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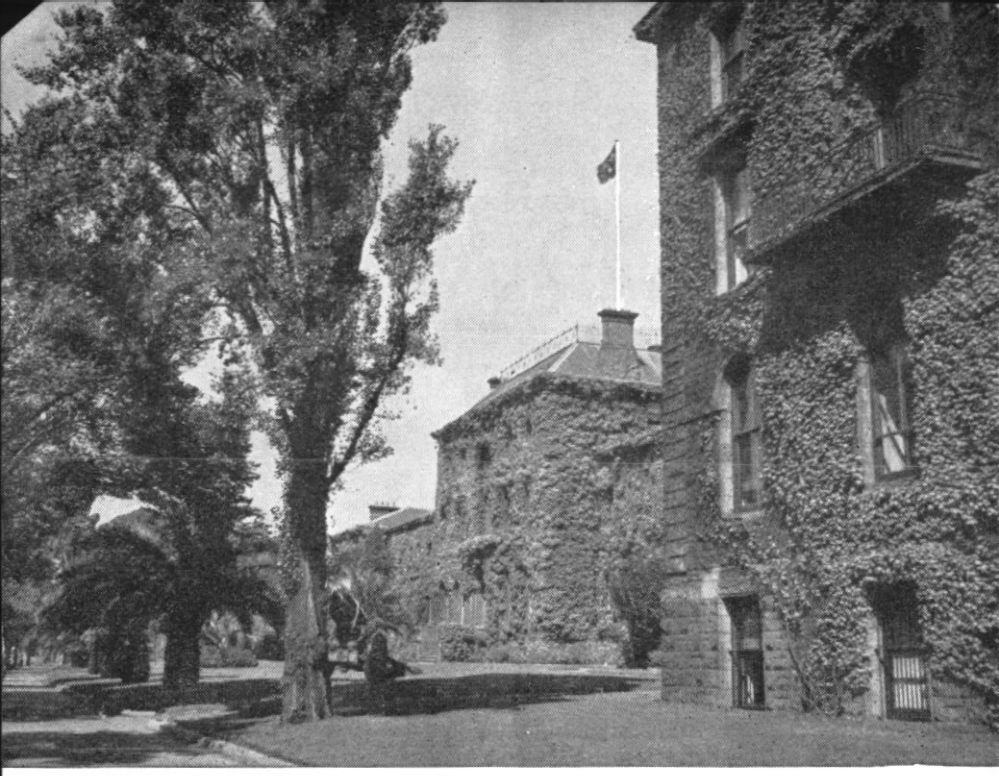

VICTORIA BARRACKS, MELBOURNE

AUSTRALIAN ARMY JOURNAL

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TANKS • • • *against* • • • JAPAN

Lieutenant-Colonel S. C. Graham, M.C.,
Royal Australian Armoured Corps

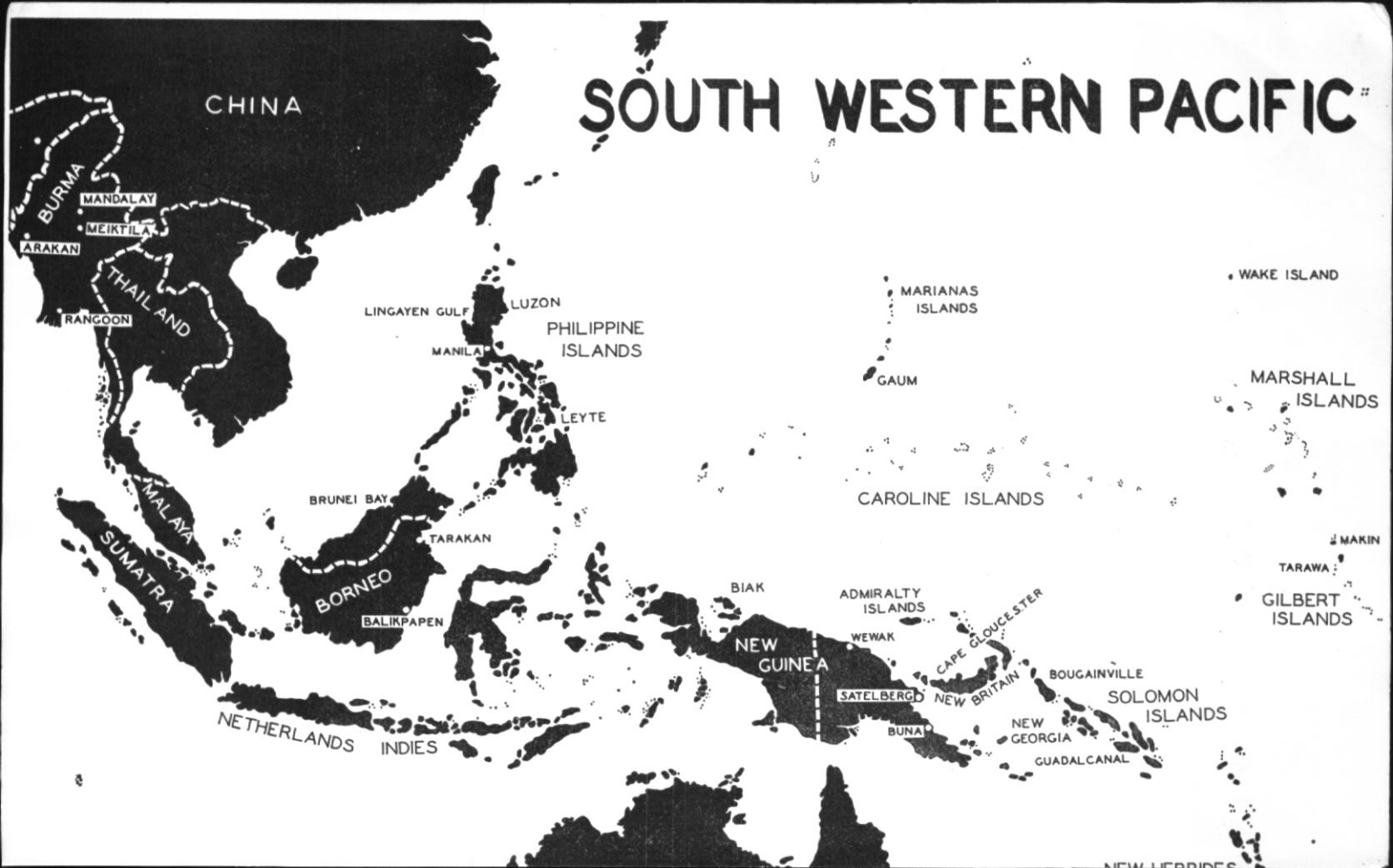
PART I — INTRODUCTION

AT the beginning of World War II, Britain and the United States had no real armoured forces; Australia followed Britain at a very respectable distance, while France had large numbers of tanks but did not know how to use them.

More than twenty years before, these four countries had seen the amazing rise of the tank to superiority on the battlefield, but had either forgotten or never learned the lessons which that rise had so boldly blazoned. A few enthusiasts did make themselves a nuisance, but quite properly were put in their place. The Cavalry were not interested in anything which could not neigh, the Infantry never believed an enemy was decently killed except by a bayonet, while Dismal Jimmies of all arms preached that the tank was only suitable to support infantry, the tank was doomed by the anti-tank gun, the tank was too expensive, the tank couldn't go here or couldn't go there—in fact, the tank was an embarrassment to those who had learned their soldiering without it.

One wonders if these Dismal Jimmies, faced with the greater embarrassment of seeing Guderian's and Yamashita's tanks demonstrating the mass action, surprise and fire-power learned at Cambrai, were reminded of the harassed father who said of his large and noisy brood—"I feel like Frankenstein; I created these monsters, and now I can't control them."

Be that as it may, the curtain rose in 1939 on a very weak first act. In the European theatre, producers and actors, faced with an extremely hostile set of audience and critics, hastily reviewed the script, and the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NEW BRITAIN
SATELBERG
BUNA
BOUGAINVILLE
SOLOMON ISLANDS
NEW GEORGIA
GUADALCANAL
MAKIN
TARAWA
GILBERT ISLANDS
NETHERLANDS INDIES

play ended on a brighter, if still rather amateurish, note.

In the Pacific, circumstances were the same but the terrain was different. This one exception was, nevertheless, sufficient excuse for the exponents of pedestrian conflict; they found it much easier to dub country as "tank proof" than put it to the test. Apart from the vegetation, the country was of course no worse (and very often better) than the appalling, shell-cratered mud over which the tanks had lumbered in World War I.

Consequently, no provision was made for use of tanks in Malaya, but oddly enough, the forces there were equipped with anti-tank guns on the assumption that the enemy could do what we could not. In that at least we were right. "Those Japanese of the vanguard tank units," says Compton Mackenzie in his "Eastern Epic," "had run 19 miles through our lines and shattered the 11th Indian Division." "AIF anti-tank men hit savagely back at the Jap invaders," says Brigadier Kappé in his "Fall of Singapore," "but without tank or air backing, it was a hopeless fight."

All this is history, of course, and perhaps should be left undisturbed, were it not for the horribly familiar pattern of international events today. "War Looms in South-East Asia," scream the headlines, and "Australian Infantry for Malaya." Familiar? Well, slightly.

In arguing the case for tanks in jungle warfare, I do not suggest that they are the cure-all which will guarantee victory. I do suggest, though, that certain fundamentals be carefully evaluated.

Firstly, any power fighting in the jungle against an enemy with unlimited manpower used to a low standard of living must have some "equaliser" if it hopes to win.

Secondly, we are told that the atomic bomb is not the effective weapon in the jungle that it is in open warfare. Nor is air power the "equaliser," as shown by Korea and Indo-China.

Thirdly, effectiveness of an army is measured in terms of fire-power able to be delivered at the right time and place against the enemy. Obviously, an infantry army will not beat the Communists on this score.

Whether we like it or not, then, we come back to tanks. An armoured regiment on tropical establishment has the gun power of one and a half regiments of field artillery, the machine gun power of six infantry battalions, and the light machine gun power of three infantry companies. All this it achieves with three hundred and sixty men.

But the effort to move armour through jungle is prohibitive, say the critics. Has it been tried? Suppose we allotted five hundred engineers to every armoured regiment. Absurd, I agree, yet it would still add up to no more than the manpower of one infantry battalion. Field Marshal Sir William Slim, in reply to a question at the Staff College in 1954, said that tanks could be used in the jungle provided the necessary effort to use them was made; such effort might be considerable, but would usually be repaid.

All this, of course, boils down to the fact that I believe in tanks. I believe they are an essential, in-

tegral part of any army in any theatre. However, one swallow does not make a summer, and I have therefore resurrected the files from which this article was written with the simple, unabashed ambition of converting a few more adherents to the faith. Whether the lessons are learned or not, at least the excuse of ignorance will no longer be valid.

Parts 2, 3 and 4 deal with Australian, American and British tank operations respectively, while Part 5 summarizes the main lessons still applicable.

The reports of tank actions are not comprehensive, as no details could be found for instance of some American operations in which it is known tanks were employed. Similarly, some reports were disjointed and incomplete, and I apologize for any errors from that cause.

A pedestrian was run over by an enormous truck, the driver of which shouted "Look out!" after he had gone past. The pedestrian raised himself painfully and said, "Why? Are you coming back?" Perhaps this paper will serve as a "Look out!" before rather than after the event.

PART II — AUSTRALIAN OPERATIONS

Buna

The Operation

The operation was an Australian-American one to reduce the coastal perimeter area of Gona-Buna-Sananda, the last Japanese grip on Papua. It lasted from 20 Nov 42 to 3 Jan 43, and over a front of eight miles, cost us 5,500 casualties and the Japanese the total loss of their 11,000 garrison.

The tanks used were M3 Lights (General Stuarts) of B Sqn 2/6 Armd Regt, and operated with 18 Bde in support of 2/9, 2/10 and 2/12 Bns in turn. Eight tanks were used at Cape Endiadere on 18 Dec 42, and during the 16 days' advance thereafter the squadron saw continuous action, though due to the enemy and the mud, only eleven of its nineteen tanks were available at any one time. Six were knocked out.

The M3 Light was quite unsuitable for the role, but surprise and determination made the operation a success. No really new lessons were learned but many old ones were confirmed.

The Country

At Buna the main advance was through coconut groves and overgrown airstrips which allowed limited manoeuvre.

However, the terrain at Sananda was swampy and thick with undergrowth; the tanks generally used line ahead on a track.

In the Cape Endiadere area, water-filled shell holes, stumps and logs caused bellying and bogging.

The Method of Use

In all actions the tactics employed were similar; the tanks LED, spaced across the battalion front, each being closely followed by a specially detailed protective party of infantry. The rest of the infantry followed in open order. According to visibility, the distance between the

tanks and main body of infantry varied from five to fifty yards.

Standard troop organization was not always used, tanks being fought in twos, threes or fours.

One tank remained with the Infantry Battalion Commander as a command tank for the OC Squadron or LO.

Lessons

1. A heavier tank, able to take punishment, crash through undergrowth, mount a bigger gun and travel slowly, was required.

