

THE AUSTRALIAN ARMY AND THE VIETNAM WAR 1962-1972

PREPARING ARMoured UNITS FOR OVERSEAS SERVICE

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Before examining the subject let me sketch in some background. When I graduated from Duntroon in 1955, I joined the 1st Armoured Regiment at Puckapunyal with three of my classmates. It was not long before all of us realised that there was antipathy in the army at large towards tanks.¹ I was accosted in the mess one night by an older officer from a different unit who proceeded to harangue me, not over the failure of 'Red Robbie's' 1st Armoured Division in the Second World War to get itself overseas (like Koalas: not for export and not to be shot at!), but over the shortcomings of the British tanks at Bullecourt in April 1917! We had been warned by some of our seniors that people might get into us about the former, but, going back two world wars, virtually to the dawn of the tank as a fighting vehicle, seemed to me to be going over the top in rampant tribalism. Strangely enough, his comments reflected a common strain in the post-Second World War period, that had taken no account of the successes of tanks against Japan in places like Sattelberg in the Huon Peninsula and Slater's Knoll on Bougainville, as Ronald Hopkins' history accurately attests.² Not until Vietnam were we, the Armoured Corps, again able to demonstrate how valuable tanks and cavalry could be, either against an entrenched enemy in bunkers or on the move in a wide range of mobile tasks.

Therefore, whatever negative aspects came out of the Vietnam War, the enhancement of the status of Australian Armour was not one of them. And all of us in the Royal Australian Armoured Corps (RAAC) took pleasure in the fact that our greatest protagonists from that conflict were the up-and-coming young infantry commanders and their troops who preferred not to go anywhere near a Viet Cong or North Vietnamese Army bunker position without both tank and cavalry support. In short, the Vietnam War helped to restore the RAAC to its place as one of the two manoeuvre arms of the Australian Army.

It did so from a very small base, and a central part of this essay is how we made the 'trickle' system of replacement work as well as it did. Admittedly opinions among tank and cavalry commanders on this subject are not unanimous. Some of us would have preferred to do as the infantry battalions did: concentrate and train as an entity in Australia, test the organisation during exercises and simulated situations, then deploy to Vietnam as a cohesive whole. Others felt that 'trickling' had its advantages. Because the learning curve in actual operations in Vietnam was so steep, they believed we were better to confirm the lessons by stages, absorb them, then instruct others as they arrived. In other words 'learn on the job'. For example: how did you check out a Vietnamese civilian found in a suspicious or 'no go' area? What did legitimate Vietnamese identity papers look like? Information from the villagers from Binh Gia (mostly Roman Catholic refugees from the North) was almost always reliable; that from the villagers of Hoa Long (heavily penetrated by Viet Cong cadres), was almost never so. Every province chief 'took his cut' from franchises in his province, but he got things done and therefore needed to be accorded respect. Old French maps of the area were valuable because they showed places, tracks, and river crossings that were no longer prominent or even recognisable, except by the Viet Cong; when escorting trucks, no matter how good the communications, it was essential to put an armoured vehicle in front to control the speed. This was bread and butter information that was only available in country, and then only if you had been there a while.³ Thus, there were definite advantages in the 'trickle' approach. It also meant that we were always 'on the air' in Vietnam, as one officer put it.

Probably the best answer was a compromise, 'trickle' at first, then switch to unit replacement when know-how and numbers, especially National Service numbers, had built up. As it happened, the successive tank squadrons were a compromise; in most cases half the squadron moved *en bloc*, while the successive follow-up tended to be a movable feast of reinforcements balancing attrition as battle casualties, accidents, sickness and expiration of individual engagements saw individuals replacing others as the former finished their one

year's tour of duty.⁴ We did reap advantages from this system. There was always a core of experienced people who, after six months or so in country, had acquired enough competence both to keep their unit humming, and to enable the trainers in Australia to adjust their syllabuses of instruction to current practice as the character of the war changed, because change it did.⁵ Indeed, many of my predecessors in command of the cavalry squadron found my descriptions of operations that occurred in my time almost totally alien to their own of only a few years (or even months) before.⁶ And it was not noticeably different with the tanks.

Organisation

Both the tank and cavalry units started small and were progressively reinforced to about full strength. The first Armoured Personnel Carrier (APC) element (it was renamed cavalry later) to deploy to Vietnam was 1 Troop, 'A' Squadron, 4th/19th Prince of Wales Light Horse, commanded by Lieutenant Bob Hill. For some time there had been a regular squadron within 4/19th which was a CMF (Army Reserve) reconnaissance regiment. In Vietnam, Hill's troop was part of 1RAR Battalion Group. It arrived in Vietnam in June 1965 and from then operated with 1RAR Group in a wide variety of tasks. 1RAR Group was itself part of the US 173rd Airborne Brigade (Separate). The latter's base was Okinawa. Its task was essentially a strategic reserve and because its commander knew that his brigade was vulnerable to be sent on any one of a number of fire-fighting missions at any time he was keen to operate as intensely as possible for as long as possible; 'get in, do the job, get out quick' was the brigade's unofficial motto. This involved a lot of operations in a short period of time. In fact, the intensity of action that 1RAR Group was subjected to during its tour was more extreme than any Australian Army commitment since Gallipoli. This intensity was to continue under future battalions and their supporting arms.

Hill's troop was redesignated 1APC Troop. It returned to Australia in May 1966 and was relieved in country by 1APC Squadron commanded by Major Bob Hagerty. Hagerty's squadron numbered seven officers and 109 other ranks of whom a substantial number were National Servicemen. Hill's troop had grown to eighteen carriers during its tour. Hagerty's squadron, which became 'A' Squadron, 3rd Cavalry Regiment, on 15 January 1967, remained at its strength on arrival; subsequent squadrons did increase numbers of both men and vehicles. It is also worth noting that the troopers in the squadron readily accepted the term 'cavalry' as being more accurately descriptive of what they did. Every squadron that served in country carried out more cavalry tasks than it did those of a purely troop carrying nature.⁷

By 1971 when the cavalry squadron was about to return to Australia with the 1st Australian Task Force (1ATF), it had grown to 65 earners: three troops each of thirteen vehicles, each troop capable of lifting an infantry company; M125 Mortar carriers, and a number of Armoured Command Vehicles (M577) for the use of both the Task Force Headquarters and the Squadron. Eight Fire Support Vehicles—M113s fitted with Saladin Armoured Car turrets with a 76mm gun—were added to the squadron for trials in the second half of 1971. Despite some limitations on the use of the vehicle, the trials were successful. The squadron's Light Aid Detachment (RAEME) had its own vehicles including two fitters vehicles with HIAB three tonne cranes, and a wheeled wrecker (M543) which was capable of towing an M113A1, either on its own tracks or on a tiltbed trailer if it was untowable.

