sociology, 1983: 471-498.
[7]Stuart Schram. Chairman Mao Talks To The People. London: Penguin Books, Ltd., 1974.
[8]Goldston, Robert. The Long March.New York: Franklin Watts, Inc., 1971.

do not follow the party. Leadership in this manner is to change people's lives, because they can no longer control their own actions, but by the leaders' decision, in the community it caused fear. This fear made Mao Tse Tung's success, the critics' opinion, but did not allow Mao's development in China although there was no objection from other party.

China went through a period of economic growth when Mao Tse Tung implemented the five-year plan. Following the example of the Soviet Union, China is based on agricultural and economic development plans. The plan is to increase Mao Tse Tung's popularity among the Chinese people. Despite the fear still exists, people began to believe that Mao Tse Tung will be able to help them cope with the economic downturn and make China a better country. However, Mao's made a turning move toward the Soviet economy further down initiated the policy reform. While holding his own goal, Mao Tse Tung came forward to the future with the implementation of this reform policy does not work because people suffered and did not have the necessary work in the country with natural resources; however, the President Mao's declared great leap forward failed and admit his own mistakes, indicating his leadership depth. However, some people do not accept China's support to Mao Tse Tung as the result of the Great Leap Forward. The Cultural Revolution began in response to Mao's critics.

The Cultural Revolution lasted for ten years and China paid for the price heavily. Although Mao Tse Tung China succeeded in getting rid of the old, the Red Guards must be reclaimed and re-educated, and the Chinese people. As a result of malicious destruction of schools and universities, and cause death, including teachers, it takes time for schools to obtain resources that need to be reopened. It was said that Mao's Cultural Revolution and the Great Leap Forward were successful because they had published Stalin in the past;[9] however, the implementation of two major reforms was the failure of Mao Tse Tung's leadership, as Mao launched two plans to stop development of China. Although Mao in his efforts help the Chinese economy in the beginning, through the implementation of the Great Leap Forward and the Cultural Revolution failed to grow, he did not lose a lot of followers, and it could be explained by the success of Mao's dictatorship. Although Mao's support still exists, the need for a new leadership is seemed necessary in China.

Conclusion

Mao Tse Tung theory of people's war and leadership is base on winning the hearts and minds of the majority when China was ripe for revolution. He then convinced the poor peasantry to liberate them from the terrible exploitation of imperialists and domestic reactionaries where the conditions were set. He then come out with his guiding policies and ideology generally known as Mao Tse Tung thought where it source was the reality of the revolutionary movement as well as a distillation of the correct subjective ideas of the masses and it developed precisely in the course of changing reality. Under its guidance, the Chinese people accomplished the extra ordinary task of throwing off centuries of oppression by domestic and foreign exploiters began the construction of new society with a better vision[10].

This transformational leadership was best suited during that era and it is not

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[9]Feigon, Lee. Mao: a Reinterpretation. Chicago: Library of Congress, 2002.
[10] The Theory and Practice of Mao: 9 September 1986.

impossible to be implemented into current leadership styles. A leader need to understand the majority of his people at the correct time and place while exploiting the opportunities to influence and become the trusted leader in order to lead them towards persuing the same goals. A leader needs to have the courage and confident on his leadership philosophy by maintaining his aim regardless of grave failures or challenges.

Although, there are a lot of critics in regards to his leadership. Mao Tse Tung has proved that he has sparked the Chinese revolution, dominated the world's largest population with the broadest and most intense government in history, and finally insisted on life and became one of the great political warriors of World War II history. His life was dedicated to include the emergence of modern China; his character shaped the Chinese style and initiated one of the debatable successful or failed revolutions in history text books. It is recorded that Chairman Mao had become the most respected person of the century in his country and based on China's great achievements statistics, he is recognised by the highest awards from Republic of China.

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The Spartan General vs. The Desert Fox
Operational leadership in the North African Campaign of WWII
By LT Leah Swain

The desert, to him who knows it, is a fortress; to him who does not, it is a graveyard.