2. A short range, high angle HE weapon was required.

3. Fitting of grousers was essential.

4. Infantry speed of movement decides the rate of advance.

5. In attacking pillboxes, use main armament against the slits and MGs against either end, where the enemy move out for cover.

6. Tanks move closed down in action.

7. Prior ground reconnaissance by drivers and commanders is essential. If possible, routes should be marked, with special reference to avoiding telephone cables.

8. Troop organization should not be broken down.

9. Do not close with the enemy—fight him with fire and let the infantry mop up.

10. Infantry must protect crews trying to repair or unditch their tank.

11. Keep guns at 12 o'clock on the move to avoid damage.

12. Squadron Commanders should be with Battalion Commanders and Regimental Commanders with Brigade or Divisional HQ.

13. A replenishment area with ammunition and spare crews should be close behind the scene of action.

14. Artillery support is helpful, particularly for neutralization of anti-tank weapons by preparatory bombardment.

15. Noise of aircraft or artillery will cover approach march.

16. Infantry must accept responsibility for close quarter anti-tank weapons, snipers, etc.

17. Sound and alternative means of tank/infantry communications are essential.

18. Ammunition expenditure must be carefully controlled.

19. A special recovery vehicle is required.

20. As normal maintenance at night is often impossible, it is imperative that tanks go into action in the best condition, and that a crew and tank rotation system operates in the squadron.

21. A thorough understanding by infantry and armour of each other's arm.

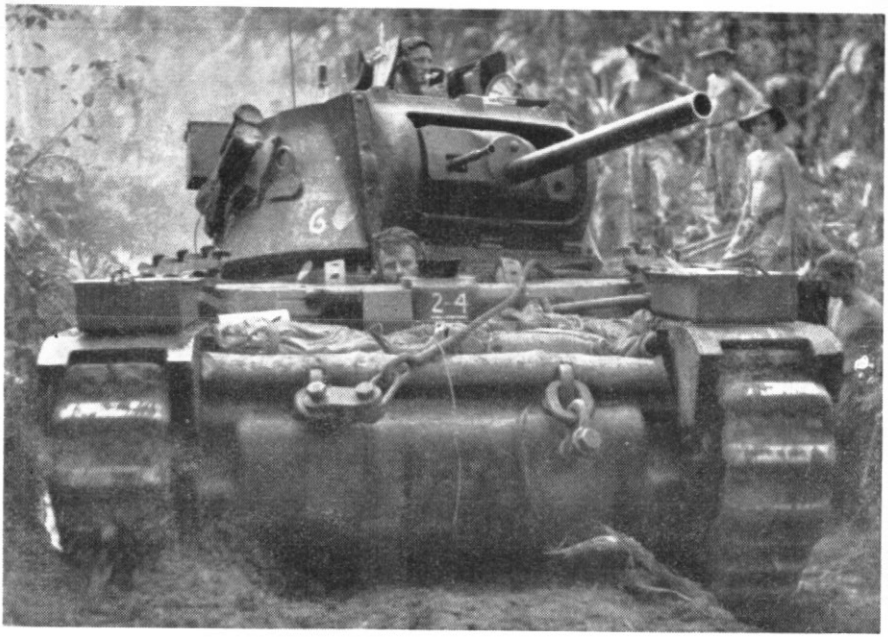
Tailpiece

> **"With relatively small losses to themselves and to the infantry they were supporting, the tanks enabled positions to be won which would otherwise have imposed long delay and very heavy casualties."**
>
> —*Report by the Lethbridge Mission to SWPA.*

Satelberg

The Operation

After the fall of Lae in Sep 43, Australian plans called for converging thrusts by 7 Div through the Markham and Ramu Valleys and by 9 Div along the coast to Finschafen. The latter objective was captured by 3 Oct and Japanese counter-attacks, involving 11,000 troops from the Satelberg-Gusika area were re-



Australian Tanks in the South-West Pacific

pulsed. The reduction of the 3,200 foot fortress of Satelberg was necessary for the protection of the L of C and subsequent operations, and began on 18 Nov 43.

The tanks used were Matildas of 1 Aust. Army Tk Bn (less B Sqn at Milne Bay). C Sqn was in action with 2/23, 2/48, 2/32, 2/28 and 2/43 Inf Bns from 18 Nov to 10 Dec, when they were relieved by A Sqn, who continued the advance along the coast with 4 Bde.

The operations were completely successful, largely because of the high standard of the tank crews, the training of C Sqn with the infantry before D Day and the lack of enemy anti-tank weapons.

The Country

Satelberg itself was a steep mountain, thickly covered with bamboo and undergrowth, which concealed sticky red mud. A track led up to the cleared top, where the old Lutheran mission stood.

The advance along the coast was through a kunai flat dotted with patches of virgin jungle and coconut plantations and crossed every mile or so by steep-sided creeks.

The Method of Use

Generally speaking, a tactical group of an infantry company, a tank troop and an engineer section or platoon was used. Sometimes a second troop followed close behind as an outflanking, exploitation or relief force.

For the early operations, the tanks stayed mostly on tracks, moving in line ahead. The first tank had no infantry, but was covered by the second tank (fifteen yards in rear),

behind which walked a section with the platoon or company commander and a tank officer. The third tank was forty yards behind, followed by the remainder of the infantry, except for protective parties, who made their way through the jungle on either side of the tanks.

More orthodox tactics were possible for the advance along the coast. Tanks moved two, three and even four up, with infantry 100 yards in rear (though infantry led sometimes because of the obstacles). Engineers rode on the rear tanks, armed with explosives and tools for rapid action on obstacles.

In both cases, targets were indicated by Walkie-Talkie from the ground. This was very effective, even though the tanks were mainly closed down.

Lessons

1. Squadron administration rather than regimental must be practised.

2. The trail blazed by tanks can often be followed by jeeps, and may save further engineer reconnaissance.

3. Normally infantry should precede tanks and call them forward when needed. This avoids unlocated obstacles, and is specially necessary to secure ground to cover the work of crews and engineers.

4. Infantry must always be prepared to operate without tanks, but tanks must never be without infantry protection.

5. Tank drivers and commanders must be trained to recognize and avoid suspicious objects, and to pick the best going. Mobility depends largely on ability to judge expertly the capacity of the tank to negotiate ground.

6. It may be advisable to withdraw to a reserve company area at night for ease of maintenance.

7. Troop leaders must be able to control their troop from on the ground, with the infantry commander.

8. A mopping-up drill to avoid friendly casualties and loss of direction is needed.

9. Infantry MUST know tank wireless procedure.

10. Engineer support depends on the number of lines of advance rather than the number of tanks. Sappers must be specially trained with tanks, and dozers and tractors are essential. AP fired into banks may assist placing of explosive charges.

11. Most damaged parts were idlers.

12. Success depends on maintenance. The difficulty of this emphasizes the necessity of tanks being 100% BEFORE action.

13. In coastal areas, the use of landing craft to by-pass obstacles is a great help.

14. Most people lose weight in the tropics. Prior physical training therefore should allow them to carry a little excess weight.

15. Prior ground reconnaissance (even involving special patrols) is necessary.

16. The enemy has supply problems like us, and in bad country his anti-tank resources will be limited.

17. The general fire plan must attempt to neutralize anti-tank weapons.

18. In defence, tank weapons should be given definite arcs of fire. With infantry, they can also pro-

vide contact patrols between localities.

19. In training, seemingly impossible tasks should be attempted, so that crews will really know what their equipment can do (e.g., tanks went 40 feet down a 70° cliff by lowering one another on their towropes).

20. Tanks staging on the L of C, being repaired, moving at night, etc., STILL require protection.

21. As recovery for any distance is a problem, mobile RAEME squads for forward repair are often necessary.

Tailpiece

"At first sight, tropical or jungle areas would come under the category of tank proof country. A closer examination of the conditions prevailing in New Guinea suggests a greater scope for the employment of tanks than may at first have been considered possible . . . The effectiveness of enemy small arms fire, especially automatics, and the ability of the tank to deal with these weapons, suggested a more detailed study of the use of tanks with a view to their wider employment. . . . The mere threat of tanks puts an added burden on the enemy by forcing him to take certain defensive precautions. On many occasions, full scale precautions would not be possible."

—Report by HQ 1 Aust. Corps.

"The employment of tanks was undoubtedly responsible for the saving of a great many infantry casualties, and it is possible that the mere threat of tanks caused the enemy to give up positions without a fight which he would normally have endeavoured to hold. . . . The tanks proved a very powerful and effective weapon."

"At Lakona our infantry tried with artillery support to eliminate a pocket of Japs, but in two days made little progress. Then tanks . . . joined the infantry, whom they supported in a further attack. This attack destroyed the enemy pocket in little over an hour's fighting."

—LHQ AFV Notes No. 16.

Bougainville

The Operation

American Marines landed on Bougainville on 1 Nov 43 and established a beachhead. This was developed into an advanced base at Torokina, and was taken over by 2 Australian Corps at the end of 1944. Subsequent operations were designed to mop up the 30,000 odd Japanese throughout the island.

The tanks used were Matildas of 2/4 Aust Armd Regt (less C Sqn). After preliminary training with the infantry and engineers, B Sqn first went into action on 31 Mar 45 on the Buin Road. They were relieved on 17 Jun by A Sqn, who were then continuously in action in South Bougainville till the end of the war. One troop also operated at Soraken in the north from 6 Jul onwards.

Probably because of the lessons learned from earlier operations, this campaign was the best example of infantry/armoured co-operation in the jungle.

The Country

The country was almost universally bad, comprising mainly virgin

jungle with thick undergrowth. Swamps were common, and deep mud from incessant rain was the normal ground surface. Rivers were met every few miles, mostly fordable, but some necessitating waterproofing.

The Buin Road, the main axis of advance, was really an overgrown mud track, and was mostly avoided by the tanks to prevent its complete disintegration.

The Method of Use

A standard infantry company/tank troop/engineer section team was used. Infantry (with engineer mine clearance parties) normally led and covered the flanks, followed by the tanks, and then the rest of the engineer section with its dozer. The troop commander on foot, the infantry company commander, engineer section commander and artillery/mortar FOO stayed together.

To obtain surprise and avoid anti-tank measures, great imagination and effort was spent in moving the tanks through "impenetrable" areas, often on long outflanking roles. Invariably these moves were successful, so much so that the confidence of everybody that the tanks would "get there" was almost unlimited.

In addition to normal tasks, the tanks were used for contact patrolling, clearing L of C, armoured reconnaissance, extricating forces caught in ambush, carriage of stores and as prime movers. Tanks remained in company areas when not moving, and did NOT move to separate tank leaguer areas.

Lessons

1. The troop leader on foot with the company commander and using Walkie-Talkie is the best means of control.

2. Having overcome difficult going to reach an objective, it is unsound to struggle back to a leaguer area and expose both tanks and infantry to ambush on the way.

3. In defence, it is wrong for infantry commanders to give "duties" to tank crews.

4. Two intelligence NCOs are needed per squadron, one to accompany the commander and the other to run an "office."

5. All vehicles must be jeeps or tracked.

6. Heavy workshop equipment should be on tracks, and able to move forward for in situ repairs.

7. Tank troops are rationed by the infantry with whom they are working.

8. Good discipline and training can reduce ammunition expenditure tremendously.

9. Minor breakdowns in communications can invariably be traced to inexperienced operators.

10. A D8 tractor is essential squadron equipment.

11. Infantry must protect the tank without seeking protection from it. Distances are governed by visibility. Being too close will result in casualties from shell splinters, mines and booby traps.

12. The determination and hard work required to get the tanks into an attack position will be amply repaid.

13. Under no circumstances should infantry control tanks.

14. Some signal is necessary to indicate tanks have stopped firing.

15. Tests in different types of jungle to ascertain rates of advance can be helpful.

16. Infantry must not expect as a right tank support for every minor case of opposition.

17. Tanks in defence must be well camouflaged, as they may be the only visible ranging point.

18. Don't let a bogged tank hold up an advance; it can always catch up. But do leave a protective party with it.

Tailpiece

"The high standard of wireless communication has proved of great advantage to the infantry, whose lines were constantly cut. But for the tank wireless, battalion and company commanders would have frequently been embarrassed by lack of communications. By special arrangement with the Air Force, tanks have established wireless communications to aircraft. This has proved a most valuable link."

—*AFV Monthly Liaison Letter No. 4.*

"The infantry co-operated very well, realized the terrific fire power of the tank as a support weapon and its value in blasting its way through enemy defences as opposed to the laborious outflanking move at present employed in overcoming such defences. They showed the utmost confidence in the tank."

—*Report by HQ 2 Aust. Corps.*

Borneo

The Operation

The recapture of Borneo was an Australian operation with U.S. naval support. It was the most ambitious, co-ordinated operation undertaken by Australian forces in the Pacific War, though the enemy probably did not number more than 25,000. The aim was to take the island with its rich resources as part of the general plan for the reduction of the East Indies and Malaya.

The operation was in three phases:

(a) 26 Bde (9 Div) landed at Tarakan on 2 May 45. Against heavy opposition, the main points were taken in fifteen days, though organized resistance continued till 21 Jun.

(b) 20 and 24 Bdes (9 Div) landed in Brunei Bay on 10 Jun. Opposition was light, and by the end of June all objectives had been taken.