The first half-squadron of tanks from 'C' Squadron 1st Armoured Regiment commanded by Major Peter Badman arrived in country in February 1968.⁸ By the middle of the year it had expanded to be a full squadron. Its arrival in what was to be the climactic year of the war could not have been more fortunate. After a series of operations: PINNAROO, an infantry-tank sweep into the Long Hai hills during which the tanks were able to use their direct fire to good effect; then COOKTOWN ORCHID a followup operation into the Long Green area within Phuoc Tuy province, three troops deployed in May during the 'wet' to the TOAN THANG operations (security of the Bien Hoa-Saigon-Long Binh triangle), around Fire Support Patrol Bases (FSPBs) Coral and Balmoral, where elements of 1ATF were involved in some of the toughest defensive battles of the war. Here, the firepower of the tanks and their equal ability either to manoeuvre or fight statically within a defended locality or FSPB, were key factors. The distance, 150 kilometres, was extreme for tanks on their own tracks, especially during the

'wet', but was accomplished successfully. The squadron's organisation came to include four troops of tanks, a further two gun tanks on squadron headquarters as well as a Special Equipment Troop of two tank dozers and two bridge layers. Its Light Aid Detachment (RAEME) included two armoured recovery vehicles (ARV) as well as two fitters tracks. Although the ARVs mounted machine guns principally for their own local protection, they were used on several occasions as offensive vehicles. The LAD, by agreement with the Forward Delivery Troop, held a further two fully kitted tanks in its own lines ready for operations.

Getting the tanks off the *Jeparit* and up to Nui Dat was a unique problem. The Americans helped by bringing down a 70 tonne 'Big John' floating crane from Saigon which lifted the tanks onto an American Landing Craft Universal (LCU). The LCUs then made a short trip—three tanks at a time—upriver to a 'hard' near the capital Baria. There they were offloaded and motored on their own tracks to the 1ATF base.⁹

Individual Training

There are similarities in preparing all types of armoured troops for impending operations. All armoured troopers whether destined for tanks or cavalry, and irrespective of whether they had volunteered for the regular army or been drafted under the National Service ballot scheme, had to progress past certain milestones to be ready for operations. All underwent recruit training for three months at one of the training battalions at Kapooka or Puckapunyal. They then attended periods of Initial Employment Training, at the Armoured Centre Puckapunyal in Radio (it used to be called Wireless), Gunnery and/or Driving and Servicing to fit them as part of a Centurion tank crew or to drive and operate an M113A1 Armoured Personnel Carrier. The Armoured Corps' personnel managers usually allocated the smartest recruits to Centurion tank gunnery, which we all accepted to be the most exacting trade to learn. Any who aspired to be crew commanders attended a special course in addition, which many regarded as the toughest they remembered in the army. It not only consolidated their knowledge of the three basic trades referred to, but included tank or cavalry tactics, battle runs (which were very testing), navigation in most types of country, and handling vehicles on the move. Naturally, because of length of time in the army, crew commanders tended to be drawn mainly from regulars. This changed for two reasons: it was not long before the whole army found out that National Servicemen were in many cases better educated than many of their regular contemporaries, were easy to train and quick to learn; and sheer necessity, because basic numbers in the Armoured Corps were so low, we had to accelerate the progress of the best National Servicemen and thrust greatness on them early. For example, Corporal Normie Rowe, a National Serviceman, became a cavalry crew commander and a good one. All had to complete a Battle Efficiency Course, usually at Canungra, prior to embarkation. Young officers from RMC Duntroon, the Officer Cadet School, Portsea, or the National Service Officer Training Unit, Scheyville, all completed a Young Officers course—now known as the Regimental Officers Basic Course—for twenty weeks to teach them to be troop leaders. Their quality was high and, with exceptions in Vietnam, they did not differ greatly from each other in performance.

Probably four aspects were uppermost in the mind of any OC preparing and training troops for Vietnam: equipment, collective training, cooperation training with infantry, and progressing the soldiers' administration to DPI (Draft Priority 1) status so that individually, they were fit medically, dentally, and in all personal respects to get on the ship or aeroplane.

Equipment

There is an Army saying that the Navy and Air Force man their equipment, whereas the Army equips the man. It is true only in part, and in Armour hardly at all. Our greatest resource is our trained manpower, but, we do depend greatly on our equipment. The key equipment of the tank squadron was the Medium Gun Tank, Centurion;¹⁰ of the cavalry squadron, the M113A1 Armoured Personnel Carrier.¹¹ A third, much smaller organisation in Vietnam, the Forward Delivery Troop, held a small number of crewmen and fully kitted vehicles for both squadrons.

The basic vehicle of the cavalry squadron was the FMC (Food Machinery and Chemical Corporation), M113A1 Armoured Personnel Carrier. It has recently been upgraded in certain respects and remains in service. It was used in East Timor, and has been one of the most successful armoured fighting vehicles in living memory.¹² Although the original American carriers had a petrol engine the Australian vehicles were all powered by a General Motors V6 diesel developing 215 bhp (the same engine as used in Pioneer buses), which greatly facilitated the supply of spare parts in a crisis. The vehicle is easy to maintain and very reliable. It weighs 13 tonnes, has a crew of two— crew commander and driver—and can carry a section of ten fully laden infantrymen. It is amphibious and has a pivot steering system which relies on the normal motion of the tracks for propulsion and steering in water. This capability became marginal later when an extra one inch of aluminium belly-armour was bolted to the hull to give it greater protection against mines. The original vehicles had a pintle mounted .50 calibre Browning machine gun. Then a gun shield was fitted. Then two turrets were fitted in turn. The M74C was dome shaped, cramped, and barely adequate: the T50 turret was better, but neither turret allowed the crew commander to use the inherent accuracy of the weapon, nor to fire on fixed lines. The T50 remained controversial throughout the war. However, either turret was much better than no turret at all, and the T50 has since been modified to advantage. It could house twin .30 calibre. Browning machine guns or a .50/.30 combination. Usually, troop leaders and section commanders had the 50/30 combination, most carriers had twin .30s. The M113A1 has a rear loading ramp which can be lowered either when stationary or on the move for easy access. We frequently used that method in close country to insert SAS patrols.

One of the great advantages that both the tank and cavalry squadrons shared in Vietnam was the excellence of their LADs whose members became as 'black-hatted' as the armoured corps.¹³ Because both of them were working for independent squadrons they were larger and had a more comprehensive range of skills than their opposite numbers in Australia, although this was less marked in the case of the cavalry because, unlike the tanks, its reinforcing unit in Australia was not a whole regiment but another squadron that was a mirror image of itself. Put bluntly, both LADs worked their guts out to put vehicles back on the road and it became their unspoken code of conduct not to have vehicles left unserviceable overnight. In the case of a major mine hit this was not always possible. In my own case I was losing a carrier a week on mines for the first two months. Paradoxically, once the tanks arrived in country the cavalry found the going tougher because the enemy's home made mines were being made powerful enough (40-50 kilos of Chinese Communist plastic explosive) to stop the tanks. That did not often happen because of the resilience of the Centurion. But, a mine laid to stop a tank could make a hell of a mess of a carrier. Like the squadrons themselves, the LADs had a fair mix of regulars and National Servicemen, They also had a fair proportion of ex-Army Apprentices, who are a godsend to any organisation. We had a lot of flexibility in Phuoc Tuy, and also outside the province because three or four fitters (a Forward Repair Team), with a major unit assembly could be flown out by Iroquois to a Fire Support Base or Night Defensive, or right to the damaged vehicle, to be repaired on the spot.