GEN WHE Gott, Head of 8th Army, 1941

The North African campaign began in earnest on 10 June 1940 when Mussolini announced that Italy would join the European war. Germany's interest was in maintaining its alliance with Italy whilst Great Britain was concerned about interruptions to its sea lines of communications in the Mediterranean. The Suez Canal and following oil fields were the major prize and both sides would move to consolidate their interests whilst waging major offensives on the European continent. The British began to prepare the defence of their territories by forming the Middle East Command in Cairo in July 1939. When Mussolini declared war, Britain withdrew its "non-provocation plan and drew up plans to be at war in six months" (LTCOL David E. Spaulding, 1992).

For the next 10 months, Italy advanced its forces from West to East towards Britain's forces in Egypt. General Sir Archibald Wavell commanded the forces in Egypt which resisted the Italian attack on 09 Dec 1940 and drove them back 500 miles into Cyrenaica and capturing the supply ports of Salum, Bardia, Tobruk, Derna and Benghazi (Erwin Rommel – The "Desert Fox", n.d.). This repulsion and forced retreat of Italian forces was the que for Hitler to divert some of his forces to support his Ally, these units would be known as the Afrika Korps. This now included bringing the previously undefeated Field Marshal Erwin Rommel into the theatre. But this was purely a political move by Hitler who 'feared Mussolini might change sides unless he had German stiffening' (Liddle Hart, 1979). No matter how much pressure was placed on the German forces, they would never be the priority of effort for the German High Command, with Barbarossa as the main effort at this time; North Africa was a hindrance which could not be afforded. Britain's counter to the soon to be known as 'Desert Fox' came in mid-August 1942 in the form of Lieutenant General Bernard Montgomery who was already well known as the 'Spartan General' from his previous command appointments. The ensuing conflict was one of stark contrasts between two operational commanders who had vastly different approaches to their campaigns.

The aim of this analysis is to explore the varying leadership styles of Lt Gen Bernard Montgomery and Field Marshal Erwin Rommel during the North African campaign and how this affected each side's performance and the overall outcome of the conflict. By discussing the early years of both commanders the aim is to discover the roots to each of their leadership styles. Looking into nature versus nurture will expose each of their character traits and where and how they may have been formed. The beginning of each commander's career offers insight into the formative influences on their leadership and values. Once their characters have been reviewed, this will be used to best understand how they influenced their campaigns against each other and how these traits, coupled with external factors ultimately brought success or failure to either side.

Early Life and Military Experience

Even in their early years both commanders had very similar upbringings. Montgomery was born in London to an Anglican vicar. Later the family would move to Tasmania and whilst his mother was set on him pursuing a career in the clergy, from a young age he had "fixed on soldiering as his career" (Bernard Law Montgomery – The "Spartan General", n.d.). This caused friction within his family life as he excelled in his sporting endeavours, but not in his school work. Despite this he was able to secure entry to the Royal Military Academy at Sandhurst and successfully graduated 36th in his class in 1908.

In his thesis of 'Operational principles: The operational art of Erwin Rommel and Bernard Montgomery', MAJ McMahon of the United States Army asserts that 'there was not much about his early life, including his early years in the army, which would have indicated his later successes on the battlefield'; but I disagree. Montgomery's junior years provide a brilliant basis for military success. He was not academic but preferred to demonstrate his abilities in the sporting arena. In modern selection processes for the military, a background in sports it desirable. Team work, determination and competitiveness to a fault are all attributes that are nurtured in team sports, as are also in the profession of arms.

Montgomery's formative years in command were during WWI and provided him with the ability to test and adjust his leadership style under the strain of combat. He did not, however, reflect on his experience on the winning side and deduce that therefore they had conducted their operations in the best way; on the contrary, Montgomery would use the inter-war years to study, refine and simplify his lessons learnt to better prepare himself and others for any conflicts to come (McMahon, 1965). By World War Two (WWII) he had a well earnt reputation for his 'zeal for intense training, stern discipline and physical fitness' (Bernard Law Montgomery - "Spartan General", n.d.).