(c) 7 Div landed at Balikpapan on 1 Jul. Again opposition was weak, and by 23 Jul, organized resistance ceased.

Tanks used were Matildas. C Sqn 2/9 Armd Regt supported the Tarakan operation, and A and B Sqns Brunei Bay and Labuan. Frog flamethrowers, tank dozers, tank bridgelayers and rocket tanks were used by the 2/1 Reece Sqn, while 1 Armd Regt less one squadron supported 7 Div at Balikpapan.

The campaign was not notable from an armoured point of view, possibly for the following reasons:—

(a) Except on Tarakan, opposition was weak, especially after the terrific preliminary bombardments.

(b) The tanks were used in penny packets, often in a "fire-brigade" role.

(c) Enemy anti-tank measures and bad terrain cut up by bombardment made conditions difficult.

(d) Employment of the tanks, both by infantry and armour, was sometimes faulty.

The Country

At Tarakan, going was very muddy off the roads. Hills were heavily timbered, and away from the coast the terrain was alternatively swampy and hilly, with jungle-filled gullies.

On Borneo, roads were of course better than in much of SWPA. Off the roads, glutinous mud and the usual jungle and hills abounded. Natural obstacles were liberally supplemented by artificial ones.

Method of Use

Because of the limited area of operations on Tarakan, C Sqn operated from a central harbour area, troops radiating out in support of specific actions. Troops stayed with forward infantry till near dark, retired to harbour and returned again at first light. Tanks stayed mainly on the roads.

On the mainland, the attachment of troops to companies was orthodox, but once again tanks tended to be regarded as a reserve for use as a last resort. Employment was sometimes unfortunate. For instance:—

(a) Tank dozers were used, although previous operations had proved the requirement was for bulldozers. They were unsuccessful.

(b) A troop of tanks was drowned on a beach, although a reconnaissance had been made for its suitability.

(c) Another troop was landed on a beach where it was "thought" the coast guns were out of action. All three were disabled and left unprotected during the ensuing night.

(d) A tank was used to engage a feature at 1,000 yards range, when air and artillery support were available.

Lessons

No written lessons as such have been found on this campaign, but some suggest themselves from various recorded incidents:—

1. Infantry must protect tanks (a Jap officer climbed on to a tank inside a company area before being seen).

2. Tanks are not a supply vehicle for infantry (one tank did three runs in a day with ammunition, water and rations to a forward company).

3. Squadrons must have their own dozers (two troops waited all day for craters to be filled in to allow their move forward).

4. Troop commanders should be left to fight their own battles (one squadron commander mentioned that it was quite impossible to be present at every troop operation, so divided the front between himself, the 2IC and second captain!).

5. Enemy infantry must not be allowed close to tanks (Japanese threw 75 mm shells at and on tanks).

6. Ammunition should not be wasted and tanks used unnecessarily (Besa "harassing" fire used on reverse slope positions in thick scrub during a display of force, with loss of 1 officer, 1 OR killed and 6 ORs wounded).

Tailpiece

"We did not have our own mechanical equipment to help

us forward, and our demands for assistance usually clashed of course with many others. I got the impression that we were welcome to join in the battle if we could get there, but if we couldn't it was just too bad. Consequently opportunities to use the tanks effectively were lost."

—*Squadron Commander after the Borneo Operation.*

Wewak

The Operation

6 Div took over the Wewak-Aitape sector of western New Guinea from the Americans in Nov 44 to mop up the 22,000 survivors of the Japanese 18th Army. Fighting occurred mainly in the coastal belt in the first few months, when part of the enemy forces retreated inland. 17 Bde then carried out the pursuit inland, while 19 Bde advanced along the coast. By the end of the war, the Japs had been driven from the Prince Alexander Range and 14,500 only were left to surrender.

The tanks used were Matildas of C Sqn 2/4 Armd Regt. The scope was not great because of the rugged country and great supply difficulties. From the first operation on 6 Jan 45, the squadron was in action till the end of the war, the biggest single effort being the attack on Wewak itself on 10 May.

The Country

Along the coast the country was largely thick jungle with expanses of swamp and fast-flowing streams. Inland the country alternated between precipitous ridges and jungle-clogged chasms. Tanks often used the beach as a means of advance.

Method of Use

Engineer, infantry and tanks operated as teams, the tanks being called forward to deal with enemy positions holding up the infantry. Tanks operated closed down in action, and because of the supply situation, frequently towed limbers as their Al Echelon.

Lessons

1. Close understanding of mutual problems is necessary for tank/infantry co-operation.

2. All unnecessary projections must be removed from outside tanks, as they accumulate vines.

3. Target indication is necessary by infantry, and a good drill must be arranged.

4. Crews must train to operate closed down.

5. Accumulation of foliage must be cleared at every opportunity.

6. When not in action, engines and wireless must be run to dry out moisture and prevent growth of fungus.

7. Techniques are all important. The ability of the crew to know what they can do and then be capable of doing it is more important than tactics.

Tailpiece

"Operations in New Guinea have proved conclusively that tanks considerably accelerated operations and saved the infantry many casualties."

—*GHQ India Liaison Letter.*

"The tanks had more than proved their worth during the long advance from Aitape, and

most of the critics were converted to the need for armour in this type of warfare. The infantry were loud in their praises, as the Tillies had saved them many casualties. The Engineers did a splendid job in clearing the path of mines. The infantry also gave the tanks the fullest support, and their co-operation was excellent in every way."

—*"Tank Tracks"—Official History of 2/4 Aust. Armd. Regt.*

PART III — AMERICAN OPERATIONS

Solomon Islands

Phase I — Guadalcanal

The first Allied offensive in the Pacific started with a two-pronged drive on the objective of Rabaul. One prong was directed through New Guinea and the other through the Solomons, beginning with Guadalcanal. The 1st Marine Division, which included the 1st Tank Bn (M4 Light-General Stuarts), landed on the latter on 7 Aug 42 to capture the airfield begun by the Japanese. Simultaneous landings were made on the adjacent islands of Tulagi, Gavutu and Florida.

All landings were successful, but opposition was determined, and the campaign came to an end only after six months of bitter fighting, with the loss to the Japanese of 24,000 dead and 1,000 prisoners.

The Country

Apart from the flat plain containing the airstrip, the island was covered with thick jungle interspersed with some coconut plantations. The muddy surface was treacherous and broken by creeks.

The Method of Use

The tanks were put ashore on D Day, two companies of 18 tanks being allotted to each of two infantry regiments. After the landing, control of the tanks reverted to the divisional commander, who authorized sub-allotment for particular missions.

On D plus 2, the battalion built a semi-permanent camp near the airstrip, with its tanks dispersed and dug-in. From this base, platoons went out on specific tasks.

Three main actions were fought—

(a) Teneru River. One platoon using canister and MG fire in close support of infantry was completely successful, particularly as the 5 tanks ran up and down a ditch where the enemy had taken up positions.

(b) One platoon supported an infantry battalion in a mopping-up operation. Resistance was slight.

(c) Six tanks were used to sweep a large open field in front of an infantry battalion, with a river on the far side. One section of three tanks covered the other, which went to clear a hut surrounded by undergrowth. Three tanks were knocked out by anti-tank fire and a fourth ran

into the river at top speed, drowning the crew.

Lessons

1. Prior ground reconnaissance is essential.

2. Infantry support to protect tanks against concealed weapons is vital.

3. The crew commander is busy directing the driver in thick country. Infantry must therefore watch for targets for him.

4. Tanks should not be used in the first wave of landing operations. Enemy counter-attacks against the beach-head will require tanks that were probably lost by premature landing.

5. Canister is a most effective shell in jungle.

Tailpiece

"On one occasion an infantry commander requested that tanks be allotted to precede the attack, but this request was not granted, since it involved taking tanks into an area with very limited space for manoeuvrability, and one in which there was only one way of entry and escape."

—*Notes on the Use of Light Tanks with US Forces during Operations on Guadalcanal.*

Phase 2 — New Georgia Group

The Operation

The Guadalcanal operation finished on 21 Feb 43; the same day the Russels were occupied unopposed and base construction started. During the following months, combat troops trained rigorously for the assault on New Georgia.

As a jump-off point, Rendova Island was captured on 30 Jun, two days before the main attack on Munda Point; Munda Airfield was captured on 5 Aug, and organized resistance on New Georgia Island ceased by 25 Aug. Meanwhile an unopposed landing was made at Vella Lavella on 15 Aug, by-passing the garrisons on the lesser islands of Arundel and Kolombangara. These were mopped up and the whole New Georgia Group operation completed on 15 Oct 43.

The tanks used included M3 Lights (General Stuarts) of the Tank Platoons (each eight tanks) of 9, 10 and 11 Marine Defence Battalions, as well as a Medium Tank Company attached to First Marine Amphibious Corps. Generally the tank support was most successful, and hastened victory as well as saving lives.

The Country

The usual thick jungle, creeks and mud were encountered, with some coconut plantations and cleared gardens where manoeuvre and visibility improved somewhat.

New Georgia and Arundel Islands had a coral foundation, which helped to save bogging, but on Rendova and Vella Lavella sticky mud had been made worse by heavy rain.

Method of Use

The tanks were first landed on Rendova but not used, due to the light opposition. They were then committed piecemeal for the Munda operation, partly because of scepticism regarding their value. The result was failure to exploit the

initial severe shock caused by the tanks.

Theoretically, close infantry/tank co-operation was practised, but failed somewhat in application. Infantry on various occasions failed to give support; on others, special squads were allotted to each tank, but the main body of infantry remained well behind, expecting the tanks to annihilate the enemy and then call them forward.

The largest number used in any one attack was eleven (Arundel). Eight took part in the final assault on Munda, while on other occasions as few as two were used. Engineers with bull-dozers were found to be essential for movement.

General speaking, employment was rather haphazard, and tank attacks were not properly co-ordinated with those of other arms.

Lessons

1. Generally speaking, the more tanks used the better the result. One solid attack will win—the second of two smaller ones will always meet increased resistance.

2. The more previous softening-up is done, the more likely the tanks are to succeed, with fewer casualties.

3. Bulldozers are essential, plus normal engineer support.

4. Medium tanks are better than light.

5. Close, aggressive infantry support is vital, but they should keep clear of tanks, which draw fire.

6. Tanks should not close with bunkers, but destroy them by fire.

7. Canister is invaluable, and with HE will clear vegetation.

8. Infantry guides should be provided for move to Start Line.

9. A tank liaison officer on HQ is required.

10. Prior ground reconnaissance will save time and trouble, and should be done if possible down to crew commanders and drivers.

11. Tanks must fight closed down.

12. Infantry must make way for the tank, and especially watch for trees felled by the tanks.

13. Three tanks are the largest sub-unit that can be controlled in jungle.

14. Grousers are required at all times.

15. Before an action, tank personnel must be given time to reconnoitre, plan their own method of attack and service their tanks.

16. An externally mounted MG is not practicable.

17. Tanks should be used against a definitely located enemy resistance holding up the advance. This presupposes that infantry will precede the tanks.

Tailpiece

"Tanks can be used in the jungle."

—HQ XIV US Corps.

"The tanks in these actions not only ploughed through the jungle but climbed some sizeable hills in the face of hostile fire and jungle growth. The determination of all ranks in getting them through the jungle paid off big dividends. The Japanese on one occasion were surprised by the fact that the tanks came at them from an unexpected direction over some hills they thought the tanks could not make. The tanks did, of course, bog down occasionally, and there were some places they could not go, but surprisingly few, if all hands were willing to take the time

and make the necessary effort —which they did."

—*US Report on "Tanks in the South Pacific."*

"No terrain was considered impassable for tanks provided the results anticipated were judged to be worth the effort required to make the terrain passable."

—*HQ Ninth Defense Battalion, US Fleet Marine Force.*

Phase 3 — Bougainville

On 28 Oct 43, a US Marine Battalion executed diversionary landings on Choiseul in preparation for a surprise attack on Bougainville on 1 Nov. By the end of the year a naval base and three airfields were operational in Bougainville. No further ground offensive action on the island was undertaken, as the Americans were to be replaced by Australian units. However, the capture and holding of the 100 square mile beach head at Torokina was a bloody and costly campaign.

M3 Light (General Stuart) and M4 Medium (General Sherman) tanks were used in this campaign. Unfortunately no details can be found of their use, except that they played a very successful part in the capture of "Bloody Hill," one of the bitterest battles of the campaign. They were also instrumental in defeating banzai Japanese counter-attacks during the heavy fighting in Mar 44.

New Britain—Arawe & Cape Gloucester

The Operation

When the Solomon Islands had been captured as the right hook towards Rabaul, the left hook smashed into New Britain on 15 Dec 43 at Arawe and eleven days later at Cape Gloucester. Arawe was to provide a PT base and Cape Gloucester an aerodrome; the occupation of both severed one of the main enemy supply lines to New Guinea.

The tanks used were Shermans of the US Marine Corps, whose 7th and 1st Regts landed at Cape Gloucester, followed later by the 5th Regt. Tanks were not used in the landing at Arawe, but one platoon of light Stuarts later supported the infantry; no details of their use are available.