By the time the tank squadron was committed to Vietnam in early 1968 the Centurion was a very old tank. It weighed 52 tonnes, was full of quaint technology, but in critical aspects it was first class. In particular, it was both robust, and had a very good gun. It had very thick armour in the turret and could take massive punishment from mines, which it hit frequently, and from Rocket Propelled Grenades where its turret armour was all but impervious to the earlier enemy rocket propelled grenade (RPG-2). The HEAT (high explosive anti-tank) jet went in but did not penetrate into the crew compartment.¹⁴ The RPG-7 which succeeded the RPG-2 was more lethal. It did penetrate but, unless it hit a vital spot, the hole was eventually arc-welded and the tank kept motoring. A further advantage which the Centurion had, for example, over contemporary American vehicles was in the nature of its road wheels and running gear, which were designed to shear if it hit a mine. The solution then was to drill out the broken studs and refit the gear which could be done (and was) in the field. In comparison, the prevailing US tank (M48A3) with its torsion bar suspension, had to be taken to a base workshop to be repaired.¹⁵ The Centurion's other great advantage was its 20pr (83.4mm) gun with a range of ammunition: canister (like a gigantic shot-gun), which could be used to strip away enemy cover and camouflage, e.g. against bunkers; APCBC (armour piercing capped ballistic cap known as 'shot') which followed up to either weaken or demolish, or completely destroy the

now-exposed bunker; and HE (high explosive) which might or might not be needed and could be used to finish the job provided the range was not so short as to make it a hazard to accompanying infantry.

Because the Centurion's technology was old, its crewmen needed to be very skilled.¹⁶ Its main armament was stabilised and learning to use it to shoot accurately on the move required as good hand-eye coordination and manual dexterity as any other highly specialised job in the army. Driving the tank was easier, but, because it had a crash type gearbox and no synchromesh it took a lot of practice to be proficient. Most officers were lousy drivers, much to the delight of the regular drivers. An ideal Centurion tank driver was short, stocky, and bullet-headed, with a left leg twice as thick and strong as the right (to work the clutch which needed about 30 kilos' pressure), and a great sense of humour. It helped a lot if he also had a good eye for ground. The last thing a crew commander ever wants to do is habitually to have to call 'left-stick' or 'right-stick' to his driver.¹⁷

A tank has a crew of four, an APC two. An addition to both for many operations were the mini-teams, usually two sappers from the Engineer Field Squadron who searched for concealed mines and warned the crew commanders. Usually, they were carried on the point vehicles only, or in the case of the tanks on an ARV until they were needed. Their help was invaluable and since they were exposed at the front of both tanks and carriers, they suffered many casualties.

Collective Training

Because the crewman's basic training and Individual Employment Training had already been done somewhere else it might be thought that the squadrons had no further responsibilities here. It was not the case. The Armoured Corps expansion—like the infantry—had been so rapid that some tasks were left to units to pick up. We certainly ran our own crew commander's courses to make up the shortfall, and in any case, individual refresher training in areas of skill, like shooting, is always necessary. But our main responsibility was to progressively train people through crew, section (in the case of cavalry), troop, and finally squadron level drills, tactics, and procedures to fit them for their task in Vietnam. It is fair to say that doctrine always lagged behind actual practice in Vietnam. The Army did not have a well-developed system for gathering lessons from Vietnam and disseminating them to those preparing to go there. The process improved over time but only because individuals passed information back, mostly in the form of personal correspondence. There was no system for 'capturing' information from individuals who had loads of experience and were on the point of repatriating to Australia. However, one initiative that helped immeasurably was that every OC went up there for an orientation visit of about ten days before finally deploying for a year. That single experience enabled him to focus training in Australia more cogently than normal peacetime training, where the effort has to be spread over a greater number of possible scenarios.

The old adage about armoured skills is that you must be able to MOVE, SHOOT, and COMMUNICATE. If only it was that simple. I would add a further three qualities immediately. You need to be able to SEE, SURVIVE, and MAINTAIN,¹⁸ and I could add others. Counterinsurgency, or Low Intensity Operations as it is sometimes called, has traditionally been a most demanding type of conflict. In Vietnam, troops were continually more stretched than the Australian Army had ever been since perhaps Gallipoli. And even if you had the occasional rest and convalescence for 72 hours at Vung Tau, you could easily be recalled to the war. Incidentally, I never found a soldier to be comforted by being told that he was in a 'low intensity situation' in Vietnam. The bullets fly just as fast, the mines were bigger, and Vietnam always had the capacity to switch suddenly from a desultory series of contacts to a conventional war in which the only things missing were an enemy air force and fighting vehicles.

In Australia you found training areas where you could, and probably we were better off than most other armies. At Puckapunyal and Holsworthy we were able to train in our own backyards. And, even though the country did not exactly resemble Vietnam, parts of it were

thick, and like Vietnam it constantly changed. The one medium that neither squadron could experience was the 'wet', and even though at Puckapunyal if it isn't raining, as the saying goes, it is about to rain, the 'wet' in Vietnam, like the Top End, is something else. In Vietnam, if you could see buffaloes in a field you knew it would take an armoured vehicle without bogging because the buffalo has a higher ground pressure. For cavalry troop and squadron training I used Singleton, especially the nearby Bulga track, where there are bits of rainforest, and also Tianjara where to save track miles we flew the carriers by C-130 Hercules, two at a time, to Nowra, then deployed from there. An important aspect of training is always shooting both by day and night, and my personal belief is you can never get enough of it. But, like sex, it needs to be little and often: not an orgy. Back then, because of the difficulties of putting out picquets, butt parties, shooting sheep away from the impact area and other overheads, the tendency was to have only a couple of major shoots a year, which means that because skill in shooting is so perishable, for the rest of the year the standard of shooting drops away rapidly. It is easier now with automated ranges. You need to shoot both vehicles and personal weapons every week if you can, certainly every month. We tried to do this but did not always succeed. We were also able to construct vehicle 'sneaker' courses in places like Singleton, which were invaluable for crew and section shooting at night in particular. The tanks were better off at Puckapunyal where they had a fairly lavish array of tank ranges and, in those days, they were the only permanent tenants of the place for a lot of the year. For tactical training they also had belts of thick country in the adjacent state forest.

Still on shooting, there is a further aspect that I would assert for posterity. I am not a Gunner so I am not playing to my own cap badge. But I would also seek every opportunity to train with artillery; to learn to call for artillery fire and then correct it. We were well placed at Holsworthy since 8/12 Medium Regiment was nearby and was helpful in giving the troop leaders and myself the opportunity to do a shoot and correct fire. One of the hardest things many OCs found in Vietnam was getting people to use artillery; we were so used to being constrained by peacetime safety conditions. You have to break that mindset.

Training with Infantry

Every armoured OC in Vietnam had started off in tanks at the 1st Armoured Regiment. All of us had cut our teeth leading tank troops and learning the battle drills and procedures that a troop of three or four Centurions demanded. The same was true of 2ICs of squadrons and many troop leaders. Similarly, most senior NCOs had been through the tank experience at Puckapunyal. It was of great value when we got to Vietnam, regardless of whether we ended up there in tanks or cavalry.¹⁹

As an OC, I never thought the differences in procedures, training and basic tactics were very great. However, as a story against myself, I insisted that my cavalry squadron learn the 'fire and movement' tactics that are a tank troop and squadron's bread and butter. One of my cavalry troop leaders challenged that notion on the basis that if we used fire and movement on the road from Nui Dat to Baria we would be laughed out of the province! I reassured him that you only needed to use it in contact, or when you thought you were about to make contact. But, the essential principles are the same, as they are for infantry. Furthermore, you needed to use covered approaches (particularly cover from fire because you cannot really disguise armoured vehicles on the move), with the same rat-cunning that a good infantryman uses in his own approach to an objective.

