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Field Marshal Viscount Alexander
of Tunis
Canada's New Governor-General

SS

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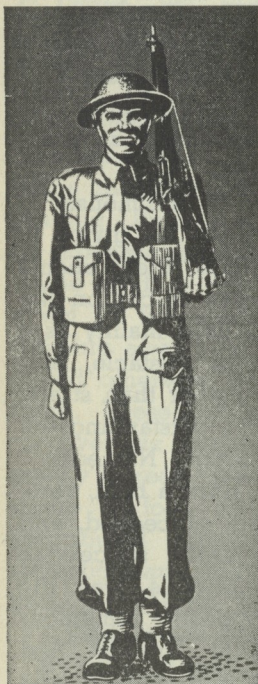


Canadian Army Training Memorandum

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AREA WARFARE

This article was written by Brig. J. M. Calvert, D.S.O., S.A.S. Troops, and was extracted from the British Army Quarterly for CATM. It gives a vivid forecast of future developments in the strategical use of Airborne Forces, and mentions such probabilities as the use of "V-1's" and "V-2's" for carriage of supplies. On account of its special interest it is reprinted in full in two instalments. This is Part 1.—Editor.

PART 1

The normal object of a commander in war is to destroy the enemy forces opposing him. One of the methods, though not necessarily the only method, of achieving this is to hamstring the enemy forces, thus destroying the means whereby he fights. This includes destroying his bases where he has collected reserves of material, destroying his main headquarters—the nerve centres which co-ordinate all his movements—and cutting off his main forces from his means of supply.

Until a few years ago armies fought only in two dimensions. Commanders used to manoeuvre to achieve the above results as a fencer or boxer manoeuvres in order to get through or around his enemy's guard and get at his guts. It is possible to destroy the enemy by a process of attrition in which one wears down his guard and only eventually gets through to the guts after all opposition has been destroyed by frontal attack, but this is very wasteful and lacks all strategic skill.

In modern European warfare, in the west where the fronts have been limited, another method of achieving this end

is to deceive the enemy as to where our forces are going to strike, and then strike hard with all the forces at the commander's disposal, to pierce the enemy's guard and then get at his bases; after which each enemy force dependent on these bases should fall off like a ripe plum. The more mechanized and industrialized armies get, the more vulnerable they are to this form of attack. It is for this reason that at the beginning of the war, before commanders had learned to disperse their bases and to cope with the speed and weight of modern attack, there were those tremendous victories and enormous quantities of prisoners taken.

With the advent of third-dimensional warfare, an opportunity is given to commanders to outflank their enemy from the air. Airborne forces on the European front were used mainly as a means of crossing an obstacle, and were used tactically rather than strategically, except for the outstanding example of the Eindhoven - Nijmegen - Arnhem operations. Here a bold, resolute manoeuvre nearly succeeded, and in fact was seven-tenths successful, if the capture of bridges was the yardstick. Too many people remember the gallant failure at Arnhem and forget the successes at Eindhoven and Nijmegen. This failure at Arnhem may well have put back the clock in the development of three-dimensional warfare because commanders may have drawn the inference that at that stage of development it was not possible to use airborne forces successfully in a strategic role. This setback had repercussions certainly as far as South-East Asia.

Long before Arnhem, Gen. Wingate, under the orders of Gen. Slim, had used his airborne forces in a strategic role. In this case we had complete air superiority and it was possible to make

airfields and land large numbers of troops, totalling 18,000 with artillery, behind the enemy's lines. These troops destroyed the bases and communications leading to the Jap armies facing Gen. Stilwell, and, by closing in from the rear, finally led to the utter destruction of these Japanese forces. In this they were completely successful.

Again, unfortunately, too many people drew the wrong inference, in that they thought that these forces were meant to assist the British forces in the Imphal area and were therefore used away from the main battle. Assistance for the forces beleaguered at Imphal only later became part of the plan. The Jap attack on Imphal did not take place until seven days after our original landing. But, throughout the operation, as Japanese documents testify, the airborne landing did have a very great effect on the actual Imphal battle by drawing away two Jap divisions which would otherwise have been employed there. These airborne forces remained for over six months operating in the enemy's rear areas, destroying his stocks of food and ammunition, and contributed largely to the eventful starvation and rout of the Jap forces throughout Upper Burma in 1944.