The Country

For a short distance from the beach, the ground was reasonably "open," consisting of coconut plantations, though boggy and swampy in parts. Elsewhere the normal jungle prevailed.

The Method of Use

Nineteen Shermans operated at Cape Gloucester, supplemented by Alligators and Buffaloes. The tanks were fitted with steel instead of rubber tracks, and one tank had a locally fitted MIAI flamethrower in place of the hull machine-gun.

Sub-units of three tanks were used, one-third of the available runners being in reserve and two-thirds forward with the infantry. No radio link existed between tanks and infantry.

Infantry preceded the tanks, which were called forward by the company commander to receive their orders for a task. Six men per tank were specifically allotted for local protection and followed directly behind it.

Lessons

1. Tanks are invaluable in a landing, particularly before the artillery is ashore.

2. Good mutual communications are essential.

3. Tanks do save the infantry many casualties.

4. Amtracs are essential for this type of operation, but should not be used as tanks.

5. Close protection by infantry pays off.

6. When infantry are pinned down and tanks go through to clear opposition, the infantry are not inclined to move on again with the tanks. To keep up momentum, it is best to push forward and through troops held in reserve.

Tailpiece

> **"This is blitzkrieg adapted to the jungle. Infantry, tanks, artillery and aviation all perfectly co-ordinated. We outflanked the Japs from our first landing, and since we found this, we have pushed on, harassing him and not giving him a chance to dig-in facing our way."**
>
> —*R3 HQ 1st Regt. US Marine Corps.*

Gilbert Islands—Makin & Tarawa

Operation

The Japanese occupied the Gilberts in Sep 42, and during the next year fortified Butaritari Island in the Makin Atoll and Betio Island (which included an airstrip) in the Tarawa Atoll. The recapture of the Gilberts would provide a jumping-off place for the Marshalls further north, as well as a base for the growing air offensive, and additional security for the America-Australia sea route.

Marines, supported by light Stuart and medium Grant tanks, landed concurrently on Butaritari and Betio on 20 Nov 43. Organized resistance ceased on the former within three days, but continued on the latter for another five days.

The Country

Open coconut groves alternated with tropical jungle, though the ground mainly had a coral base, which assisted movement. However, on D Day, the combined obstacles of debris, shell holes, bomb-craters and marsh restricted use of the tanks.

The Method of Use

In the landing, LVTs formed the first wave, tanks the second, and infantry (five minutes later) the third. The LVT and tank fire against machine guns, personnel and field guns is credited with making possible the approach of the infantry to the beach.

After the landing, tanks moved under command of the infantry, who called them forward to deal with strong points. These were blasted by the tank guns, then the infantry moved in with grenades, and close behind the engineer component of the team sealed up the entrances to the heavier ones with TNT charges.

There were no communications between infantry and tanks, as each one's radio worked on a different frequency band.

Lessons

1. Infantry/armoured communication is essential.

2. The morale effect of tanks is terrific both on the enemy and our own troops.

3. Tanks are needed in the first wave of a landing to provide shock-power and to substitute for artillery.

4. Bulldozers are of great assistance.

5. When heavy preparatory bombardment is used, the probable effect on tank mobility must be realised.

6. Mutual understanding of problems between infantry and tanks is vital if orders are to result in execution.

7. Tank markings to distinguish commanders are necessary.

Tailpiece

"The tanks contributed greatly to the accomplishment of the mission. They helped reduce strong points, assured the steady advance of the infantry, and by their fire power and impregnability to small arms greatly reduced the number of casualties."

—*Operations Division Information Bulletin, Vol. I No. I of 20 Jan, 44.*

The Admiraltys — Los Negros and Manus

The Operation

Concurrently with operations in the Marshalls, Marianas, Palaus and Carolines, Allied forces in the SWPA moved swiftly along the northern coast of New Guinea and on to Vogelkop, Morotai and the Philippines. Saidor with its airport was captured on 2 Jan 44. On 29 Feb Los Negros was invaded; in three weeks it was cleared of enemy and its airport in use. Manus Island was invaded on 15 Mar, and with it another airfield fell. Most Japanese were cleared from the Admiraltys by the end of April, ending another phase in the neutralization of Rabaul.

Both light and medium tanks were used in support of the Cavalry Division, though details of numbers and types are not available.

The Country

Apart from the airstrips and some coconut plantations, the islands were covered with thick jungle. Steep ground and heavy clay made going difficult, but enemy opposition was relatively light.

The Method of Use

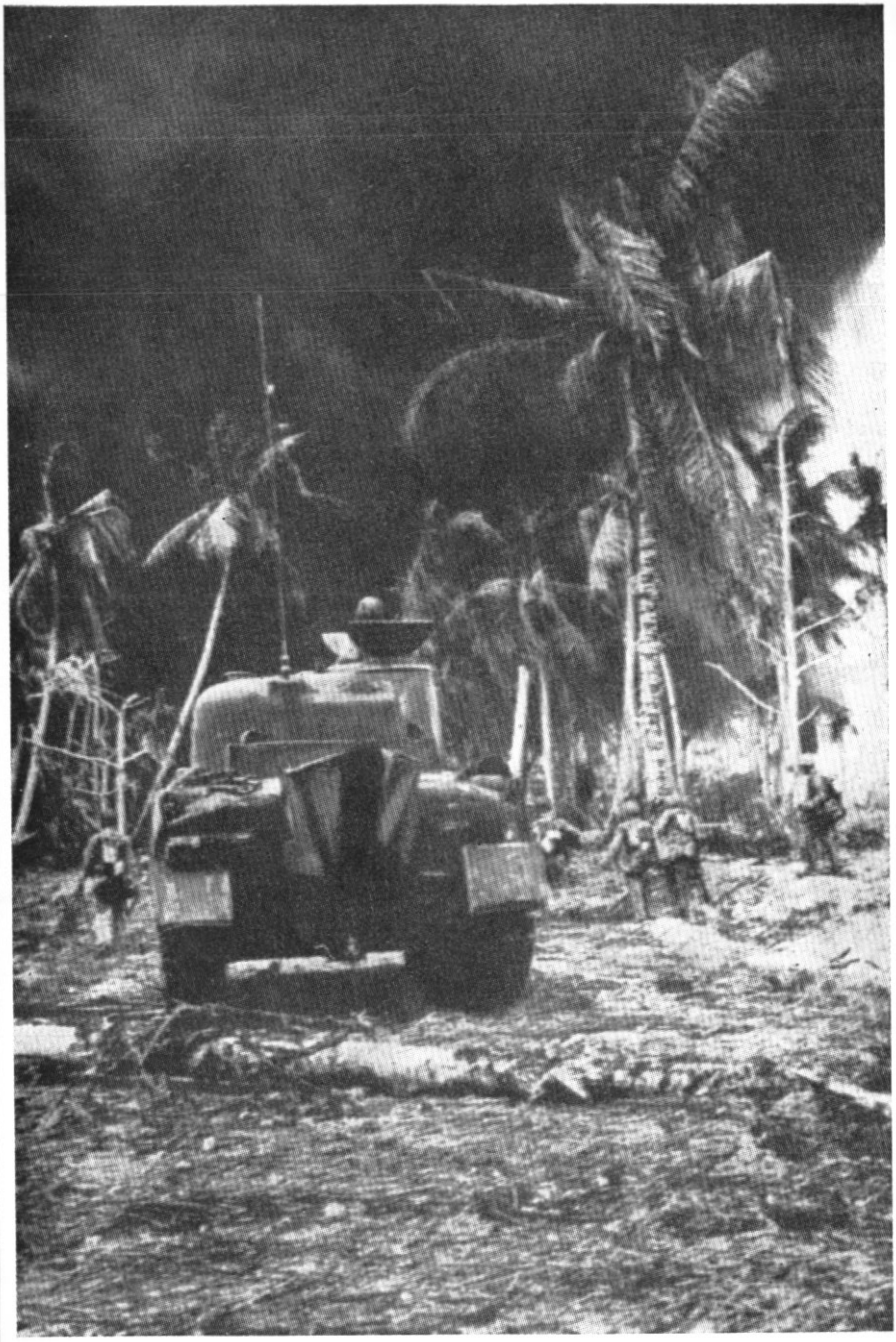
The employment appears to have been entirely haphazard and followed no particular pattern. Subunits were split, and tanks operated in ones, twos and threes. Apart from normal bunker-busting, they were used for reconnaissance (with infantry carried on them), for clearing tree snipers, for straight-out support of troops in the open, and as artillery. Command was exercised from inside and outside the tanks.

Engineer mine detector squads were used with the tanks (after casualties on mines had occurred), and bulldozers came forward to assist as required. TD9 tractors pulling trailers were used for supply on occasions.

Lessons

1. Tanks must be accompanied by dozers.

2. Infantry protection is vital at all times.



American Tanks in Action in the Pacific Islands

3. Canister is very effective in the jungle.

4. Good and alternative infantry/tank communication is essential.

5. Prior ground reconnaissance must be made.

6. Infantry should precede the tanks.

7. Infantry must keep clear of the tanks or suffer casualties from mines and fire.

8. After tank attack on a position, infantry must close with the enemy quickly.

Tailpiece

"The tanks were of very great assistance in this operation, and no doubt prevented heavier casualties among our troops."

—*Report No. 62, Army Ground Forces Board, SWPA.*

New Guinea — Wakde Islands & Maffin Bay

The Operation

After the landings at Hollandie and Aitape on 22 Apr 44 (in which Sherman tanks played an important part) the next step in the recapture of Dutch New Guinea was the seizure of the Maffin Bay-Wakde Islands areas with their airstrips.

The plan called for a landing first in Maffin Bay on the mainland, then using that area for support, a shore to shore operation against the two small Wakde Islands.

A reinforced Regimental Combat Team (including four Sherman tanks) made the assault on 17 May, and organized resistance ceased four days later after 789 of the 790 Japanese had been killed.

The Country

The Maffin Bay area was mainly low-lying, densely-wooded plain, through which flowed a sluggish river. The islands were fairly open, as they had been cleared by the Japanese for airfield construction.

The Method of Use

Tanks were used singly or in pairs in direct close support of infantry against bunkers. Good cooperation was achieved, and reports on the operation mention no particular problems. Tractor trains were used for supply where the going was bad.

Lessons

1. Delay action fuse is very useful for bunkers.

2. Four tanks are insufficient for any operation, as casualties from all sorts of reasons must be expected.

3. Snipers like to see tanks with open turrets.

4. Bulldozers are essential with tanks.

5. Signal wire should be laid clear of tank and dozer lines of advance.

Tailpiece

"No planned action was apparent—they just used the tanks as mobile guns to knock out bunkers, of which there were 108 on the island. Naturally the four vehicles were used to the limit, and I should say that they did 100 miles on the first day running up and down that mile long strip of coral. Had they had a squadron of tanks, I am certain in my own mind that they would have

cleared Wakde on the first day; as it is, they have now had four days' fighting."

—*Report by an Australian officer attached to the US Forces.*

Biak Island

The Operation

The aim of capturing Biak was to secure the three airstrips thereon and use the island as a base for further offensive operations to the north. The attack was carried out by a US Infantry Division (less the Regimental Group on Wakde) with supporting units, making a force of about 14,000 against the Japanese garrison of 10,000. The invasion began on 27 May 44, and the enemy resisted so stubbornly that the island was not secured till August.

The tanks used were Shermans of 603 Independent Tank Company (less a platoon still in the Admiraltys).

The Country

A shelf of coral round the beach made landings difficult. Beside the beach was a narrow strip of swamp jungle, behind which was a vertical coral wall a hundred feet high which the Japanese had honeycombed with caves.

Further inland, the country alternated between undulating ground with some open spaces and jungle-covered ridges.

Method of Use

Tanks and infantry had not worked together before, and there was no time for marrying-up. The tank commander got his orders on the morning of 24 May, and embarked in the afternoon. There was no radio intercommunication, and the infantry were unaware of the telephone extension.

As a result, ideal opportunities for using the tanks were missed, techniques were bad, and the campaign took months instead of weeks or even days.

Tank platoons were sub-allotted to infantry regiments and for specific actions to infantry battalions. The tanks usually led except where the ground was unsuitable. Bulldozers were used extensively to help movement.

One of the few tank versus tank actions of the Pacific War was fought, when nine out of eleven Japanese light tanks were destroyed. (Compare the enemy success in Malaya when we had no tanks.)

Some tanks were used as "naval guns," cruising offshore in LCMs and shooting (with stabilizers) into the mouths of Jap caves at about one thousand yards range.

Lessons

1. Armour protection is required for the driver and engine of the bulldozer.

2. Close co-operation between infantry and tanks is vital. Each is only part-effective without the other.

3. Track extenders should be used to lower ground pressure.

4. A fresh air blower is essential in a tank.

5. Inflammable gear and equipment should not be carried outside the tank.

6. Intercommunication arrangements must not only be good—they must be known and understood.

7. The tank will save casualties,

and is worth the added effort necessary to help it advance.

8. Tank officers must accompany the infantry commanders.

Tailpiece

"At 1730 hrs the battalion was ordered to withdraw. . . . Tanks dispersed along the road in semi-circular formation and engaged all visible enemy positions. . . . The infantry suffered some further casualties during the withdrawal, but the presence (and action) of the Shermans undoubtedly saved the probable loss of the entire battalion."