All this was fine on the esoteric armoured side; it did not relate in the same way to training with infantry, or in developing common, mutually understood procedures. How much did infantry battalions on notice for Vietnam train with either tanks or cavalry? The short answer is that it varied from place to place and also over time. At best it was always uneven, in some cases it occurred not at all. Major Peter Badman's squadron had to concentrate, draw new tanks, and get its people to DP1 (draft priority one) standard so quickly he had only two weeks for his own troop and squadron training. He did not train with the relevant infantry battalions until he got to Nui Dat and then did so with each company of the Task Force in turn.²⁰ Frequently, when training was done in Australia, there was neither time nor priority to take the process far enough. Some battalions did train with a squadron of the Regiment at Puckapunyal, originally on the basis that they would very likely be using US tank support in theatre, but, those were turbulent times and people changed around quickly.

There were deficiencies in warning people. It was a surprise to everyone (including Peter Badman and his CO, Lieutenant Colonel Wilton), when they learnt on the ABC News on 17 October 1967 that Australia would be sending its own tanks to Vietnam! The tanks began unloading at Vung Tau on 24 February 1968, and it was all go from then on.

Some infantry-tank training had occurred at Puckapunyal in the early 1960s with 'B' Squadron, 1st Armoured Regiment (the squadron earmarked for SEATO deployment as part of Plan AMBROSE). The same was not true of infantry-APC training. Neville Modystack described the first APC troops experience in Vietnam:

Our training as cavalry was excellent; our preparation for Vietnam was, in many ways, appalling ... it was a severe culture shock to be linked up with a foot unit [1RAR] as distinguished as it was. This was most evident in the fact that we had no opportunity to train with the battalion, not even so much as a TEWT (Tactical Exercise Without Troops). Lieutenant-Colonel Lou Brumfield, CO 1RAR Battalion Group, later commented, 'With APCs we didn't have any direct contact, some of us had seen them at various demonstrations and CGS Exercises but we hadn't operated with them. Most officers were aware of their capabilities but not the practical application of those capabilities.'²¹

However, it is fair to say that infantry-APC operations are generally less complex than infantry operating with tanks. But, as the action at Long Tan in August 1967 demonstrated, with no prior training, it is also easy for misunderstandings to arise.

As happened then, the acting OC of a relieving company, who had never worked with APCs before, thought he should be in command when the vehicles were still on the move, and a minor barney occurred with the cavalry troop leader. The simple adage is, while the APC commander is manoeuvring his carriers, he remains in command, even if he is junior to the infantry commander being carried, which most often is the case. As soon as the infantry dismount, the APCs revert to in support and do as they are told. Prior training in Australia would have established that, but it had not taken place.²²

The slack was picked up after the original deployments were completed.²³ Some combined arms training always occurred when the battalions were doing their final exercise at Shoalwater Bay. They were joined there by a cavalry troop. Most squadron OCs tried to ensure that the same troop supported that particular battalion in Vietnam, although of course, our 'trickle' reinforcement system meant that many of the APC faces would have changed by then. At the very least we tried to match up the troop leader with the same battalion. In my time at Holsworthy we were alongside 7RAR, which was working up for its second tour. I found that the rapport we developed with Lieutenant Colonel Ron Grey and his company commanders became very close, and in Vietnam, I kept the same troop, commanded by Captain Peter Murphy (then Rod Earle), with the battalion the whole time—to, I believe, the mutual benefit of both.

Instructing infantry soldiers in the use of tanks is harder than with APCs. A tank is a big beast. It is difficult to mount until you learn where to put your hands and feet, particularly when carrying big packs: many hands have been burnt on exhaust covers doing it the wrong way. An infantryman could direct the tank's attention to the target in a number of ways: by hand signals to the crew commander; firing a shot for reference; over the radio; or, by using the Tank Telephone at the left rear. Another note for posterity. Never approach a tank from the rear if it is in a fire position. The crew commander is concentrating on the opposition, and if he has to high reverse out quickly he will do so without looking behind; anyone (or any vehicle) behind him will be stitched up the face with tank tracks if they are in the way! Similarly, because of a tank's relative blindness in thick country or at night, an infantry soldier camouflaged and lying on the ground is hard for a tank crew to recognise, especially if the crew is closed-down. All of these things and others come easier with infantry-tank familiarisation, but just these simple examples illustrate how important prior training is. The same is true of 'marrying-up' prior to an operation.

Pre-Embarkation Administration

Over time, the Army developed fairly slick procedures for ensuring that troops were fit and ready to proceed overseas. Collectively, the Shoalwater Bay training, during which an infantry battalion group was virtually put under the microscope to see that its command and procedures were sound, was a step-up from the past, when the first of the battalions to go to the Malayan Emergency was not well prepared and had not necessarily trained along the correct lines. Every soldier and officer completed a Battle Efficiency Course at Canungra to ensure that he could live in the field, fire his weapons, and not shoot his friends in the process. I personally found it very valuable. For example, it got me firing infantry weapons like the GPMG M60 and the Armalite rifle which I had not handled before. And I was right because I had to use such weapons in Vietnam at odd times.

Because we were reinforcing our squadrons in Vietnam with individuals rather than formed groups, it was necessary to go into each man's case in great detail. Particularly was this so with the National Servicemen whom the army had for only two years fulltime, unless they volunteered for the regular army, which some did. You did nothing by rote. As an OC, you went into every man's case thoroughly. Everyone, whether officer or trooper, regular or National Serviceman, believed he had a special reason for heading off to Vietnam quicker than anybody else. It was great that it was so. You did not have to dragoon people to go to Vietnam. How much residual time did a National Serviceman have in the army? Was there a compassionate reason, e.g. the impending birth of a child, to speed up or slow down someone's movement? Had a man already been to Vietnam and was backing up for his second tour? Did he have special skills? Whatever it was you took it into account. The fact that a man was entitled to a War Service Home Loan on return was known to be a carrot; one year's tax free income was another. Close friendships mattered. You would try to send mates in the same group, or at least, as close as possible to each other. Every man had to fill out a will and lodge it with the Central Army Records Office.²⁴ You had to be a practising psychologist to pacify people who thought they were being disadvantaged, which is fair enough.

All through, you were trying to strike a balance between giving a man the right sort (and amount) of collective training to fit him for his individual task in Vietnam, and getting him there. On occasions, someone's movement to Vietnam would have to be accelerated. If the squadron in Vietnam had a big contact with a number of casualties it affected people's movement, and a man who thought he would be staying in my squadron at Holsworthy for six months, could be whipped out in six weeks. There was a bottom limit which was not negotiable. On a couple of occasions I had soldiers earmarked to go quickly, and who asked to have their pre-embarkation leave of two weeks waived. I was given short shrift by the Task Force Commander at Holsworthy. A man could not forfeit the leave even voluntarily. He had to be given it, and he had to take it.