Rommel was born in Heidenheim, southern Germany and was the son of a School Master. In his early years, Rommel's father was a Lieutenant in the German Artillery which likely had a strong influence on his decision to pursue a military career of his own. In 1910 he joined the Officer Cadet School in Danzig and gained his commission in 1912.

Much the same as Montgomery, Rommel was somewhat fortunate to have been able to have his leadership style shaped by experience in combat during WWI. Despite being on the defeated side, he believed his experience was so valuable that he wrote *Infanterie Greift An* (Infantry Attacks) in order to inform future generations of German Commanders. He wrote that the 'book should make contribution towards perpetuating those experiences of the bitter war years' (Ewin Rommel, 1937). This was the very book which had him noticed by Hitler and subsequently allowed him to hold prestigious positions such as the commander of Hitler's personal body guard. The book portraits a junior officer who was frustrated by constant friction and found that the best way for him to resolve it was by being in the place which it occurred. Often this meant that he was moving between positions where the enemy's location was unknown and taking risks which some would consider reckless.

Both commanders appear to have had similar upbringings with a very early interest in the military. It is likely that the political climate of the time that they were growing up

contributed to their future intentions and shaped them into their careers. Their ability to gain valuable experience during WWI served them well in future conflicts but each was eager to learn from their experience and share it with others so that the same mistakes would not be perpetuated and so that any successes could be capitalised on.

Characteristics of Leaders

Devout, austere and self-assuredness to the point of vanity are terms used to describe Montgomery. He was well known for his discipline and routine, often maintaining his 2100h retirement even in battle (Bernard Law Montgomery – The "Spartan General", n.d.). During his time in command of the Eighth Army, Montgomery had been placed under time pressure to come up with results and capitalise on his victories but part of his character was that he was a meticulous planner. Rather than rushing in when he knew that he had Rommel in withdrawal, he waited for reinforcements in the form of Sherman and Grant tanks to bolster his force. Once they arrived he stated that "it is now mathematically certain that I will eventually destroy Rommel" (Bernard Law Montgomery – The "Spartan General", n.d.). He did not over run his supply chain just to attempt a decisive blow to his adversary, he ensured his success.

Rommel was well known for his lead from the front mentality and understood that to lead in combat meant being right there at the point of friction to provide the guidance required to resolve it. He was also well known for his blatant disregard for orders given to him if he did not agree with them. Rommel had been sent to North Africa under the command of the Italian North African Command, but had been given complete freedom of action by Hitler and the German High Command (LTCOL DE Spaulding, 1992). Unfortunately, they would live to regret the autonomy as they prepared to invade Russia. Rommel showed another of his characteristics when delivering his plans to defeat the British to the German High Command. He was questioned by General Halder as to how he intended to maintain resupply over such stretched limits to which his reply was "that's quite immaterial to me. That's your pigeon." (Irving, 1977). His brash response displayed a distain for anything other than combat operations, viewing logistics as an after-thought below his high level tactical knowledge.

Rommel did believe in setting an example to his soldiers which saw him living in the same conditions which they did. When the rations ran low due to lengthened lines of supply and the Allied forces constant targeting, he also suffered, he did not expect to be treated any differently. These conditions eventually took their toll on him and he became so unwell that he could no longer continue to command from the field and was flown back to Germany to recover in March 1943 and would not return to Africa.

Campaign Strategies

Once he had arrived in North Africa, Montgomery was able to accurately assess that the style of warfare which the Allies had become used to in the desert was no longer going to be effective. He had seen the devastation that the German 88mm anti-aircraft guns had caused to Armour in recent actions and formulated his plan by holding it back and deliberately forcing the fighting into close quarters (Moorehead, 1942). Instead of his new Armour, the American Sherman and Grant tanks, Infantry would lead the charge. The allies utilised layers of offensive support, enabled by the

achievement of air dominance. Forming a rolling barrage of artillery and bombers which moved ahead of the dismounts, they were able to clear the German's forward positions and remove the mines which had been placed to defeat any tanks that broke through. Upon successful break-in by Infantry, the new tanks which had been sent to reinforce the position at Alamein were sent forward with one task – "find the Axis armour and fight it" (Moorehead, 1942). Taking his time to build up his reserves and supplies had provided a stable and sustainable platform from which the Allies could launch their pursuit and destruction of Rommel's forces.