—*Report by an Australian officer attached to US Forces.*

"Eventually the whole place was cleaned up as far as organized resistance was concerned. . . . If it had not been for the eighteen Sherman tanks the task would have taken longer and the cost would have been greater."

—*Report by UK Military Mission.*

The Philippines

The Operation

The reconquest of the Philippines was carried out by the Sixth and Eighth US Armies. The first landings took place on 17th Oct 44, and the first main objective, Leyte, was declared secure by 26 Dec after bitter fighting.

On 9 Jan 45, Sixth Army landed on Luzon (after Mindoro had been seized to provide air cover). The operation consisted briefly of an advance from the beach-head in Lingayen Gulf down the central plain to Manila and beyond. A separate advance through difficult mountains was necessary to clear the north of the island. The campaign was practically over when the war officially ended on 15 Aug, having cost the Japanese 192,000 killed and the Americans 8,000 killed and 32,000 wounded.

No details are available of tank actions in the Philippines other than on Luzon. Here 13 Armoured Group (44, 754 and 775 Tank Battalions, plus two tank destroyer battalions and associated units) was used, originally with the intention of launching a strong armoured attack down the central plain. The tanks were Shermans, except for some light Stuarts in reconnaissance platoons.

The Country

The central plain consisted mainly of cultivated areas and rice paddys, which the Shermans could not negotiate when wet. However, roads were fairly plentiful. The foothills were sparsely settled and lightly timbered, but the mountains were steep and covered with thick undergrowth and trees. Considerable street fighting, both in villages and cities, took place.

The Method of Use

The Armoured Group did not operate as planned. Tank battalions were allotted to Corps and companies to Divisions. Administrative control only was exercised by the Group HQ—in fact, 754 Battalion at times had companies operating up to 100 miles from each other. A Lieutenant-Colonel was attached to G3 Section AHQ as advisor.

Tanks mostly operated by platoons (five tanks) in direct support of infantry, who called them

up to deal with strong points. No engagement with more than a company took place.

Light tanks were not used for reconnaissance, but were used for patrolling—clearing up the L of C, mopping up enemy stragglers and infiltrating parties, etc.

Two tanks in each company were fitted with jettisonable dozer blades, but did not appear to be satisfactory. Some tanks were also fitted with bow flamethrowers; though these were not used often, they proved very effective, especially in the towns.

A novel method of tank/infantry communication was tried and seemed successful. An infantry officer with an SCR 300 on infantry net took the hull gunner's seat, and being in touch with the tank commander on the normal interphone, could get very effective co-operation.

Engineers were always available close at hand, and some units followed the risky practice of carrying mine clearance parties on the back of the leading tank.

Strong enemy armoured opposition was met, and in the San Manuel action forty-five Japanese medium tanks were destroyed. 75-mm and 47-mm anti-tank guns, as well as various types of mines and improvized anti-tank grenades, also provided tough opposition.

The Lessons

1. Some consideration should be given to water-jacketing of ammunition against fire.

2. Canister is most effective.

3. Crew endurance was about 3½ hours closed down and 10 hours opened up.

4. Casualties among commanders who kept their cupolas open were high.

5. Steel tracks are better than rubber.

6. Ample time for reconnaissance and planning must be allowed before an action.

7. The same tanks and infantry who are actually going to fight together should train together before an action.

8. Imagination and hard work must be used by all concerned to keep the tanks on the move.

9. Sub-unit organization should not be broken down.

10. Close protection of tanks by infantry is vital.

Tailpiece

"The same old problem of placing small detachments of tanks under infantry control arises. They are given little or no support and impossible tasks. The solution is said to be to attach a tank battalion permanently to an infantry division."

"Some units seemed hesitant in providing the required support, while others were determined to get the tanks up seemingly insurmountable gradients. At times tanks were called upon to do the almost impossible and they nearly always did it. On one occasion a tank negotiated a gradient with a D8 tractor winching at the front end, the tank engine flat out and another D8 tractor pushing."

—*Report by Australian observer with US Sixth Army.*

PART IV — BRITISH OPERATIONS

Burma

The campaign in Burma fell naturally into four phases:—

(a) 1941-42 The loss of Burma.

(b) 1942-43 Re-organization by opposing forces. The indecisive first Arakan and first Chindit Operations.

(c) 1943-44 The decisive battles, North Arakan, Kohima, Imphal.

(d) 1944-45 The reconquest of Burma.

The actions outlined below were fought during the last two phases.

North Arakan, Kohima, Imphal
North Arakan, February, 1944

By December, 1943, both the British and Japanese had reorganized and were ready to go over to the offensive.

The Japanese 15th Army (54 and 55 Divisions) opened the attack on 4 Feb 44 in the Arakan. This was a large-scale diversion to draw away reserves from Imphal and Kohima, the capture of which would deprive the British of their main base as well as severing the L of C to the Chinese - American forces in NE Burma.

The blow fell on Lt-Gen Christison's XVth Corps (5 and 7 Indian Divisions), which included the recently arrived 25th Dragoons. The Lee/Grants of this British regiment were the first medium tanks to be used in the Arakan, and their support of infantry throughout the operation often proved decisive.

The XVth Corps not only held the Japanese, but within three weeks had driven them back beyond the Mayu Range, from which they had started.

The Country

The coastal part of the Mayu Peninsula contains thick jungle interspersed with tidal chaungs (creeks). Inland the Mayu Range with its high, steep hills and jungle-covered ridges runs down the middle of the Peninsula. East of this range lies the Mayu Valley along the line of the Kaladan River. The Ngakyedank Pass crosses the Mayu Range by the Indo-Burma frontier.

Operations took place on both sides of the Mayu Range, often in dense jungle in the foothills, and on the Ngakyedank Pass.

The Method of Use

Squadrons were allotted to attacking battalions for close support, i.e., "shooting" infantry on to the objective.

Infantry patrols pin-pointed enemy positions before the attack, and a fire-plan was then made between the infantry and tank commanders. During the attack infantry followed the tank fire as closely as possible.

In defence the tanks were used for counter attack with infantry by day, and by night faced outwards with their guns on fixed lines on the perimeter.

Tank bridgelayers proved extremely useful for crossing obstacles.

Lessons

1. Only one of the divisions with which the tanks operated had any

experience of the employment, capabilities and limitations of tanks. Misuse and misunderstanding occurred when tanks were employed with other formations. As tanks had proved necessary in the theatre, recommendations were submitted that all divisions must be trained to work with armour before arrival in the forward areas.

2. Commanders allotted tanks often told the tank commander how to do his job, and even detailed the number of tanks to be used. The infantry commander must say what he wants and for how long. The tank commander then decides how to give the most effective support.

3. Infantry commanders who wish to employ tanks must first decide whether they can protect them properly. It is neither correct nor fair to ask a tank commander, especially a junior one, whether he minds going out without an escort.

4. Tank fire support proved heavy and accurate. All infantry, however, must be prepared to follow close in under tank supporting fire, and it was proved on many occasions that failure to do so resulted in heavier casualties.

5. Infantry must be prepared to stalk and destroy enemy anti-tank guns in their vicinity. On one occasion, anti-tank guns were brought to within 800 yards of the FDLs without being spotted and destroyed; they were subsequently withdrawn.

6. Tanks must only be used in their legitimate roles, and require sufficient time for maintenance. If they are used on unnecessary tasks, the required number of serviceable tanks will not be available at the critical times and places.

Imphal and Kohima—March to July, 1944

Undeterred by their failure in the Arakan, the Japanese (with tank support) began their main offensive in the second week in March, 1944, forcing IV Corp's withdrawal to defensive positions covering Imphal.

Kohima, eighty miles to the north, was attacked on 6 April, and was completely besieged for twelve days till the British XXXIIIrd Corps broke in from the north. On 3 June the Japanese began to withdraw.

The fight for Imphal went on until 22 June, when the armoured spearhead of 2 British Division, driving rapidly south, met 5 Indian Division twenty-five miles north of Imphal.

Exploitation commenced immediately to capture the enemy advanced base for operations north of Imphal, and to cut the escape routes to the Chindwin. Japanese rear guards fought with great determination to gain time for their 15 and 31 Division to reach the Chindwin, and their resistance was not finally overcome till the end of July.

Units of 254 Indian Tank Brigade (with light Stuarts and medium Lee/Grants) were employed in support of the infantry at Imphal and Kohima throughout the main battles and subsequent pursuit.

The Country

Kohima and Imphal are situated in the Chin Hills (a thickly wooded

mountainous range). The first class Imphal Road is cut out of the hillsides with wooded hills on the one side and often an unpleasant drop into a valley on the other. Across the valleys, the hills again rise steeply into high, dominating features. Movement off the road was not generally possible; tanks could only turn at a few places, and then with difficulty.

The Method of Use

Tanks were employed in the following roles:—

(a) Close support of infantry and destruction of enemy field defences.

(b) Clearing road blocks and protecting the L of C within the defensive areas.

(c) As armoured columns in the breakout and pursuit.

Close support of infantry. Squadrons or half squadrons were allotted to attacking battalions with the task of destroying or neutralizing Japanese defences (from a flank where possible) before and during the assault. One troop accompanied the infantry for close support, ground permitting. Engineers with D4 and D8 bulldozers were attached to the tank squadrons, and helped to get them into suitable fire positions. When routes could not be bulldozed up exceptionally steep slopes, the tanks were towed or winched into position by the dozers. In this way tanks climbed features 5,000 feet high to engage the enemy. Tank liaison officers accompanied the infantry commanders; these officers were equipped with a wireless set for communication with the tanks.

Road clearing and protection. Road blocks established by Japanese who infiltrated between infantry positions were cleared by combined forces of infantry and tanks. The tanks in close column advanced down the road, flanked by infantry in the jungle alongside. On encountering a road block, the tanks were used to destroy bunkers covering the obstacle and to clear the area of tree snipers.

Armoured columns. On 5 June, when the Japanese appeared to be pulling out from Kohima, an armoured column was formed to clear the road to Imphal, and started the next day. When strong opposition was met, infantry were launched into the assault, supported by tanks from the road or suitable fire positions nearby. Forward infantry indicated their positions by means of the "77" grenade, tank fire changing from HE to AP when the infantry were close to the objective. During the last two days of the advance, the column covered 31 miles.

Tanks were supplied by air drop. Jeeps and trailers ferried forward ammunition, petrol and supplies.

Lessons

1. Employment of armour undoubtedly increased the rate of advance and lessened the number of infantry casualties.

2. Engineers and dozers are essential to assist in clearing obstacles and mines. Tank losses in the above operation resulted in many cases from too small an Engineer reconnaissance party.

3. Targets can be indicated by an infantry officer carried in the tank to show known positions when other methods fail.

4. Armour formations operating in jungle terrain can be supplied by air drop.

5. Bridgelayer tanks again proved of great value in getting tanks and the vehicles of other arms over blown bridges with little delay.

Tailpiece

> **"In all areas, between 4 and 24 Feb, the day the pass road was opened, the medium tank group on certain occasions and for varying lengths of time, had no less than 73 tanks in action. I have no hesitation in saying that their presence was always valuable and often decisive. To those who still doubt the wisdom of employing tanks in hilly and jungle country, there can only be one answer and that is —ask the troops with whom they worked."**
>
> —*Lt.-Gen. A. P. F. Christison, GOC, XVth Corps.*

The Reconquest of Burma

The Plan

Within a few days of the opening of the road to Imphal, XIVth Army began to work on plans for the capture of Mandalay and Rangoon. These plans involved crossing the Chindwin, destroying the Japanese between that river and the Irrawaddy, capturing Mandalay, and finally exploiting south to Rangoon. At the same time XVth Corps was to clear the Arakan and capture Akyab, Ramree and Cheduba Islands and develop them as bases to supply XIVth Army by air when it reached Southern Burma.

However, it soon became evident that the enemy main forces had retired across the Irrawaddy, and a new plan for their destruction was necessary.

This plan called for the IVth Corps to force the passage of the Irrawaddy by mid-February. 17 Indian Division (with 255 Indian Tank Brigade under command) were then to break through the bridgehead to the vital road, rail and air centre of Meiktila. No attempt was to be made to keep the road open behind the original thrust, which was to be supplied by air. This stroke, if successful, would cut off the Japanese 15th and 33rd Armies from their bases in South Burma and separate them from the 28th Army in Arakan, and the Irrawaddy Valley.

The XXXIIIrd Corps was then to mop up everything north of Meiktila, and capture Mandalay. Thereafter IVth and XXXIIIrd Corps would drive south to Rangoon and down the Irrawaddy Valley, destroying what was left of the Japanese Armies in Burma.

In the meantime XVth Corps would clear the Arakan and Ramree Island.

The Armoured Thrust to Meiktila—February to March, 1945

The operation was a complete success. A bridgehead was secured near Pakokku between 19 and 21 Feb with very little opposition, the Japanese believing it to be only a diversion. Each armoured regiment of 255 Tank Brigade carried a battalion of infantry on its Shermans for the thrust to Taungtha and on to Meiktila, where several airstrips were captured intact. Tanks and infantry captured the town itself on 3 March. During the

Tanks on the Move in Burma

advance the armoured brigade averaged 20-25 miles a day. The force was maintained entirely by air.