To Vietnam —Getting it Together

I have written elsewhere that if an army's doctrine is uncertain, how does it train and for what?²⁵ In the case of Vietnam in the early to mid-1960s the late Ian McNeill put his finger on part of the reason:

... the 'all arms' aspects of counter insurgency training was suffering because of what seemed to be an Army-wide preoccupation with the role of infantry. Artillery units were not practising deployment into fire support bases ... Engineers ... concentrated on airfield construction ... They practised none of the special skills required, such as demolitions, clearance of mines and booby traps, and tunnel clearance ... Tanks were 1000 kilometres away at Puckapunyal, Victoria.²⁶

At the tactical level in particular, there was almost always a time lag between what can be regarded as 'declaratory doctrine' (i.e. the theory that is put out in courses of instruction, new pamphlets and publications) and 'working doctrine', which must then massage the former into something the combined arms team can work with on the ground. It has to be mutually agreed, validated in practice, and finally exported to the field. There is no such thing as instant tactics.

Earlier in this essay I referred to the antipathy in sections of the Army towards the use of armour. In *Australian Armour*, Ronald Hopkins refers to the years 1950-1960 as the 'in the wilderness' period for the RAAC.²⁷ Except for the 1st Armoured Regiment which was low in priority for maintenance and spare parts²⁸ any armoured training of consequence was done by CMF units and formations: this was generally confined to annual camps of two weeks and the standard reached was nowhere near proficient enough to expect them to take on infantry-tank cooperation as a formal task.²⁹ Except for informal contacts, the armoured spirit was kept alive by firepower demonstrations for students from the Staff College at Queenscliff and visitors from Army Headquarters (AHQ). In 1961 as the focus changed to Vietnam, a breakthrough came when the enlightened Directors of Armour and Infantry put up a joint submission to AHQ that the army's training teams intended for Vietnam be equipped with APCs. This was refused with the comment from the Director of Military Operations that there was no requirement, nor likely need, for armoured vehicles in South Vietnam.³⁰ What changed this was more a case of American example rather than Australian prescience, for the former were using APCs with their own advisory groups in Vietnam even in the Mekong Delta, which is not usually held to be favourable armoured country.³¹ Indeed, even when the plan was made to send 1RAR Battalion Group to Vietnam, the primary task for which the APCs were sent also was the armoured transport of stores under the control of the logistic support company.³² This changed almost immediately with experience in the theatre.

Although the tanks moved to Vietnam at short notice, tank-infantry training, as distinct from infantry-APC training, was more established and better understood. During the Pentropic period (1960-65), for example, a very well-written set of Army pamphlets had addressed infantry-tank cooperation for conventional war operations. In addition, several infantry companies from one of the Pentropic battalions spent a month at Puckapunyal training with the 1st Armoured Regiment in infantry-tank cooperation. As a squadron 2IC, sometime squadron commander at the time, I took part in a number of those exercises; they were fun, they were useful, but as they were pitched at conventional war they related only indirectly to operations later in Vietnam. In any case Puckapunyal, as Ian McNeill pointed out, was a long way away from everybody else, and only some people came. In short, there was infantry-tank training, but, it was uneven, it was hit and miss, and it was more in the nature of a familiarisation exercise rather than focussed training. There were too many 'one offs'. As well, many such initiatives were personality driven, rather than the natural derivatives of established doctrine. In any case, until we all knew enough about the nature of fighting in Vietnam to go deep into tactics and SOPs (Standing Operating Procedures), we were skimming the surface, not squarely addressing the problem.

Nevertheless, even this amount of prior training had not happened with the APCs, and although infantry-APC procedures were extrapolated from the days of the Saracen APC, none of it was validated until the first APC troop with 1RAR did so in practice in the theatre itself. There were growing pains. I take my hat off to Lieutenant Bob Hill, who used to be my troop sergeant, and his men for paving the way. His vehicles had formidable early problems: no radios, and therefore no intercom within the vehicle itself. In consequence, each of his crew commanders armed himself with a stick to tap the driver on the shoulder for direction, or belt him over the head to stop suddenly. No crew commanders protection—ostensibly because the original concept was to use them merely as logistic carriers—just a simple pintle mount which meant that the commander had to be half out of the vehicle to fire the 50-calibre machine-gun. You can only go onwards and upwards from there, and it takes time. Major Bob Hagerty had at least as challenging a problem as Hill because his 1APC Squadron integrated with a much larger task force, not a battalion group. Hagerty started virtually from scratch. He did not have an equipment table which is an essential document, authorising the Officer Commanding to draw weapons, equipment, and vehicles, without which he could neither function nor train. Nor did he have a training directive; he later wrote his own. In fact, so novel was the whole enterprise that he was asked by the two senior officers in his chain of command, the Area Commander at Puckapunyal, and the GOC, Southern Command, what exactly was an APC Squadron!³³

Second Lieutenant David Watts described the pre-training phase:

The last APC work was done in WW2 and I remember we went through Infantry pams to sort out assault formations and worked out SOPs for these. Training was done on the Parade Ground [the carriers had not arrived], with drivers walking one pace left front of their crew commanders as formations were changed on the approach to the objective, ending up in the assault formation. We even discussed (and eventually practised) things like rear rally positions in which we expected to wait to pick up the infantry again. It caused considerable mirth amongst 1 Armd [Regiment] soldiers watching these antics on their Parade Ground, but it is possible to learn the basics of APC work in such a manner.³⁴

As the elder Moltke reminds us, 'no plan survives contact with the enemy'. Moreover, any plan can just as easily be changed by your own friends as by the enemy! It is not too much to say that every single person had his own Vietnam War. Every infantry CO in Vietnam was different, which affected the expectation he had of support from tanks or APCs. Every infantry battalion had its own distinctive SOPs. Some swept (ie fought through) the killing area at night after an enemy clash; others did not. Every APC and tank commander in the chain, down to crew commander, had to be a diplomat of sorts! The verities you learnt in your own corps training often had to be modified to suit different circumstances and personalities. On the basis that the proof of the pudding is in the eating, how well did armour perform in Vietnam?

On the whole, given the original lack of systematic combined arms training, equipment teething problems, and the 'trickle' system of reinforcement, to name some of the variables, I believe it was of a high order. That view was reinforced to me by a number of infantry commanding officers to whom I spoke either then or since, and by four commanders of 1ATF. A lot depended on the armoured OC and the standards he set within his own organisation.³⁵ Only a very few infantrymen had the sort of inbuilt prejudice about armour that I referred to at the beginning of this paper. After Vietnam, even that had all but disappeared. Most realised that at the end of the day, the armoured commander was in the business of 'selling' added security, and the best COs in Vietnam welcomed every bit of added security and support they could get. Some COs were more aggressive about bringing the enemy to battle than others. They were the easiest to deal with. Some fought to have particular troop leaders working with them and for them all the time, others were happy to accept whomever they were sent. I tried to make attachments as semi-permanent as they could be, I believe most of my fellow OCs did the same.