After Rommel's success in Europe he was sent to Africa to command the German campaign. His strategy was to utilise the tactics which had brought him so much success previously; wide sweeping manoeuvres with speed and shock action. The terrain of the desert supported these manoeuvres until the campaign reached Alamein. This area was bounded by coast to the north and quick sand to the south leaving only a very small corridor for any offensive action to take place. Capitalising on his successes so rapidly caused a very large problem – his supply lines could not keep up. Even Rommel's superiors could see that he was pushing his commitments in North Africa too far; Franz Halder believed that Rommel had been 'over stepping his orders' which had 'brought about a situation which for which [their] current supply capabilities [were] insufficient' (Charles Messenger, P74, 2009). What Rommel also failed to understand was that from the start of his time in Africa he was only required to reinforce the Italians. Their force was tailored around maintaining a viable presence in Tripoli, not striking a decisive blow to end the war (Twohig, p22, 1987). He failed time and again to understand his higher commander's intent and in the end, it would be his undoing. The result was a defeat of the Germans that was 'so significant that organised retreat was no longer possible.' (MAJ Schreiber, 1998). Axis forces were in withdrawal and would not be able to launch another successful offensive in North Africa.

Conclusion

The early years which Montgomery and Rommel had in command provided them with excellent opportunities to refine their leadership in combat. Montgomery exercised his meticulous planning and learnt that just because you're on the winning side of a conflict, it doesn't mean that you can't learn and improve for future conflicts. Rommel displayed proactive leadership through his battlefield exploits. He learnt to lead at the point of friction and capitalise on his success in order to maintain the offensive.

Rommel was comprehensively defeated during his campaign against Montgomery but in Rommel's defence, he had been in North Africa since 1940 and Montgomery only since August 1942. That is not to say that the position which Rommel found himself in was not entirely of his own doing and that a disregard for higher commander's intentions and the logistical demands of a majority armoured organisation were not contributing factors. "Rommel had been defeated by lack of support from his own side, and by cool logic and control on the other. No longer would he face an enemy army indifferently armed, loosely organized or indecisively controlled; no longer would his flair for movement, his willingness to take enormous risks, be enough to win." (Jewell, 1967). Rommel proved himself as a competent commander when fighting on the European continent as the main effort with short lines of supply and reinforcement as required. The traits which made him the successful commander that he was were also the ones which ensured his defeat

during this campaign. Head strong and ambitious he crossed the line between initiative and insubordination during the beginning of his campaign and from there he could not be reined in.

Montgomery, whilst competitive and self-assured was also cautious and an architect of the battle space. He refused to be dragged into the high speed conflict which Rommel enjoyed so much. Instead he waited and planned, taking his time knowing that he would require more assets and supply in order to destroy his adversary. He believed in planning so thoroughly that once he had given orders he could rest because they would be carried out without error, which is quiet the opposing strategy from his counterpart. This ultimately brought him success.

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Planning, Fast and Slow[1]: Or how to make military planning work for you
By MAJ Daniel Hebditch

> *In preparing for battle, I have always found that plans are useless but planning is indispensable.*
>
> **Dwight D Eisenhower**

Great generals through history have been marked by their capacity to rapidly assess and react to a military situation. This ability was the result of combination of natural talent and experience, but how do we train this ability in the modern commander and planner? This essay outlines the historical context, modern cognitive theories and contemporary limitations and how we can potentially answer this question.