The Method of Use

During the advance to Meiktila, the armoured brigade co-operated with infantry as an armoured brigade instead of being split up into separate squadrons. During the actual capture of Meiktila, and in beating off subsequent counter attacks, squadrons were allocated to battalions in accordance with previous practice.

The Capture of Mandalay—March, 1945

XXXIIIrd Corps crossed the Irrawaddy to the north and west of Mandalay, establishing three separate divisional bridgeheads. Armoured regiments of 254 Indian Tank Brigade were allocated to the various divisions in support of infantry. Mandalay was captured on 19 March, 1945.

Crushed between XXXIIIrd and IVth Corps, the Japanese 15th and 33rd Armies disintegrated early in April.

The Method of Use

Squadrons and half-squadrons supported by Engineers and troops of SP field regiments were allotted to attacking battalions.

The Country

The plains in the dry belt on Central Burma provided good tank going. The surface is either level or gently undulating, and where it is not under cultivation, it is usually covered with dry scrub. The Irrawaddy and Chindwin Rivers are major obstacles, and steep-sided creeks form occasional obstacles. Roads are fairly frequent, some being tarmac or metalled.

The Advance to Rangoon—April to May, 1945

On 6 Apr 45 the XIVth Army began its sweep south, XXXIIIrd Corps advanced astride the Irrawaddy on the right, and IVth Corps on the left drove straight down the main road to Rangoon, again headed by a strong armoured spearhead of 255 Indian Tank Brigade. Rearguards were by-passed by the forward troops, and mopped up by follow-up formations. In one month, 6 Apr-6 May 45, IVth Corps advanced 300 miles from Meiktila to Hlegu.

26 Indian Division captured Rangoon on 3 May after an amphibious landing, and by 15 May had joined up with IVth and XXXIIIrd Corps.

The Country

The road and railway axis from Mandalay to Rangoon follows the course of the Sittang River for the greater part of its length. The Sittang lies close on the eastern side of the road and railway; tributaries to the west form tank obstacles in many places. The country on both sides of the road is often thickly wooded. The Pegu River crosses the line of advance fifty miles from Rangoon.

During the advance by IVth Corps heavy rains fell and rivers rose in spate. Movement off the road for wheels and tracks was impossible in many places.

The Method of Use

Armoured groups were formed to lead the advance. These groups consisted of an armoured regiment

(Shermans), a composite reconnaissance squadron of armoured cars (Humbers) and light tanks (Stuarts), one battery SP Regiment (Priests) and one or two infantry battalions.

When opposition was met, a combined assault was launched, usually after an encircling movement, and the advance continued. Major opposition was by-passed—routes around being bulldozed where necessary. Following formations mopped up.

Armoured groups took the lead in turn to maintain the momentum of the advance. Surprise achieved through speed was many times a battle-winning factor.

Amphibious Operations in the Arakan—December, 1944, to April, 1945

At the end of 1944 XVth Corps began operations to clear Arakan and capture Ramree Island. Landings were made on the Arakan coast to cut off the enemy and destroy him in co-operation with land columns driving south down the timbered coastal plain. Arakan was cleared before the amphibious landing on Rangoon in May, 1945.

The Country

The marine beaches in the operational area are for the most part rocky with stretches of firm sand. Innumerable creeks and rivers break up the coast line, developing inland into impassable mangrove swamps. Past the swamps ,the ground rises and is covered in thick forest and dense undergrowth. Such conditions make opposed landings extremely hazardous.

The island of Ramree has topographical features of unusual severity. A short distance inland a backbone of rocky, uneven ridges, on which there is a certain amount of terraced cultivation, makes normal movement impossible. Two wide creeks break up this backbone. Until the time of the operations resulting in the capture of the Island, no vehicle had ever travelled from Kyaukpyu in the north to Ramree in the south.

The Method of Use

Troops of Shermans supported the landings on the mainland. In most cases the tanks operated as mobile artillery, giving covering fire to infantry and destroying enemy bunkers and other strong points by 75 mm fire. To overcome the difficulty of observing the fall of shot in the thick foliage, a Forward Tank Officer with a "Walkie Talkie" on the squadron net, went forward on foot with the infantry. He was then able to observe the target and direct fire upon it.

On Ramree Island, after landing at Kyaukpyu, a squadron of Lee/Grant tanks with supporting infantry crossed over to the west coast. A bulldozer followed the leading tank, and was frequently used to clear a route. After about 20 miles of this type of progress the enemy was cleared from the northern half of the Island. The tanks then returned to Kyaukpyu, and were reembarked to land at a point near the waist of the Island.

After landing, the tanks subdued a strongly held Japanese position in co-operation with infantry, and then fought their way to the town of Ramree over 40 miles of practically impassable ground and almost impenetrable forests. The leading tank frequently had to shoot a

path through the trees with 75 mm HE or AP. (After a 14 inch tree had received several rounds it was pushed over by the tank.) Having reached Ramree, the vehicles had several days' maintenance before returning to Kyaukpyu along the track they had themselves forced through the hills and jungle. The only mechanical failure during the operation was one tank which developed an oil leak, but still reached workshops under its own power.

Lessons from the Reconquest of Burma

1. Carriage of infantry on tanks proved of the utmost value in a swift advance. The infantry being already married up to the tanks saves delay in putting in an attack. Provided the tanks are preceded by an adequate reconnaissance element, and the infantry are not carried right into battle, casualties are not suffered by infantry.

2. When a mixed force of infantry and tanks is attacking, a force commander must be appointed. This is normally the senior infantry officer, but in open country where tanks are the decisive arm the senior tank officer should command.

3. The artillery support with 255 Indian Tank Brigade during these operations was provided almost solely by an SP Regiment equipped with Priests. The regiment had known the brigade for more than a year and was accustomed to working with tanks; it afforded magnificent support throughout. It is desirable that tank regiments should have trained with the SP artillery who support them in operations.

4. Infantry and tank commanders must work in closest conjunction during battle. If one wanders off without letting his opposite number know, trouble will most surely result.

5. No one method of indicating targets is the answer to every situation; troops must be trained in the use of Forward Tank Officers, tank telephones, wireless and visual signals. Hand signals cannot be made under fire except when lying down and they are not easily visible.

6. The old lesson that the actual infantry and tanks who are to work together must train together was brought out in these operations, just as in all others.

7. If a regiment is allotted to a division, squadrons should not automatically be sub-allotted to the leading brigades, as this tends to result in:—

(a) Infantry brigade commanders using the squadron continuously, with the result that crews are overworked and have insufficient time for maintenance.
(b) The use of tanks in penny packets instead of in force.
(c) The regimental commander losing all control.
(d) Administrative difficulties being aggravated.

In these circumstances tanks should remain under the control of the regimental commander, and demands for tank support should be made as decided by the divisional commander in conjunction with the regimental commander. There is no objection to sub-allotment for a specific task, but permanent sub-allotment throughout a formation is as uneconomical as it is unwise.

8. Jungle is not in itself a tank obstacle. Passage of tanks can be effected with engineer assistance

and ingenuity on the part of the crews. The individual standard of training of the latter (and of junior officers and NCOs particularly) is all-important.

Tailpiece

> **"The final battle for Pyawbwe, which the Japanese commander had ordered to be held to the last, was a brilliant piece of tactical handling by the Commander of 17 Division. A direct assault would have been bloody and slow. Instead he put in his attacks from north and west co-ordinated with a deep enveloping drive from the south-west by a powerful armoured column whose surprise blow was decisive. The battle lasted three days, 8 to 10 April, and was most fiercely contested. The Japanese died where they crouched in their fox-holes and bunkers. This was the most costly defeat the enemy had suffered in a single one of the series fought in this campaign."**
>
> —*Field Marshal Sir William Slim.*

PART V — SUMMARY OF LESSONS

General

A study of the lessons of the use of tanks in the Pacific war reveals the following interesting facts:—

(a) Some of the lessons were already included in our pre-war teachings and text-books.

(b) The same lessons that were reported in 1942 were being rediscovered in 1945.

(c) Many of the lessons have been incorporated in post-war pamphlets (which proves that pamphlets are worth reading).

(d) Under the threat of modern war most of the lessons, if intelligently applied, are still relevant.

With the emphasis once again on SE Asia, it will be interesting to see how many of the lessons from World War II will again be discovered in training or operations. One can only hope they will be few, though the saying that "the only thing we learn from military history is that we don't learn from military history" cannot entirely be discarded as cynicism. In any case, junior officers in particular should remember that if the lessons given below sometimes appear rather obvious, they were learned at a heavy cost and should not lightly be ignored.

Type of Tank Required

The ideal tank should have:—

(a) Maximum weight (consistent with transportation problems) to allow heavy armour, ability to take punishment and good "jungle-bashing" performance.

(b) A big gun (minimum 75 mm), preferably short-barrelled.

(c) Low track pressure (ideally less than 8 lbs/sq in).

(d) Best possible power-weight ratio.

(e) Ability to travel slowly for long periods.

(f) Complete submersibility with minimum preparation.

(g) Anti-hollow charge devices, especially on the front.

(h) Best possible step, clearance and "fordability."

(j) Maximum crew comfort.

(k) Maximum load of ammunition and petrol.

(l) Good traction and ability to turn in its own length.

(m) Streamlined exterior to prevent accumulation of vines and undergrowth.

Movement

Fitting of grousers and track extenders is desirable.

Prior ground reconnaissance must be done. This may necessitate special patrols, but tank officers should keep informed of infantry patrol schedules so that they can either go along themselves or have specific armoured questions included in patrol briefing. Where possible routes should be marked, avoiding signal cables. Where time is short, infantry guides should be used.

Guns must remain between eleven and one o'clock on the move to avoid damage.

If foresight is used in choosing tank lines of advance, the trail blazed by the tanks can often be followed by jeeps without further engineer reconnaissance or effort.

Tank drivers and commanders must be trained to recognize and avoid suspicious objects, and to pick the best going. Mobility depends largely on ability to judge expertly the capacity of the tank to negotiate ground.

Engineer support depends on the number of lines of advance rather than the number of tanks. Sappers must be specially trained with tanks, particularly in mine clearance and improvised methods of crossing obstacles. Dozers and tractors are essential, preferably with light armoured protection for the driver.

In coastal areas, the use of landing-craft to by-pass obstacles is a great help.

In training, seemingly impossible tasks should be attempted, so that crews will know exactly what their equipment can or cannot do. The development of these techniques is probably the most important aspect of training.

Accumulated foliage must be cleared at every opportunity. Otherwise its drag will hinder (if not stop) the tank, or it will damage suspension and throw tracks. Some cutting and clearing device is desirable.

Infantry must keep out of the path of the tanks, and watch for trees that may be felled.

When heavy preparatory bombardment is used, the probable effect on tank mobility from craters, fallen trees, etc., must be realised.

Almost no ground is impassable if imagination and determination are used. The mental attitude of commanders may be a greater obstacle than the jungle itself.

Tactics

The rate of advance is normally decided by the speed of the infantry. Tanks bogged or broken-down must not be allowed to hold up the advance (their superior speed will enable them to catch up), but a protective party must be left with them. Tests in various terrain to

determine tank rate of movement may be helpful.

Tanks must operate closed down in action to protect crews from snipers, tree and air bursts and grenades, bombs, etc. As this may entail at least three hours without opening up, prior training to condition crews is essential.

Troop organization should not be broken down. Three tanks is the best organization for control.

One troop in a squadron should always be out of action to allow troop rotation. This is necessary for maintenance as well as for resting crews.

Do not close with the enemy, but fight him with fire and allow the infantry to mop up. This is essential to guard against close quarter attack. However, a suitable signal (such as a long burst of MG fire) is needed to show that fire has ceased. On such a signal the infantry must follow in quickly if the benefits of supporting fire are not to be lost.

Squadron Commanders should be with the HQ of the Battalion or Brigade being supported, and Regimental Commanders with the HQ of the Brigade or Division. However, even if actions are on a troop basis, squadron and regimental command nets should be open. This may well provide a useful alternative means of communication for the infantry.

In attacking bunkers, use the main armament against the slits (if necessary with AP followed by HE or smoke), and spray the flanks with MG fire. The enemy may well try to weather out the storm outside his bunker and get back in before the infantry advance.

The supporting fire plan for an attack must cover tank requirements as well as infantry. With the added effectiveness of short range weapons, this is more than ever necessary. The noise of preparatory supporting fire and planes may also cover movement forward of the tanks.

Infantry must accept responsibility for dealing with close-quarter anti-tank weapons, snipers, etc. This will normally mean that infantry precede the tanks, as well as protecting their flanks, but in any case some infantry must be in sight of the tanks at all times.

Sound and alternative means of communication between tanks and infantry must be available. The telephone and wireless are normal, but visual signals and personal contact will also be required. Infantry must know which tank is which from its markings.

A thorough understanding of each other's capacity and limitations is required of infantry and armour. Time should be allowed if at all possible for tanks to train with the actual infantry they are going to work with, as peacetime demonstrations between corps are too general to be of much practical value.