Both tanks and APCs became highly proficient at certain types of operations, and worked out their own squadron SOPs, frequently in conjunction with the battalion they were supporting. The tank's relative invulnerability was great against bunkers. Indeed, in a statistically supported study of 161 engagements in Vietnam that involved fighting against enemy in prepared defences—especially bunkers—the greatest difference, both in lowering friendly casualties while massively increasing enemy casualties, was brought about by the employment of tanks.³⁶ Again, tanks were unmatched against massed attacks and, even in relatively tough terrain like around the foot of the Long Hai Hills, they were able to move and fight successfully. Further, because the principal Viet Cong and North Vietnamese Army tactic was to 'hug' their opponents to inhibit their use of artillery or gun-ships, the introduction of the tanks into Phuoc Tuy province provided the shock action, mobility and direct fire means to act as a force multiplier. Formerly, the enemy broke contact when it liked and in circumstances favourable to itself: the tanks vastly complicated the enemy's design, and helped change the nature of the battlefield.³⁷ Their success brought accolades from the infantry they supported. Second Lieutenant Kevin Byrne described the tank support he received at the Song Ca not long before 1ATF withdrew from operations:

Once they entered the battle area they were very effective. But as they came forward between us all they were pushing down trees that had the effect of camouflaging the enemy and the bunkers ... I remember [Lieutenant] Bruce Cameron getting out of his tank or attempting to get out the first time and an RPG-7 whistled past his ear and down he went again. Eventually he got out and jumped down and came and spoke to

me on the ground and so that was excellent. The other thing was that they had a tremendous shock effect, particularly when they put their barrel down a bunker and went kaboom! And also in driving over bunkers. The end result was fantastic I guess and we made the most in that situation with that troop of tanks and their cooperation was tremendous. The movement of the platoon was dictated largely by where the three tanks went and that's the way I played it. It was futile for me to be dictating the movement of the tanks because once the tanks came in I realised that they were the ones that were vulnerable but they were also the ones that had the firepower'.³⁸

The APCs learnt the technique of ambushing using three or four vehicles and 30 or 40 claymore mines and had some spectacular successes.³⁹ Both tanks and cavalry had forces on two-three minute standby as ready reaction forces, and prided themselves on their ability to get on the move quickly. They were used a lot. The simple instructions you usually gave your ready reaction troop leader were, 'get on the move north, south, east, or west (the actual roads or tracks were pre-designated in our own SOPs), I will give you orders as you go!' His maps and codes were already in the vehicles which reversed quickly away from their protective bunds and got going.⁴⁰

As well as firepower and protection, great use was made of their flexibility and communications. Armoured communications, particularly with the new range of American radios we absorbed in Vietnam, were superb. I was continually monitoring five different radio nets in my own carrier. Among other things, they induced a totally new state of mind in the army. How quickly people overcome differences and adjusted to the hothouse circumstances of Vietnam can be gauged from this description by a sergeant in charge of three carriers:

Due east of Long Tan, up the track, was a feature we called the 'Twin Tits'. A big shitfight developed: canister, 90mm, RPGs, blow for blow, hitting tanks and hitting APCs and an APC was hit right in front. It stuffed up the engine; the driver was wounded in the head. The tanks would fire and an RPG would fire and [the enemy] traded blow for blow with the tanks and APCs which weren't giving up at all and the VC weren't running away. We formed up and assaulted through and I said to my driver, 'Anyone in those bunkers?' He said 'No.' I looked out the back and there were bastards coming out of their holes like rats and we were right behind the tanks! So we assaulted right in and we caught them on top. It was a classic tank in fire support, APC and grunt contact, brilliant. Meanwhile, we recovered that damaged vehicle ... that afternoon and, out of the mist the next morning, [comes] the same APC—the driver with a bandage round his head flapping in the breeze. The vehicle had been cleaned, steam-cleaned out, new power pack, test driven, everything cleaned up, but still with a hole in it. The crew showered and shaved and were now back! Not even first light and by themselves.⁴¹

Conclusion

As a personal generalisation, I believe that the Vietnam War was the key watershed in the Australian Army's post-Second World War professional life. We went into the conflict half-trained and inadequately prepared: we emerged from it better than we had ever been, and with a professional edge that, arguably, we have never lost. For example, I do not believe that General Peter Cosgrove's judgements would have been as well informed in East Timor had he not had Vietnam experience.

As Santayana reminded us, 'Those who cannot remember the past are condemned to repeat it.'⁴² If we had to do it again would we do it the same way? I hope not. First, we need to keep pursuing and practising 'all arms' doctrine, not just in theory, but on the ground. The penalty if we do not is that we just continue to re-invent the wheel! Second, I believe it is a fundamental mistake for so called military analysts and other soothsayers to speak loosely in terms of deploying 'an infantry battalion' overseas: it must be a combined arms team, complete with two types of armour, up to three types of artillery if necessary, combat engineers, and its own slice of aviation support. If the potential opposition is so innocuous not to require that, we should re-think sending a military force at all: a force of police and/or civilians is far cheaper.

Third, we cannot afford to be as secretive about a potential deployments as we were in the case of sending the tanks to Vietnam. I realise politicians are not easily moved on this subject, but, for the CO of the 1st Armoured Regiment and his earmarked squadron commander to learn of their commitment to Vietnam on the ABC news, suggests strongly that we, the army, connived at the process ourselves, even if inadvertently. Fourth, would we 'trickle' again: my answer would be no. But we would need to know much more about the potential task and have thought through the training variables beforehand. It should not be beyond our intelligence specialists and combat analysts to put us in that position.

Endnotes

1. Over time, we found this to be more widespread than we thought. I return to the subject in more detail later. It had encouraged the then-Director of Armour, Lieutenant Colonel Stuart Graham to write an excellent pamphlet, *Tanks Against Japan*, to, among other things 'help the subalterns win their mess arguments'. Graham ends the piece by quoting from Brigadier C H Kappe's *The Fall of Singapore*: 'What was needed was a squadron or two of tanks [on Singapore Island] to track the tired and disintegrated Jap units as they merged into the more open country north-west of the Tengah aerodrome, but we didn't have the tanks': *Australian Army Journal* 73 (June 1955), 41.

2. Three publications deal in detail with the subject of this essay: R N L Hopkins, *Australian Armour: A History of the Royal Australian Armoured Corps 1927-1972* (Canberra: Australian War Memorial/Australian Government Publishing Service, 1978), which is comprehensive, and has stood the test of time; Gary McKay and Graeme Nicholas, *Jungle Tracks: Australian Armour in Vietnam* (Sydney: Allen & Unwin, 2001), which has the distinct virtue of allowing the participants to tell their own story; and the late Paul Anderson, *When the Scorpion Stings: The History of the 3rd Cavalry Regiment, Vietnam, 1965-1972* (Sydney: Allen & Unwin, 2002), which concentrates on the cavalry's experience in the Vietnam War. Two manuscripts of great interest and quality that deal with the subject, and which are to be published, are: "Canister, On, Fire!": Australian Tank Operations in Vietnam' by Bruce Cameron, M C, who commanded a troop of Centurion Tanks in Vietnam; and, 'Pony Soldiers: With the Australian Light Horse in Vietnam 1965-1966', by Neville Modystack, who served with the original APC troop from 'A' Squadron, 4th/19th Prince of Wales Light Horse.

3. For the immediately preceding information, and much else besides, I am indebted to Brigadier Gordon Murphy, a Duntroon classmate, who commanded 'A' Squadron, 3rd Cavalry Regiment, in 1966-67.