The next air operation in Burma, at Meiktila, was a combined ground and air turning movement, which again proved most successful. After fourteen days' hard fighting the main Jap forces were scattered or destroyed and the way was opened to Rangoon.

Turning to the Pacific theatre, the Australians and Americans employed this strategic method of using airborne forces with complete success at Wau and had further successes near Lae and Salamua.

In the last stages in Europe, a magnificent plan was being studied for the employment of airborne forces in a

strategic role to penetrate the "Festung Europa" but, owing to the rapid disintegration of the German Armies, the plan was stillborn.

In the European theatre the main difficulties after obtaining air superiority were in supply and in putting down sufficient weight of material in tanks and guns to withstand the enemy's counter-attacks with all weapons. In Asia, there was no such difficulty, as first of all the enemy had not got many tanks or guns, so that it was nearly always possible to learn where they were, land elsewhere, and then advance on the objective. Secondly, due to air superiority, the great distances involved and the difficulty in deploying technical aids to defence such as radar, interception was more difficult and supply was comparatively easy by air.

It is worth noting that the two nations which first developed air-borne forces—Russia and Germany—soon after the beginning of the war began to neglect them. This is probably due to one of two causes: either because they preferred to concentrate their material resources on other forces, or because they had lost belief in their use.

Losses Are High

It is questionable whether using airborne forces tactically, which entails dropping them on top of the enemy, is sound. Losses are invariably high, and there are only a few places along the opposing fronts in which this can be done. As the enemy can foresee these points, surprise is difficult and anti-aircraft artillery can be concentrated around possible landing areas. The force must be overrun in a short time because of its lack of heavy weapons. This all ties the hand of the commander of the ground forces, with the result that the airborne forces may become a liability to him rather than an asset, and he becomes chary of asking for their support.

This landing on top of the enemy also means a very high standard of technique in parachuting, gliding and flying, which is not so necessary if forces are dropped where the enemy is not; also, in the latter case, a lower standard of training and equipment can be accepted. Since such operations are difficult and a high casualty rate is to be anticipated, a tremendous outlay is also entailed in training centres, experimental centres, aircraft, etc., which produces a comparatively small return. The huge air armada used in the crossing of the Rhine produced only about 7,500 British and twice that number of American rifles on the ground.

On the other hand, in assessing the size of airborne forces, as compared with armies or corps, one must always use as a basis of calculation the number of fighting men in contact with the enemy, and not just the number of men involved. If the objective be rightly chosen an airborne division of 7,500 men once landed and if properly supported from the air is worth an infantry division of 15,000 in fighting strength.

The ideal, then, would be to land in a strategic area behind the enemy, ten, fifteen or twenty divisions complete with sufficient strength in material not only to defend themselves but to make their presence there offensively worth while as part of a great cutting off or outflanking movement — and then to keep them supplied. It would probably not be necessary to have a whole force parachute trained, as the first objective would be to seize a number of airfields and then hold them until transport could land heavier weapons and stores and more reinforcements. With regard to supply, in the future there should be no difficulty in supplying airborne forces by the use of an adapted V-1. An auto-

matic photo electric fuse could be adapted to make a parachute release to break the fall of the supplies. Radar could bring the V-1 on to the target.

We then come to the difficulty of providing tanks and artillery support. The new type of light-weight, non-recoil gun may overcome one problem. No aircraft has yet been designed solely as a load or tank carrier. Aircraft designers state that there is no doubt that enormous improvements could be made in the weight-lifting capacity of aircraft if they could be specially designed for such a purpose. An alternative means of landing extra heavy loads is by the use of flying-boats which can carry more than the average transport plane. There would be difficulties in deplaning a heavy tank from the water, but these could be overcome. All this envisages complete air superiority until such time as one can rely on the V-1s for supply.

Replace Artillery

Direct air support in the closest co-operation with ground forces can to a great extent take the place of artillery support if the lessons of all theatres of war are properly studied and adapted. In south-east Asia and New Guinea, owing to the great difficulty of bringing up heavy artillery or obtaining naval artillery support, the tactical, as opposed to technical, development of very close air support in lieu of artillery had reached a far higher development than in any other theatre of war. With the British armies in Europe it was the rule that the air would not normally take on targets which ground artillery could reach. The great results achieved in the south-east Asia theatre were mainly due to RAF and USAAF co-operation with the Army in producing and manning visual control posts (VCPs) manned by artillery observing officers operating with our forward troops. These were able to indicate targets in jungle areas

where they were extremely difficult to recognize from the air. They also spotted for the aircraft, correcting shots by R/T from ground to air so that succeeding planes bombed closer to the target.