Infantry must protect tanks at all times. This applies especially to cases such as:—

(a) Securing ground necessary to cover crews working on a breakdown or engineers working on an obstacle.

(b) Tanks unable to keep up with the rate of advance.

(c) Reporting obstacles ahead of the tanks.

In fact, infantry must be prepared

to operate without tanks, but tanks should never operate without infantry.

Troop leaders must be able to control their troop from on the ground, as they will often have to move on foot with the infantry commanders.

A mopping-up drill on a position is necessary if friendly casualties are to be avoided.

The enemy has problems like ourselves, and in bad country his anti-tank defence is likely to be weak. The use of tanks should always be aimed at getting them where the enemy does not think they can get, or where his preparations are likely to be least. This may involve a considerable effort on our part, but is likely to be well rewarded.

In defence, tank weapons should be given a definite arc of fire and responsibility. However, they must be well protected by the infantry dispositions, well camouflaged, and allowance made for their muzzle blast. Crews should not be allotted sentry or other duties.

Target indication will always be a problem, but will be much less so if all alternative means are studied and known. The troop leader on the ground, directing fire by radio, is probably the best. Tank/infantry formations must be carefully preserved if tanks are to engage impromptu targets they have observed.

Intelligence NCOs are necessary in a squadron, particularly for topographical data.

Minor breakdowns in communications can almost invariably be traced to poor operating.

Infantry must protect the tank without seeking protection from it. Distances are governed by visibility, and infantry who keep unnecessarily close will become casualties from mines, shell splinters and fire aimed at the tanks.

Tanks should not be diverted from their proper role for supply purposes, patrols, etc., except in an emergency and when the results are expected to justify such use. Apart from being uneconomical, all time out of action is required by the crews for repairs and maintenance.

Where action is on a troop basis, squadron and regimental commanders should think how they can best help troop commanders without restricting them or interfering in what is an independent mission.

Dozers should be RAAC equipment on squadron strength.

Canister is most effective for clearing jungle and for engagement of personnel or ill-defined targets.

Within reason the more tanks which are used in an action the better, to enable exploitations of the surprise and shock action achieved. One solid attack will often win whereas a second attempt may only meet stiffer resistance. In any case, tank casualties must be expected and allowed for.

Time must be allowed in planning an attack for tank personnel to reconnoitre, plan their own methods and service their vehicles. Early inclusion of armoured commanders in all planning likely to involve tanks is therefore vital.

Tanks do save infantry casualties, but infantry must not become "tank-minded" to such a degree

that they expect, as a right, armoured support for any action, however minor.

The morale effect of tanks on the enemy is terrific, but will naturally decrease every time they are used improperly or in an unsuitable role which highlights their limitations.

It is the responsibility of the infantry commander to decide whether he can provide protection for tanks. It is grossly unfair to ask a junior tank officer if he minds going out without an escort.

Administration

Where supply is difficult, it may be necessary for a specific task to have a replenishment area with ammunition and spare crews close behind the scene of action. Otherwise, as distances are likely to be short, an A1 echelon is probably unnecessary.

Ammunition expenditure must be carefully controlled. Supply is difficult, whereas experience has proved that fire discipline will achieve the desired result with the least expenditure. Similarly, infantry should not request engagement of targets which can better be dealt with by air or artillery.

An ARV per squadron is necessary in the forward area, but a heavy tractor can do a lot of work to keep tanks moving if out of small arms range.

As normal maintenance is very difficult, it is imperative that tanks go into action in the best condition, and that a crew and troop rotation system is in operation.

Pulling out of action to leaguer should be abnormal. Having fought our way laboriously forward, it is obviously unsound to go back again with the added risk of ambush on the way. Sometimes for maintenance and replenishment purposes, however, it may be desirable to go to a reserve company area.

As front idlers are the most commonly damaged parts, a good supply of spares is necessary.

As recovery for any distance is a problem, tanks should be repaired on the spot by RAEME flying squads whenever possible. RAEME equipment must be designed with this in view. (The helicopter may be an answer.)

All vehicles should be jeeps or tracked. The use of tractor trains may often be the only means of supply. All personnel must exercise imagination and resource to improvize means of getting supplies forward.

Tank crews are rationed by the infantry whom they are supporting.

When not in action, engines and wireless must be run regularly to dry out moisture and prevent growth of fungus.

Tailpiece

The Malayan campaign has not been covered in this article because, as already stated, tanks were not used by the British or Australians. By coincidence, perhaps, it was also the only campaign that we lost.

It is interesting to speculate, however, what might have occurred if we had had tanks and used them boldly. What, for instance, would have happened to the Japanese tanks that smashed the 11th Indian Division and started the Allied collapse? What would have happened

had we used tanks in the more open areas to cover our withdrawal and give us that sorely-needed time to stop the rot? What also would have happened to the Japanese landing parties on Singapore Island if they had been hit by a couple of hundred tanks when our infantry and artillery had almost brought them to a halt?

At least part of the answer is given by Brigadier C. H. Kappé in his "Fall of Singapore." He says—"What was needed was a squadron or two of tanks to track the tired and disintegrated Jap units as they emerged into the more open country north-west of the Tengah aerodrome, but we didn't have the tanks."

HOW IT BEGAN

C. C. Soden

Consecration of the Colours

THE ceremony of consecrating the Colours originated in the Middle Ages, when there were no national standing armies, each nobleman maintaining his own private "army" for the protection of his land holdings.

For purposes of identification each of these armed bands carried a banner on which was featured the personal coat of arms of its noble commander. When a male member of the family reached the age at which he was entitled to be knighted he was ceremoniously presented with a sword and spurs by the head of the family. In the presence of all the armed retainers he was also presented with a small replica of the family banner, termed a bannerette, which, with much solemnity, was first blessed and consecrated by the local priest before being given to him.

When, with the passage of time, these armed bands were merged into a national army controlled by a central authority of which the reigning monarch was the head, the ceremony of consecrating the banners was retained, but with the difference that the "Colours" now represented regimental rather than family honour.

Army Chaplains

Army Chaplains came into existence at the time of the Crusades. At the period, loyalty to the Crown was rarely responsible for a man joining up, practically all the fighting men were conscripted into the service. As might be expected, the combination of forced service, no pay and scanty rations resulted in a marked tendency to avoid exposure to death or wounds in action. Being fully aware of this lamentable fact, Richard Coeur de Lion appointed to each body of soldiers a priest charged with the duty of stirring up the fighting spirit by dire threats of eternal damnation for anyone who failed to come good.

In the attack these priests were required to advance ahead of the line and, with cross held aloft, exhort the

troops to sail in with sword and spear. As the priests had no means of defence in the turmoil of hand-to-hand combat, heavy casualties soon reduced their numbers to vanishing point. To counter this state of affairs, their light wooden crosses were replaced by fearsome iron ones with a sharp point at one end and a heavy knob at the other. They were also provided with a suit of chain mail to be worn under the cassock. This equipment not only reduced their own casualty rate, but increased that of the enemy, for, in the heat of battle, the valiant priests were prone to forget themselves and wield the formidable crosses with devastating effect.

For some unrecorded reason the inclusion of Chaplains in military establishments was discontinued about the beginning of the 15th Century. However, when Cromwell organized his "New Model" army all units were provided with Chaplains, who, in addition to their religious duties, were required to become proficient in the dressing of wounds.

Military Police

That very popular body of men, the Military Police, like the Royal Marines, was raised originally for the protection of officers against attack by disgruntled "pressed men." In the dire need for reinforcements to replace the very heavy casualties in the Flanders Campaign of 1740, the Army resorted to an atrocious form of conscription. Military "press gangs," operating in the poorer quarters of the cities and in country areas, kidnapped thousands of men and bundled them off to Flanders without giving them a chance to tell their families what had happened to them. As might be expected, these men made no effort to conceal their hostility towards their officers, whole regiments existing in a permanent state of near mutiny. Many officers were murdered when they moved about unguarded. To counter these acts of revenge each "Line" regiment raised a small establishment of men of proved loyalty to guard officers' billets and patrol the routes from them to Regimental Headquarters.

A century later, when the need for this protection had disappeared, the "Watch Guards," as they were called, were reorganized, their new role being the control of the troops' conduct when off duty. Whereas previously the "Watch Guards" were posted to individual units and entered on the regimental roll, the new establishment operated under the direct control of a "Provost" of a general's rank, who was in no way subject to orders of brigades or divisions, but was responsible for his actions only to the War Council.

In 1880 the practice was adopted of each unit running its own Military Police detachment, which usually consisted of a senior NCO and six men. The detachment was distinguished by red tunic collars, which were later superseded by red cap bands. They were controlled by the unit in routine matters, but if and when occasion demanded, they were subject to orders issued by the Army Provost Marshal on the Brigade HQ establishment.

Shoulder Straps and Swagger Canes

The reign of Queen Elizabeth I saw the introduction of shoulder straps, these first taking the form of a thong of leather tied around the belts to keep them in position. Inci-

dentally, the red tabs and cap bands of today's senior officers originated in Queen Elizabeth's time. Officers of the "trained bands" wore shoulder knots of plain brown leather, while the officers of her personal staff wore very elaborate affairs of red and gold silk braid, with scarves of the same colours wound around their helmets.

Swagger sticks were introduced as an item of commissioned rank equipment in the time of King Charles I, but were used for a much more serious purpose than they are today. At this time all junior officers were empowered to inflict punishment on the spot for minor offences. Old manuscripts record that such misdemeanours as "sneezing in the ranks, spitting or scratching the head" earned immediate punishment to the tune of twelve strokes across the back.

The canes carried by King Charles's officers were very ornate, some five feet long, with a silver head and a long silken tassel. The cane carried by a very high ranking officer was topped with an elaborate gold head surmounted with an enamelled miniature crown, ornaments which have been incorporated in a somewhat different form in the Field Marshal's baton of today.

Military Funerals

In the time of Henry VIII military bands were not included in establishments, but every body of fighting men boasted a party of drummers and trumpeters, the former to set and maintain the marching pace, the latter to break the monotony by blowing an occasional fanfare. King Henry directed that these instruments should be employed in the funeral ceremonies of high ranking officers.

The coffin was carried to the place of burial on a wagon normally used to move the heavy cannon of the period. The wagons were huge, cumbersome vehicles drawn by a team of draught horses at a speed scarcely above a crawl. Behind the wagon marched a party of drummers playing what was then called the "Dede Sounde" to a pace beat in keeping with the extremely slow rate of progress of the wagon ahead. Thus was born the "Slow March" and "Dead March" of the present time, for, although speedier vehicles were introduced, the original slow step was retained as more befitting the dignity of the occasion.

In 1723 the term "Dede Sounde" was changed to "Dead March" in military parlance.

The procedure followed at the graveside was also inaugurated in Tudor times. After the coffin had been lowered into the grave, musketeers posted on either side fired three volleys. The firearms of the period, being wheellocks some six feet long and about 15 lbs. in weight, required support in the shape of a forked rest, which was stuck in the ground under the muzzle.

In order to elevate the weapon, firing parties were formed in a kneeling position opposite each other. After the volleys "Last Post" and "Reveille" were played. At that time "Last Post" took the form of "Taps," which was played at 10 p.m. each night as a sign for tavern keepers to shut off their taps. "Reveille" consisted of a series of long blasts of no prescribed form.

WANTED —

A New Army

Warrant Officer K. L. Hanrahan
23 Cadet Battalion

The views expressed in this article are the author's, and do not necessarily represent General Staff policy. —Editor.

A RECENT Press report emanating from the Prime Ministers' conference in London announced that certain changes would be made in Commonwealth defence policy. This report confined itself to one thing, the establishment of an army/air "jet force" to meet emergencies at any time, in any part of the world. In the same week Field Marshal Viscount Montgomery "stressed the need for smaller, more immediately ready regular armies with great strategical and tactical mobility."

Both reports are incomplete; they said nothing that was definite and gave no indication of what exactly is planned. Taking the first literally it could mean that troops are to be readied to be moved by the air forces of the Commonwealth to any danger point at short notice, i.e., to be moved strategically. The second report is the more important because it uses the word "tactical." This implies a special type of army altogether distinct from the conventional infantry or motorised division. Regardless of which change is adopted, it will be merely a palliative if, on arrival at the point of emergency, the force committed is used according to the established principles of field operations.

However, these reports indicate an up-to-the-minute appraisal of the changes forced by the many scientific and technological advances made in armaments since the end of World War II. These discoveries, added to the geopolitical adventures of Communist Russia and her satellites, have a more significant and dangerous aspect — the steady diminution of space and time.

In these modern days we are used to such phrases as "shrinking globe," "one world," and other journalistic phrases which describe, in abstract form, the reduction in travelling

time from point A to point B, whether from one side of the world to the other or merely from one country across the border into another. Further, these portentous events have accelerated the change in meaning in those two distinctly military words "strategical" and "tactical," a change which has hitherto been occurring gradually over the past fifty years. No big nation nowadays goes to war with the limited objective of seizing a neighbouring country, but rather for world conquest, therefore modern war has become strategical both in concept and execution. Similarly the word "tactical" no longer implies a ground commander's moves and dispositions preparatory to battle, but embraces the entire land mass over which he has control.