4. In the case of the tank squadrons the trickle system seems to have happened by accident. 'C' Squadron, 1st Armoured Regiment (Major Peter Badman), deployed as a half-squadron originally because the policy makers at Army Headquarters (and some senior commanders) were dubious both as to the value of tanks in Vietnam and also whether they could operate successfully in the theatre, given the nature of close country and jungle and their performance in the wet'. Badman was present during a vigorous discussion at Nui Dai between Generals A L MacDonald, then Commander, Australian Force Vietnam, and C H Long, the Adjutant General, about deploying the balance of C Squadron to the theatre. MacDonald's contention, which differed markedly from his predecessor, Major General Vincent (who almost certainly did more than any other single person to get tanks to Vietnam), was that the tanks' capabilities, tactically, were yet unproven. Long on the other hand contended that, 'C' Squadron had all the administrative, RAFMF, and forward delivery organisation necessary to support a complete squadron; the Squadron was charged with looking after a large base camp sited and designed to be defended by a complete squadron, and he could see no reason why the other two troops should not be sent'. Quoted in Cameron, "Canister, On, Fire!", 81. The squadron was eventually reinforced to us full strength.

5. Referring to 5RAR's second tour in Vietnam, its CO Lieutenant Colonel Colin Kahn, commented: 'I was trained for a war of cordon and search, and bunkers weren't mentioned. When we got there all we did was fight bunkers. I was trained for totally the wrong war.' Quoted in R W Cable, *An Independent Command: Command and Control of the 1st Australian Task Force in Vietnam* (Canberra: Strategic and Defence Studies Centre, Australian National University, Papers on Strategy and Defence No 134, 2000), 32-3. A similar experience was recorded by Bruce Cameron: 'A replica Vietnamese village was established on the Puckapunyal range for simulation purposes. However, it did not include a replica of an enemy bunker system.' He commented: 'The significance of this was not realised until after our arrival in Vietnam when we found that all the squadron's major engagements involved bunker systems': Cameron, "Canister, On, Fire!", 14.

6. For anyone not completely familiar with Army terminology, the commander of a Battalion or regiment is a Commanding Officer (CO), the commander of a squadron or company is an Officer Commanding (OC). The successive organisations and their commanders were:

- 1 Troop, 'A' Squadron, 4th/19th Prince of Wales Light Horse (later became 1 APC Troop) Lieutenant (then Captain) R K Hill, May 1965-May 1966.
- 1st Armoured Personnel Carrier Squadron (which became 'A'Squadron, 3rd Cavalry Regiment): Major R E Hagerty, May 1966-January 1967
- 'A' Squadron, 3rd Cavalry Regiment: Major R E Hagerty, January-February 1967; Major G J Murphy, February 1967-February 1968; Major J D Keldie, February-September 1968; Major L G O'Donnell, September 1968-May 1969; Major T F H Walker, April-November 1971
- 1 Troop, 'A' Squadron: Lieutenant C E Stephens, October 1971-March 1972
- 'B' Squadron, 3rd Cavalry Regiment: Major R E Rooks, May 1969-April 1970; Major H J Coates, April 1970-May 1971

- 'C' Squadron, 1st Armoured Regiment (Tanks) Major P R Badman, January-November 1968; Major A L Vickers, November 1968-January 1969; Major P W Bourke, December 1970-November 1971
- 'B' Squadron: Major A H Smith, February-December 1969
- A'Squadron: Major J A N Chipman, December 1969-December 1970

7. The intensity of particular tasks changed over time. Initially, the enemy in Phuoc Tuy tried to maintain, then regain, the initiative, so the early OCs found the enemy coming at them. Thus, early operations concentrated on 'Search and Destroy' (known later more euphemistically as Reconnaissance in force) and 'Cordon and Search'. Later, this changed; ambushing came to the fore as contacts became less frequent and the enemy harder to find. Tasks were, as APCs: infantry insertions; redeployment and extractions, ready reaction force; bunker assault in support of infantry; deployment of artillery and mortars; insertion of SAS patrols; logistic tasks, armoured ambulance; as Cavalry: ambushing (with or without infantry support), ready reaction (without infantry); reconnaissance including maintaining a presence as a deterrent, cordon and search operations; flank protection and early warning as part of search and destroy operations; perimeter defence; deploying and protecting 1ATFHQ ; armoured command vehicle duty.

8 . The first shipment included two troops each of four tanks, three tanks for the forward Delivery Troop, two SHQ tanks, two tank dozers; and two bridgelayers. Peter Badman says he constituted a third troop from the SHQ tanks and the two bridge layers. Thus, the deployment to TOAN TUANG was effectively three troops.

9. The second shipment did not proceed so smoothly. The Americans could not make available the 'Big John' floating crane this time. Instead, the *Jeparit* had to dock at Cam Ranh Bay where a wharf crane unloaded the tanks. Then because there would be a time delay before the *Clive Steele* (LSM) could begin transporting them to Vung Tau, the squadron technical officer Captain Bernie Sullivan elected to leaguer them on the beach. There had been harrasing attacks by North Vietnamese marines against installations and watercraft and Australian tanks would have been a high publicity target. Fortunately, canister ammunition, which would have been a very considerable deterrent, had arrived with the shipment: Sullivan, interview and correspondence July-August 2002.

10. At one time there was a popular but mistaken contention that a light lank would be a more suitable vehicle for operations in Vietnam. The Americans trialled the concept using the General Sheridan, Air Portable Armored Fighting Vehicle (APAFV) in 1969. It led to this comment ' We had a 50-ton tank [M48A3], and when it hit a mine, very seldom was a crew commander injured because it usually just blew a track off. Sometimes it was a catastrophe, but very seldom. Then we got the Sheridan, a light skinned armoured vehicle, 16 tons. It was almost like an APC, but mounted a very large gun. We had the first casualty with these things in Vietnam as a result of one hitting a mine. The driver was killed and the Sheridan was almost totally destroyed. Others, when they later took RPG [Rocket Propelled Grenade] hits, caught fire and just melted down to the tracks' : Eric M Bergerud, *Red Thunder, Tropic Lightning: the World of a Combat Division in Vietnam* (Sydney: Allen & Unwin, 1993), 72. The Centurions proved to be excellent in Vietnam because of their robustness and ability to absorb punishment and their excellent, 20-pounder, main armament.

11. The requirement for a tracked Armoured Personnel Carrier for the Australian Army was established in Weapons Equipment Policy Statement (WEPS) 26 in June 1960. Trials to determine a suitable vehicle were held in 1962-3 with two contenders: the UK, FV432 manufactured by GKN-Sankey; and the M113 (the Australian designation of the vehicle became M113A1), manufactured in the US by the Food Machinery and Chemical Corporation (FMC) in two plants at San Jose, CA and Charleston, SC. The trials—hot-dry at Mt Isa, Qld, and hot-wet at Mourilyan near Innisfail, Qld—established the M113A1 to be the preferred option by a substantial margin: Michael K Cecil, *Australian Military Equipment Profiles*, vol 4 : *The M113 & M113A1 Armoured Personnel Carriers in Australian Service 1962-1972* (Melbourne: Australian Military Equipment Profiles, 1994), is an excellent account of the testing, introduction, and brief history of the vehicle in Australian Army service.

12. General Donn A Starry, *Armoured Combat in Vietnam* (Poole, Dorset: Blandford, 1981), esp 21-4 for the vehicle's value, even with inadequate South Vietnamese command in the Mekong delta.

13. 'C' Squadron was accompanied by an attached 1st Armoured Regiment Workshop (100 strong, which was quickly found to be too big and unwieldy for the task. Major Badman asked for it to be reduced to 20: the remainder were absorbed into 106 Field Workshop Correspondence. Badman/Coates, 26 September 2002.

14. However, there was always a danger from 'spalling', i.e small bits of metal from either inside or outside the turret which break off and cause casualties. Also because, owing to the heat, it is almost physically impossible to remain closed-down for any length of time, a commander or driver with only a bit of his body protruding and a helmet on, can still be wounded by metal-splash.