Historical Context

Since the time of Frederick the Great of Prussia the mark of the great military commander has been their ability to take in the advantages and disadvantages of the terrain and the situation in a single glance – the coup d'oeil. This has also been remarked upon by such luminaries as Clausewitz and Liddell Hart, the later described it as a 'gift from God' while Napoleon himself declared it as 'inborn in great generals'.

The great captains of history were perhaps fortunate in their repeated exposure to campaigns and battle. This allowed them the opportunity combine practical experience with natural talent to develop this rare ability. Napoleon was a general at 24 and commanded his first campaign in Italy two years later. His rival, the Duke of Wellington, had commanded a battalion in that same year and before arriving in command of British forces in the Iberian Peninsula had gained significant experience of battle and campaigning in India.

The increasing complexity of conflict and the existential threats of modern warfare since the World Wars has limited the opportunities for the emergence of such commanders in the modern era. Rommel may be a notable exception but since the end of WW1 it has been hard to find a western general upon who the mantle of genuine military genius could be bestowed.

So how in the modern day do we look gain a touch of this genius without the opportunity to benefit from years in high intensity campaigning? The manoeuvrist approach adopted by most western nation places a premium on maintaining a high tempo of operations and obtaining 'decision superiority' over enemies. Yet our formal planning processes are universally lengthy and process driven and on our training courses it is not uncommon spend a full 24 hours developing a relatively simple plan to be articulated in a ten minute back brief. In addition most require the development of volumes of product to support the eventual planning outcomes.

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[1]   With apologies to Daniel Kahneman

In many cases during the conduct of these estimate processes most planners realise that at times they already have a likely course of action selected and are often going through the motions to justify it. Others may be struggling through an unfamiliar and unwieldy process to come up with a basic plan while failing to include many of the fundamental considerations. How can we make this process more effective?

System 1/System 2

Developments in cognitive psychology in the last few decades have derived theories of cognition which may assist us. These describe the existence of two systems of thinking present in the human brain which have been labelled as System 1 and System 2. System 1 thinking is rapid and instinctive and is built on our previous experience. It is capable of dealing quickly with complex problems. System 2 thinking is controlled, rational, and systematic and is a slow process which is excellent for dealing with simple problems.

System 1 thinking allows for rapid decision making but is poor at detail and is heavily reliant on previous experience to allow it to be effective. A good example is in the purchasing of a car – System 1 thinking might lead you to buy a particular brand of sports car. System 2 planning would critically examine its characteristics, such as reliability, fuel consumption, insurance and servicing costs, dispassionately which might lead to the purchase of a more practical and prosaic vehicle. Therefore System 1 thinking needs to know when to switch to System 2 thinking in order to gain more systematic inputs.

System 2 thinking; controlled, rational and slow, has certain key physiological characteristics. Experiments have confirmed that people conducting System 2 thinking experience elevated heart rates and pupil dilation. There has also been observed the phenomenon of 'ego depletion', linked to increased consumption of glucose in the brain, that sees people that have conducted System 2 thinking recently less likely to repeat the experience soon after they have finished. In short System 2 thinking is hard work, time consuming and likely to lead to short cuts if it is needed to be repeated.

System 2 thinking in particular significantly reduces situational awareness. The brain is concentrating so hard on systematically breaking down and analysing a problem it effectively 'puts the blinkers on' to achieve this. In the Invisible Gorilla experiment, while watching a film clip of a short basketball game and being told to count the number of passes made, almost half of the people miss a person in a gorilla costume walk through the scene . The implications are obvious for those operating in a fluid military environment when a dynamically changing situation maybe missed with significant potential impacts.

While the challenges of System 2 thinking are acknowledged, it also plays a key role in educating System 1 thinking. This lies at the heart of Eisenhower's dictum about the value of planning. Once a situation has been thoroughly analysed and understood then changes in the situation can be rapidly assessed and a plan quickly modified by System 1 thinking without laboriously returning the System 2 based analysis.