These alterations in meaning need to be remembered if we are to realize the true significance of *diminution of space and time.* Already the USSR and her satrap governments control more than 15,180,375 square miles of the earth's land area, an increase of 6,707,131 square miles since 1939! To these figures we must be prepared to add Malaya, Siam, Burma, Vietnam and South Korea, areas which are likely to fall within the first few months of any new global war. Lastly there is the possibility of further reductions in space on the European continent.

Will any army/air "jet-force" be capable of saving these areas on the outbreak of hostilities? Will any army possessing "great strategical and tactical mobility" be able to avert further reductions in space? The first, hardly; the second, possibly. One reason is that the old form of "buffer states" no longer exists in Europe, and in only two places in Asia, these being Burma and Siam, the buffers between the eastern approaches to India and the northern approaches to Malaya respectively. This makes the time element so much more vital. The two opposing factions in the world today, East and West, are rapidly building up their forces to a point where strategical time will be resolved by their both having ready large forces of men and ample material. What will count then will be tactical time, and here is where a counter may be found that will not only lead to success in battle, but will also amend the loss of space enforced by Communist geopolitical aggression and the loss of time enforced by the advances made in scientific research.

What then can be found as a suitable counter to the diminution of space and time that has already occurred, and the reduction that can occur within a short time after the commencement of war? The following suggestions are intended as a basis for argument only and cannot pretend to present anything near to the ideal that can be reached from long and careful study by those best qualified to judge.

Firstly, it will be necessary to examine space as it affects military thinking. It is a repetition of past lessons to say that space is three-dimensional, and that the loss of the vertical dimension, air, can seriously affect the other two, length and breadth, or land and sea. It is also known that it will be the task of the air forces to not only keep control of our own vertical dimension, but also to attempt to seize control of the enemy's vertical dimension. By

doing this the air forces will increase the ground forces' ability to extend their space, which will immediately tend to remove the limitations now existing with respect to manoeuvre and the security of external and internal lines of communication and supply. But, to build the air forces up to a stage where their influence on the horizontal elements of space is disproportionate with respect to the ground forces' capacity to seize vital areas is to cause an imbalance of force which will react to the ground commander's disadvantage; or, to put it another way, *the control of vertical space is automatically negated unless it is matched by a corresponding gain in both tactical space and time.*

This can be better appreciated if we review that theory which has been a measuring-stick for so long, the theory that mass, firepower and mobility are complementary to each other.

It is contended that mass is non-applicable to modern war because of the diminution of space and time. Mass requires time to be mobilized, to be trained, to be equipped, to be moved strategically and more importantly, tactically. Mass is nothing more than a counter to firepower and, when firepower exists in excess of the enemy's, mass need no longer be considered as a positive factor in land operations. To express this thought differently it can be said that *mass is the duplication of firepower without mobility.*

Modern leaders should no longer think of frontages and numbers of men to hold them, but rather of *vital areas* to be seized and the *firepower* to do it. So, therefore, let us consider a more imaginative theory, consisting of two factors which, although abstractedly analogous to space and time are definite and tangible with respect to *force.* These are:

(a) Speed (considered as the ultimate of mobility) and,

(b) Firepower (considered as the equivalent of mass).

If we accept the combination of these two elements instead of the combination of mass, firepower and mobility as heretofore, we can see that we will require a new army capable of seizing and holding those *vital areas the loss of which will most likely cause the disintegration of mass* that the enemy now has to his advantage. What is needed is to build up, now, an army of highly skilled troops completely self-contained as to all supporting elements, so completely mobile as to introduce tactical speed into land operations, with administrative and supply units pruned to the absolute minimum, and possessing such firepower as to equal a conventional mass unit of far greater size. Only then will a ground commander be able to act positively, that is, to destroy and not just delay, and not be forced to act negatively until such time as his mass arrives.

These "package-armies" will find the enemy at a disadvantage in both space and time. The loss of vital areas will cause serious dislocations to supply and will hinder the free movement of the enemy's mass. In other words his mass will be sacrificed in a war of three-dimensional

speed in order to retain the advantage accruing to the possession of strategical space and time.

Mechanical/scientific ingenuity and military flexible-mindedness can do much to turn our lack of numbers to an advantage, but whatever the result, only professional troops will be suitable for the type of army envisaged in this article.

An article in the Soviet newspaper "Red Star" of 3 July, 1954, tells Soviet soldiers how to act under atomic attack.

"In the offensive," the article says, "headlong contact with the enemy is the best mode of action on hearing the atomic alert signal, because the closer the battle array of the advancing unit is to him the smaller is the probability of the use of the atomic weapon by the enemy."

If "during encounter with the enemy," the article continues, the atomic weapon is used, "the soldier must correctly and opportunely utilize the protective properties of various local objects, shell-holes, ditches, embankments. Immediately after the explosion, the soldier gets his weapons ready for shooting and resumes the careful observation of the enemy. If the enemy undertakes the attack, the main task of the soldier is to destroy the attackers."

"Red Star" says that "to the brave and able soldier the atomic weapon is not terrifying."

—Army Combat Forces Journal, USA.

The CORPS of ARMY SCHOOLMASTERS

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(The matter contained in this article has been derived largely from "Adult Education—The Record of the British Army," by T. H. Hawkins and L. J. F. Brimble.)

ALTHOUGH there are earlier indications in old regimental standing orders of sergeants "whose Sobriety, Honesty and Good Conduct can be depended upon," being entrusted with the teaching of reading, writing and arithmetic to soldiers and soldiers' children, the first organized training of individuals occurred under the command of Sir John Moore in 1800. The standing orders of the time indicate that the interdependence of military training and education was clearly recognized. Periodical examinations were held of those who wished to fit themselves for the situation of NCO's; every sergeant was expected to be master of reading, writing and the first four rules of arithmetic.

Lieutenant - Colonel William Stewart, who later commanded a division under Wellington, was the moving spirit in these new departures and though the campaigning of the Peninsular War forced abandonment of the adult schools, the children's school remained in being and was copied by many other regiments, all this without any Government assistance. With difficulty regimental schools for the instruction of soldiers' children were continued, and gradually obtained official recognition. It must be admitted, however, that the catechising and rote learning which were the methods of the day, did not always succeed in qualifying the victims "either for the Duties of a Soldier, or for other subordinate positions in life," one of the stated aims of one school. Gradually Schoolmaster Sergeant become a recognized appointment in the strength of every regiment.

By 1830 the seeds were bearing fruit; troops on garrison duties particularly became once more the recipients of well-meant efforts to counter the radical propaganda of the age — but before 1836 the 28

volumes authorised by the Bench of Bishops and purchased by the War Office for the delectation of convalescent troops included "Kind Caution to Profane Swearers" and "Discourse on a Death-Bed Repentance." The basic weakness consisted in the lack of training and supervision for regimental school masters.

In 1846 the Rev. G. R. Gleig, Chaplain-General, who also acted as Inspector-General of Army Schools, was shocked at the illiteracy — and brutality of his so-called teachers. He helped to initiate enquiries which brought the dismal fact to notice, and a royal warrant issued on 2 July, 1846, introduced the "Schoolmaster Serjeant" into the Army "with rank next after the Serjeant-Major." So was initiated the "Corps of Army Schoolmasters." Another royal warrant made provision for the training of masters at "Our Royal Military Asylum at Chelsea." New barracks were set up, functioning alternately as chapel and schoolroom. The school opened in 1847 with thirty civilian students who were bound in a bond of £50 to enlist in the Army at the end of their two years' training. Some were replaced by NCO's and the school continued to be recruited both from civilian and military life.

Comments on results after the first batch of students got to work in their regiments were flattering, and the new interest was credited with helping to decrease default and delinquency.

In 1850 pay of an Army Schoolmaster was 2/6 a day and beer money, with 6d. a day bonus as and when the Secretary of War decided he was qualified to receive it. The said Secretary also permitted his marrying, on the Commanding Officer's approbation of the character, sobriety and uprightness of the intended spouse. Sergeants paid 6d. a month, Corporals 6d. a month, and drummers and privates 4d. a month for the privilege of being taught.

In 1854 schoolmasters were divided into four classes, the fourth class being assistant schoolmasters. Beer money, for some unexplained reason, was stopped for all, and the custom of collecting fees from soldiers direct was also discontinued. On the credit side, the schoolmaster no longer had to provide school books and writing materials, and soldiers were encouraged to volunteer for education by getting free copy books. Finally in 1857 payment of fees by the soldier was remitted altogether. By this time schools were established wherever British troops were quartered. According to an order of the Duke of Wellington, dated 1849, the work of schools was classified into four grades. All recruits had to attend the lowest grade, for two hours daily, but for many a long year the supply of NCO's, owing to educational deficiencies, remained a difficult problem, and in 1857, a general order from the commander-in-chief forbade the promotion, except in the field, of any soldier who had not passed the lowest or fourth class.

In 1858 Current Affairs crept in to the curriculum. A lecture on "The Australian Gold Diggings" was given by a brigade-major; a lecture was also given on the new-fangled telegraph, and magic "lanthorns" were used to beguile the troops at home and abroad. Boxes of slides were in constant circulation. Singing, dances and poetry reading were not un-

known. Some schoolmasters lectured on experimental science, and conducted chemical and electrical experiments.

In India there were two armies, one serving the Queen and the other the East India Company. Despite this, evidence indicates that considerable progress had been made before the year 1858 when the schoolmasters of the East India Company were absorbed in the Corps of Army Schoolmasters. Long before the Mutiny, Lord William Bentinck reported good attendance and progress in the schools, also regimental libraries of 500 to 600 books and stocked with leading newspapers. In 1857, in a normal school at Poona which had been operating for some years under an Army schoolmaster with the acting rank of lieutenant, fifty-six sepoys passed out as schoolmasters, qualifying in English and a vernacular language, 36 British NCO's completed a six months' course of general education and 20 officers were ordered to join for a six months' course in mathematics and civil engineering to qualify for Survey. The Mutiny interfered with the completion of these courses.

In all parts of the world the mid-nineteenth century army experienced a movement towards knowledge which was the counterpart of the Mechanics' Institutes which were developing in the industrial towns. Soldiers in crowded barracks, in cluttered sailing ships, in heat and cold, in jungle and desert were battling with the three R's or with higher education, and the Corps of Army Schoolmasters was building up prestige and respect because of the enthusiasm of individual workers in the cause.

In 1857 a "Council of Military Education" consisting of a general, two colonels and a Fellow of the Royal Society, designed to superintend the education of officers, was set up in an office in the vicinity of Whitehall. In 1860 it took over the superintendence of army schools and the inspector-generalship was abolished. Army certificates were introduced, four originally. They were reduced finally to three in 1877. Commissioned rank was introduced for superintending schoolmasters; army schoolmasters were NCO's, ranking immediately below sergeant-major. The succeeding years saw expansion, apathy, inertia, and the pruning knife of economy variously affecting the fortunes of the Corps. The compulsory education of recruits was abandoned in 1887 as "being a waste of time to teach soldiers unable or unwilling to pass out of the lowest class." A change-over from regimental to garrison schools resulted in a loss of direct personal interest on the part of Commanding Officers. To counteract any decline in efficiency the director-general introduced a system of surprise visits of inspectors.

In 1872 NCO's had to attend until they obtained third-class certificates, and in 1888 possession of second and even first-class certificates was made an essential for promotion to the higher non-commissioned ranks.

In 1892 a new infantry drill book contained the postulate "that private soldiers shall be taught to think, and subject to accepted principles, to act for themselves." Despite frustration and disappointment, interest in education must have been maintained, for in this year the percentage of certificates

held by soldiers to total strength was 36.51.

In 1901 a committee of enquiry discussed the dearth of applicants for posts as army schoolmasters — liability for foreign service and evening work were held to be the reasons, which in the nature of things were inescapable. Proficiency pay for serving soldiers was first introduced in 1906 — to become eligible the soldiers had to possess a third-class certificate of education.

In 1907 Board of Education Inspectors investigating the system of army education made recommendations which brought the method of training army schoolmasters into closer correspondence with that for civilian teachers in training colleges. The recognition of army schoolmasters as certificated teachers two years later enabled Army Teachers to take up civilian appointments, counting army service for increments on the recognised scale of salaries.

In 1914, a committee was formed to make appropriate recommendations for pre-discharge training of soldiers and subsequent aid in obtaining employment. This worthwhile move was swept away for the time being by the cataclysmic events of that year. Despite the enhanced prestige of the Corps of Army Schoolmasters, a great deal of its work was temporarily brushed aside as irrelevant until the pressure of later events forced a renewed approach to education as a basic necessity.

COMPETITION FOR AUTHORS

Beginning with the July, 1955, issue of the Australian Army Journal, monetary awards will be made on a competitive basis to authors of original articles published in the Journal.

Monthly Award — All original articles published in each issue will be reviewed by a Board appointed by the Director of Military Training. The Board will select the best article published each month. The author of the selected article will receive £5.

Annual Award — When twelve monthly awards have been made, the twelve first-place articles will be reviewed by the Board, and the author of the one judged to be the best will receive £40.

The award of both monthly and annual prizes will be based on the substance, originality, completeness, and the over-all merit and quality of the article.