15. The M113A1 torsion bar suspension had similar problems, although when the carrier hit a mine, the destruction of its suspension was the least of the crew's and its passengers concerns.

16. One troop leader had his troops buy sable brushes in Australia which had very soft bristles, so that they could be used to keep clean the electrical harness joints which fed the gun stabilisation system, on the basis that it would prevent the stabiliser breaking down at critical times.: Sullivan, interview.

17 Acquiring 'a good eye for ground' was an art. It took time to learn, rarely less than a year, and frequently much longer. It is also useful to mention that maintaining a Centurion was hard physical labour for the crew. Much harder, for example, than with the Leopard 1 which succeeded it.

18. This has contemporary relevance of a special dimension. A tank or APC has to be able to fight around the clock. The night fighting capability of the Leopard I has been allowed to lapse. To be operationally compatible with US, UK, or, say, German armour, in an overseas deployment, it has to be equipped with passive TI (thermal imaging) sights of two types: gunner's sight, and a commander's hunter/killer sight which can be scanning for future targets while the gunner engages the existing target. Its existing active- Infra Red equipment makes it highly vulnerable because an enemy vehicle can trace IR to its source and destroy it.

19. Although the RAAC was stretched to the limit in Vietnam we gained an advantage from our smallness. We were less than two per cent of the Regular Army, which meant that almost everyone above the rank of sergeant had served at some time with almost everybody else and knew their personalities, strengths and weaknesses. This became of great value in the theatre itself.

20. Correspondence and interview Badman/Coates, 23-6 September 2002.

21. Modystack, 'Pony Soldiers' (unpaginated).

22. The relative responsibility concerning 'who commands' as described above, were subsequently made doctrine in 1ATF Standing Operating Procedures.

21. There were no SOPs for a tank squadron and Badman said, 'It was a major job betting them knitted to 1 ATF and all the SVN procedures. We finished the task by the end of January 1968 and the SOPs stood us in good stead thereafter.' Correspondence Badman/Coates, 26 September 2002.

24. Now SCMA (pronounced 'schema') —Soldier Career Management Agency.

25. John Coates, *Bravery Above Blunder: the 9th Australian Division at Finschhafen, Sattelberg, and Sio* (Melbourne: Oxford University Press. 1999). 38.

26. Ian McNeill, *To Long Tan: The Australian Army and the Vietnam War 1950-1966* (Sydney: Allen & Unwin in association with the Australian War Memorial, 1993), 20.

27. Hopkins, *Australian Armour*, 198-215.

28. As tank troop leaders in C Squadron, 1st Armoured Regiment in 1956-57, there were many occasions when, for lack of spare parts for the Centurions, we had only one of three tanks in each troop running. We combined our troops and took it in turns to be troop leader.

29. In part, this was again a case of doctrine lagging behind the need, largely brought about by low defence budgets, and the traditional reliance on the CMF, which had neither the equipment nor the training for the task. Moreover, 'A' Squadron, Prince of Wales Light Horse, although regular, was equipped as a conventional Cavalry Squadron, not an APC Squadron. Also, the principal APC, the British six-wheeled, Alvis 'Saracen', was unsuitable. It was neither robust nor user friendly. It bogged easily, and was never an effective infantry carrier.

30. Hopkins, *Australian Armour*, 229.

31. General Donn A Starry's account of the usefulness of M113s in the Mekong delta area was mentioned earlier (n 12). Reservations about the use of armour in Vietnam came from publications like Bernard Fall's book *Street Without Joy* (1961), especially as Starry points out the annihilation of Groupement Mobile 100 in the central plateau area. However, as Starry points out; '... Groupement Mobile 100 was not an armoured unit at all, but an infantry task force of 2600 men, organised into four truck-mounted infantry battalions, reinforced with one artillery battalion and ten light tanks [M-24 'Chaffee' Light Tank]. Restricted to movement on roads, deploying to fight on foot, it was extremely vulnerable to ambush, and, indeed, a series of ambushes finally destroyed it ... its fate cast a pall over armoured operations in Vietnam for almost twelve years.' Starry, *Armoured Combat in Vietnam*, 5.

32. This notion was put to rest early. Captain Bob Hill's carriers repulsed enemy attempting to penetrate into the gun areas near Phuoc Loc on the night of 28 June 1965. Hill was wounded and was subsequently awarded the MC for his actions: McNeill, *To Long Tan*, 106-7.

33. Interview and correspondence, Hagerty/Coates, 25 September 2002.

34. Correspondence and interview, Watts/Coates, 25-7 September 2002.

35. Brigadier Alex Smith, a Duntroon classmate who also commanded in Vietnam made a sincere and revealing comment about the quality of his fellow armoured OCs : 'We trained a lot didn't we [at 1st Armoured Regiment] Above all, we learned a lot about use of ground, firepower and manoeuvre, and I believe that that was invaluable to our later applications and our reputation, and to each of us in individual development. I find it hard to nominate any RAAC Sqn Comd in SVN who had not had extensive training. I can also recall, along the way, comments at Tac 3s, non corps courses etc that RAAC officers were well trained. Per-capita the career success rate of RAAC Officers was impressive, in itself positive to armour's cause '. Correspondence and interview Smith/Coates 18-26 September 2002.

36. In attacks against heavily defended bunker systems without the support of other arms, the loss rate inflicted on the enemy was 1.6 casualties per attack, whereas the Australian infantry's loss rate per attack was 4.25 casualties; i.e. substantially higher than the enemy's. In attacks in which the Australian infantry were supported by Air and/or Artillery, the enemy loss rate rose from 1.6 to 3.5 while the Australian loss rate declined from 4.25 to 3.8. However, in those attacks in which Armour was used with or without Air/ Artillery, the Australian loss rate dropped from 3.8 to 3.3, while the rate of casualties inflicted on the enemy leapt from 3.5 to 15.6 per attack. In short, Armour (especially tanks) saves

friendly casualties, while dramatically increasing those inflicted on the enemy. R Hall and A Ross, 'Attacks on Prepared Defended Positions by Units of the First Australian Task Force 1966 to 1971' (unpub ms, ADFA, 2002).

37. This basic premise is condensed from Major General Tim Vincent's original paper, asking for tanks to be despatched to South Vietnam as soon as possible. AWM98, Item R579/1/23, Request for an increase to AFV (Army Component), 22 June 1967. I believe it has contemporary relevance to the new spate of asymmetric warfare.

38. McKay and Nicholas, *Jungle Tracks*, 192-3.

39. Sergeant E.S. Levy. DCM, who as crew commander had been wounded by shrapnel on an earlier tour, became highly skilled at ambushing as a section commander on his second tour. In a series of ambushes on 31 December 1970, 7 January 1971, and 21 June 1971, his APCs killed 21 enemy, then three, then twelve, and captured four prisoners together with documents and other intelligence: Anderson, *When the Scorpion Stings*, 251, 207-8.

40. *Ibid*, 241-4.

41. McKay and Nicholas, *Jungle Tracks*, 166, Sergeant J T 'Blue' O'Reilly was on his second tour as a cavalry section commander. He later became an officer.

42. George Santayana, *The Life of Reason or the Phases of Human Progress* (New York: Scribner's Sons, 1917), 284.