In the identification of targets extensive use was made of gridded air photographs which were carried by the pilots of the planes as well as the VCPs on the ground. With this method very great accuracy could be obtained, and it was quite normal to bomb targets within 200 yards of our own troops and, in individual cases, it has been done with 500-lb. bombs as close as 70 yards successfully.

This use of close air support to augment or replace artillery which, owing to the nature of communications, was not able to be brought up without causing undue delay or loss of surprise, played a vital part in the rapid advance of our divisions and the defeat of the Japanese in Burma.

It is useless to expect such efficiency unless the officers who man these VCPs are at least of the same arm of the Service, if not of the same unit, as the men who fly the aeroplanes. They can then talk the same language. When messages are brief it is essential that the men who receive them must be "in the commander's mind." This factor of being "in the commander's mind" is the best aid to intercommunication there is. Also, the man on the ground as well as the leaders in the air will know each other's idiosyncrasies and will know how much they can ask of each other. No army officer could possibly attain this efficiency and the full confidence of the Air Force any more than he could gain the complete confidence of the Navy if he

was acting as FOO on land to the fleet's guns.

Conditions in Burma were, of course, easier in many respects, due to the fact that the enemy had little or no flak, and interception from the air whilst bombing was practically unheard of, with the result that fighter-bomber squadrons could circle the area indefinitely whilst talking to the ground OPs until such time as they were certain of the exact position of the target which they were to attack. Close support was also given by machine-gun fire, which was very often more effective than bombing and was more feared by the enemy. An adaption to this was the use of dummy runs by the aircraft during which the enemy kept their heads down and our own troops advanced.

Long-Range Guns

This close air support could be an intrinsic part of any airborne operation, as it is only by this means at present that one can give the ground forces adequate support, unless, as was done in the Rhine crossing, the airborne operation is so close to our own ground troops that long-range artillery can do it. At Arnhem preliminary arrangements for air support were far from perfect. This had a direct effect on the amount of air support provided and the time it took to provide it. At the Rhine crossing, forward control posts for the RAF were given to the airborne forces but, in view of the fact that artillery support could be asked for, they were not of such vital importance, although some very good strikes were obtained even under these circumstances. But it is essential that close training beforehand is given to squadrons, acting in close co-operation with ground forces during this training, in order to obtain real accuracy, the complete confidence of the ground troops, and efficient co-operation.

NEW WEAPONS

(By George Connerly in the Washington Post)

Gen. H. H. Arnold, air force chief, has revealed that this country already possesses:

1. Bombs steered on their 3,000-mile course by radio and pin-pointed into their targets by heat, light and metal reactions, an indication that radar already has been incorporated into pilotless missiles.

2. A super-super-bomber, "considerably better" than the B29, faster and with two or three times its range. The new plane's 5,000-mile range equals the distance between Washington and Buenos Aires.

Before launching into his startling conclusions, he observed casually that a year ago "we were guiding bombs by television from a plane 15 miles away."

Arnold summarized his ideas of the "observable trends" in air war as follows:

1. Manned or pilotless planes traveling faster than sound and eliminating aerial combat as we know it.

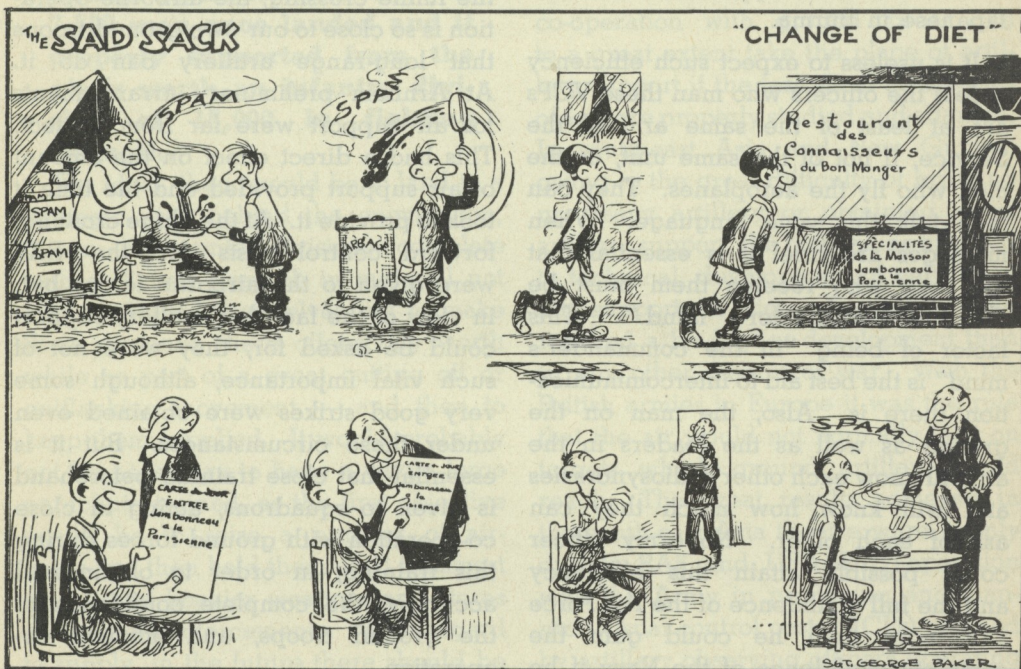
2. Improved bombs, destructive beyond the wildest nightmares, ideally suited to unannounced attacks which could destroy a country's major cities overnight.

3. Extraordinary development of guided missiles and refinement of control so exact hits can be made on targets of a mile square or less, in any part of the world, from any part of the world.

4. Perfected air-ground communications making possible the most intricate manœuvres either by piloted or pilotless missiles.

5. Development of techniques to make possible the dropping, at any point in the world and in a matter of hours, of completely equipped airborne troops, and their constant supply.

"None of these things is visionary, or merely possible," Arnold said. "They are probable to the point, almost, of inevitability. If we have another war—if another aggressor arises to strike the peace-loving nations, it will be with things like these that he strikes."



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"WHAT I READ IN THE NEWSPAPER"

There's an excellent Security lesson to be gleaned from the oft-repeated saying of the late Will Rogers:

"All I know is what I read in the newspaper."

It's a lesson for every soldier, regardless of rank, because every member of the Service possesses information of value to a potential enemy—even if he doesn't recognize it as such.

If, taking a leaf from the book of the late Will Rogers, the soldier professes to know only what he "reads in the papers", he'll talk to civilians of nothing of a military nature which he has not already seen in the press. And, in so doing, it follows as a consequence that he will not, in careless conversation, divulge military information which has not already been officially released.

Equally important, if the soldier knows only what he "reads in the papers", he'll discuss military topics

with civilians only as newspaper reports—neither confirming nor denying the truth of these reports from knowledge in his possession nor adding details which have not already been published. As a consequence, press reports will not, thus, be unofficially confirmed or denied by the soldier—and additional details will not be unofficially provided by him for publication and consequent simplified collection by a potential enemy.

Try being the strong, silent type! Bear in mind, too, that when you remain silent people are prone to credit you with knowing much more than you do—with much more than they will if you unbutton your lip! Apropos of this, adopt as your own the following "Prayer": "Help me, Oh Lord, to keep my big mouth shut, until I know what I'm talking about." But adopt it as a "Security Prayer"—**with the last seven words deleted!**

ANTI-TANK GUNS

These reports on the siting and employment of the six-pounder anti-tank gun were extracted for CATM from the British Infantry Heavy Weapons School Bulletin.—Editor.

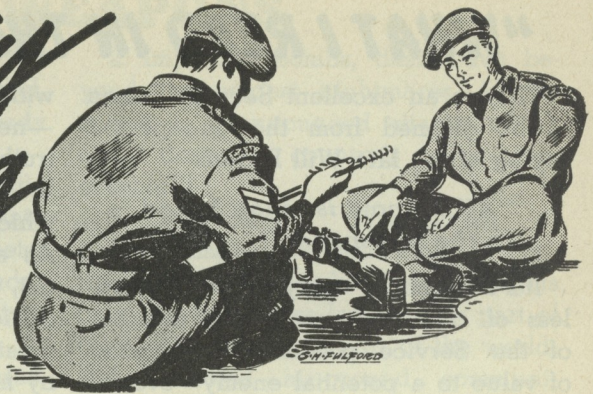
1. "Sgt. S of an A/Tk Regt had his six-pounder on a reverse slope, and some Sherman tanks were in a position to his left rear. He saw the tops of three enemy tanks 900 yards away, closing to 700 yards. Something then attracted the enemy's attention and they started moving round the left of the six-pounder. One came over the crest. Some smoke from another brewed-up tank was drifting across the

front—it was difficult to distinguish the German—and it was necessary for the layer to look round the shield of the gun before he could pick it up in the telescope.