Military Applications

System 1 and System 2 thinking can be clearly be aligned to military planning. System 1 thinking at its most highly developed is clearly a model for King Frederick's coup d'oeil, the ability for a commander to rapidly assimilate a situation and understand the military possibilities. It is well primed System 1 thinking that will allow a commander to make sound and timely decisions.

One recent example of this is Major General Rupert Smith, the commander of the 1st British Armoured Division in the 1991 Gulf War (and later author of The Utility of Force), who deliberately decided not to plan his division's operations past the initial Forward Passage of Lines. He declared that he wanted to 'fight the battle not the plan' as the Iraqi reserve that was his objective would surely not be its initial positions once the battle was underway. This decision was based on the strength of the analysis Smith and his staff had already conducted, combined with a Division which was well drilled and conditioned to expect to fight in a fluid situation.

Another example is the Estimate produced by Brigadier Freddie de Guingand the Chief of Staff of the 8th Army prior to the 2nd Battle of El Alamein. His appreciation of the situation and outline of the proposed Operation Lightfoot stretches to a concise eight pages for an army level operation. In particular his assessment of the course of action likely taken by the Panzer Armee Afrika was a single paragraph, and ultimately proved accurate. By this stage in the war both sides knew each other's capabilities so well than only key changes or considerations needed to be analysed in depth.

System 1 and System 2 cognition model also has a clear parallel in the process of joint and staff planning. Here the staff perform detailed and systematic planning running through a number of steps shaped by periodic guidance provided by the commander based on his own appreciation of the situation. The staff provide the detailed analysis and number crunching 'mathematactics' to ensure that the commander's more instinctive planning guidance can result in a workable plan. The time poor commander himself is relying on his own experience and a truncated internal planning process whilst remaining aware of his own internal biases.

In general terms however as modern soldiers are likely to lack comprehensive exposure to military situations they find themselves and they will be unable to rely on System 1 thinking in most situations. However relying on System 2 thinking during stressful situations will come with significant hazards as previously discussed, in particular the reduction of Situational Awareness which will render a commander less likely to make good and timely decisions. Therefore deliberate System 2 thinking is required to build the capability of System 1 both in general, for example gaining proficiency with the planning process, and in particular, understanding specific enemy capabilities, terrain considerations and intent.

Struggling with System 2

So while the western world currently lacks the kind of opportunities for widespread military experience that gave rise to the Great Captains of History, we will need to rely on System 2 thinking to prime the commanders of the future. However it is clear that the majority of Army's officers, warrant officers and NCOs are uncomfortable with using systematic planning process, in Australia's case the Military Appreciation Process (MAP).

In many ways formal military planning is just plain hard work and the temptation is always there to avoid using the process and use something less formal. We know from the research done on System 2 thinking why this is the case; planning, like any System 2 activity has its own distinct physiological reaction. Combine this with what seems to be an increasingly time poor generation of officers, this drives a lack of familiarity and ease with the MAP outside of formal training environments. As a result most planners struggle with regular use of the MAP in their regular work environment and especially when on courses.

For example the Combat Officers' Advanced Course (COAC) is Army's premier tactics course and is a watershed point in the careers of the armour, artillery, engineer, infantry and aviation captains who attend it. Yet at the start of this course, despite a focused pre-course, there are relatively few trainees who produce good plans and many who struggle with the process to achieve the minimum standard. This variance is obviously a result of a number of factors - skill fade, differing experiences, professional mentoring as well as the obvious personal characteristics and drive - which mark an individual's journey to 'professional mastery'. Yet these officers have already progressed through a thorough range of leadership, staff and regimental/corps specific courses which all utilise the MAP as their planning tool.

Seven weeks later however within a simulated Brigade, Battle Group and Combat Team construct they are able to cope with significant complexity and non-linear injects into the planning process. So how does it achieve this? While it may be tempting to ascribe this result to the standard of instruction and the investment Army makes into the course, the truth is likely somewhat more prosaic.

COAC combines the conduct of lessons, Quick Decision Exercises, Tactical Exercises Without Troops (TEWTs), simulation and historical vignettes in a combined arms environment. One of its key strengths is the sheer repetition of planning serials that force the trainees to repeat the planning process in a variety of different ways. Detailed assessment and feedback ensure that this process is valid and adds value to result in workable plans. By the end of the course they are not only refreshed on the MAP but become used to applying it in both expansive and reductive ways to achieve their required outcomes. The use of simulation in the process also ensures that worthwhile plans are the key outcomes rather than slavish adherence to the planning process. While performing well on COAC certainly doesn't result in a tactician who will rival Napoleon, but it does produce officers who are significantly more comfortable in planning and execution of tasks than they were at the start of the course.

Convergent and Divergent Thinking

UK doctrine , based on research from the University of Cranwell, introduces an additional variable into how people think. It recognises System 1 and 2 as non-conscious and conscious Means of Thinking. It also considers divergent and convergent Ways of Thinking. Divergent thinking takes into account a wide array of inputs and can include additional options, ideas and possibilities. Convergent thinking on the other hand reduces the number of additional factors to concentrate only on those that are most relevant to the problem. By combining these two factors we are able to see what sort of results the way people think achieves. This is shown in Figure 1 below:

Ways and Means of Thinking
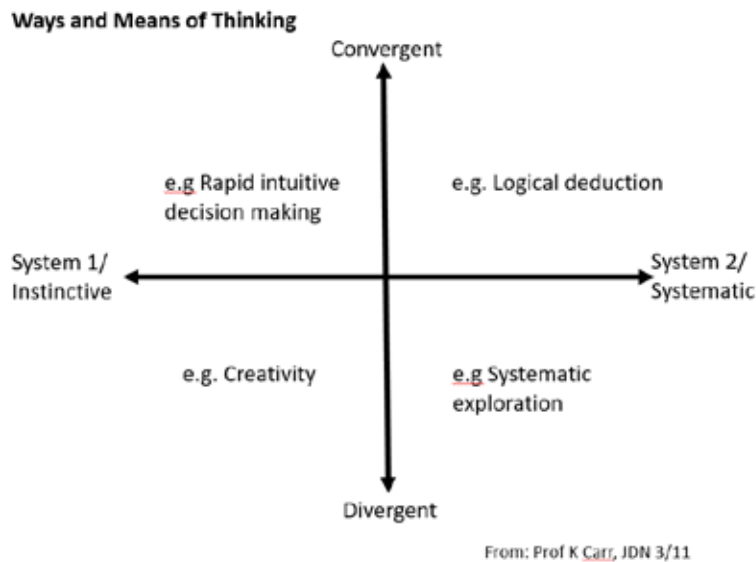

From: Prof K Carr, JDN 3/11

Figure 1

So to develop commanders and planners with the coup d'oeil what form of thinking are we requiring? Ultimately System 1/Convergent thinking will provide a commander, hopefully with sufficient System 2 experience behind them, who can execute their mission with tempo and a chance of achieving decision superiority. System 1/Divergent thinking may result in a commander who can rapidly devise innovative and creative plans. This may be hard to achieve through systematic training and so it is likely that the former is the ideal goal for most soldiers.

Weaponising System 1

So while knowing the outline of the theory and with an example of a process that seems to work how do we 'weaponise' System 1 thinking to enable Fast Planning? The obvious answer is by getting good at Slow Planning first and then testing the results.

To be good at any form of formal planning it is vital to first know the actual planning tools intimately first. The MAP, or other planning tools, cannot be used only for courses or set piece exercises and must be used as a matter of routine to ensure the utmost familiarity is gained with them. Once familiar it is then easier to shape the process to fit the planning tool to more complex or more time pressured processes. This is just another application of the System 2/System 1 model and can be done in conjunction with the other activities suggested here.

The next step is to build knowledge of the activities being undertaken, and here the review and instruction of doctrine comes into play. Doctrine is itself a distillation of best practice and historical example and should assist in moving to a convergent thought process by reducing factors that lack relevance. The review of historical examples and vignettes will also better allow the internalisation of doctrine to real examples.

This will then allow the conduct of deliberate TEWTs where a slow and systematic exploration of a specific tactical action or operation can be completed. This will allow the development of a better and in-depth understanding which needs to be reinforced with good mentoring and feedback of the TEWT. This can then be supplemented by the conduct of Tactical and Quick Decision Exercises with increasing time constraints

beginning the movement from System 2 into System 1 thinking.

Once these foundations are laid then the planning can obviously be put to the test through field exercises or simulation to ground the theoretical practice in practical execution, although this may not always be possible. Indeed it may only be possible to 'micro task' and 'box' only the key tasks of the wider planning activity. Simulation, where available and acknowledging its limitations, can clearly work well here as it can allow scenarios to be quickly played on in a number of different variations.

A key here is repetition and the constant practice of System 2 thinking and systematic planning in a range of scenarios built throughout the unit training year. This not only supports the development of leaders but also is good training for staff and builds cohesion in planning teams. Most important is the requirement for effective feedback to ensure that the right results are being achieved with effective System 1 planning and execution.

The selection of training methods can be aligned to diagram we have previously seen and used to help select the right methods in building towards the practice of System 1/Convergent thinking. This is shown in Figure 2 below:
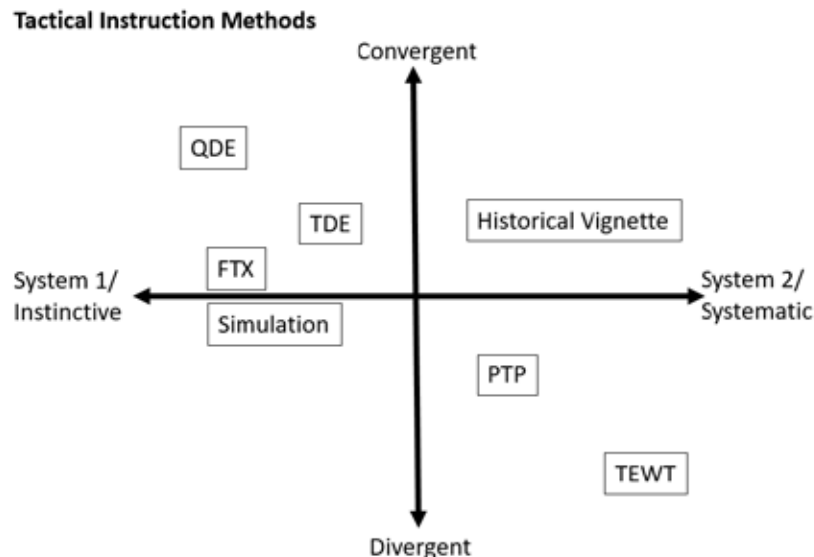

Figure 2

It should be obvious here is that none of this is revolutionary. Indeed there is nothing outlined in the paragraphs 24-28 above that should not be in any well organised unit training program. It is also obvious that across Army, with a few honourable exceptions, this kind of training is not being conducted with any depth or rigour and is an exception not the rule.

So why is this the case? The key factor is the lack of time to think and analyse across units in order to prepare well thought through and in-depth training, which is a System 2 focused task itself. Army in particular has become so time poor that training for the conduct of planning has been moved into the realm of 'Professional Military Education' at best and relegated to monthly CO's hours. How to win back training time is outside the scope of this article but surely needs to be addressed if Army is to attain the Professional Mastery it aspires to.

Conclusion

Any professional military needs to insure that its commanders and planners are given the best possible training and education in order to play their role in winning their part of the battle. While historically commanders could rely on extensive personal experience to support their decision making and planning that is not the case for their modern equivalents. Recent developments in cognitive psychology has enabled us to better understand the way people think and allows us to understand the best way to prepare our commanders and planners. If 'decision superiority' and the manoeuvrist approach is to be more than mere buzzwords we need to systematically train to achieve the contemporary coup d'oeil.

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