"The gun fired a round and the tank (a Panther) stopped. Four more shots were fired at the tank, which was head on almost, and these glanced off the glacis plate. The Panther then turned away and showed its side. Another shot was fired and it promptly brewed-up."

Comments by Infantry Heavy Weapons School: It can be seen from the above how useless it was to fire the six-pounder at a German tank head on. The thickness of the armour and the slope of the glacis plate prevent penetration, and the only possible

Military Training



THE 4.2-INCH MORTAR

(British Infantry Heavy Weapons School Bulletin)

1. Rates of Fire

(a) **General:** No standard method exists whereby rifle unit and sub-unit commanders can indicate to supporting mortars the intensity or type of fire which they require brought down on targets indicated by them, or on shoots controlled by them. At present it is customary for the rifle commander to call upon mortars to "neutralise such-and-such a target for such-and-such a time" or, more simply, to "stonk" it. In order to obviate this difficulty and to bring such calls into line with the methods in use between Infantry and Artillery, calls for fire should be made in terms of "Scale" or "Rate."

(b) **Scale:** Scale implies that an equivalent of a stated number of rounds per mortar will be fired at the target as fast as aimed bombs can be fired. For example, if a mortar platoon of four mortars be allotted in support of a rifle company, and the rifle commander orders Scale 5, then each mortar will fire five rounds. If, for any reason, one or more mortars be out of action, then the bombs which they would otherwise have fired must be fired by the remainder in order that the platoon as a whole fires the total of 20 bombs called for.

(c) **Rate:** Rate implies that an equivalent of a stated number of rounds per mortar will be fired at the target in each of a stated number of minutes. For

example, if a mortar platoon of four mortars be allotted in support of a rifle company, and the rifle commander orders "Neutralise five minutes, Rate 2," then each mortar will fire two rounds in each minute for five minutes. If, for any reason one or more mortars be out of action, then the bombs which they would otherwise have fired must be fired by the remainder in order that the platoon as a whole fires the total number of 40 bombs, or eight bombs per minute called for.

(d) Concentrations and Neutralisation:

(i) **Concentrations:** Where the Infantry Commander wishes a concentration fired on a target, he will, when going for fire for effect, use the term "Scale." All bombs will then be fired as fast as aimed bombs can be fired (e.g. Tare 525, Scale 10, Fire.)

(ii) **Neutralisation:** If neutralisation is required then the Infantry Commander will, when going for fire for effect, use the term "Rate," followed by a number and specify the number of minutes for which the rate is to be maintained. (e.g. Tare 525, Neutralise five minutes, Rate 2).

(e) **Exceptions:** If for any reason, chiefly shortage of ammunition, the

mortar commander is unable to comply in full with the Infantry commander's order, he is authorized to amend the rate or scale ordered, but, if he does so, he must always notify the Infantry Commander of his action.

2. Methods of Paralleling

(a) Compass "B": Experience has shown that, if the compass is held up to the eye, and the hair line used to give direction in the exact positioning of the direction post, greater accuracy can be attained with very little loss of time. The essential points to observe when using this method in conjunction with the Mobile 4.2" Mortar are: (i) Careful placing of the base plate flag to provide a suitably flat area in front for the tripod legs at all angles of switch, and reasonably level and uniform ground behind for the actual base plate. (ii) Positioning oneself slightly in rear of the flag when using the compass. (iii) Making allowance for individual compass error. (iv) Avoidance of metal that might affect the compass.

Experience has shown that in daylight under normal conditions the four mortars can with practice be consistently pegged out by this method in

approximately 112 seconds. Whilst in the majority of cases exact accuracy of line is achieved, the maximum error for individual mortars is generally not more than 30 minutes. This means that the Compass "B" method becomes the quickest of the methods of paralleling and, since with the present equipment it provides a sufficient degree of accuracy, it may in future be regarded as the normal method of paralleling.

(b) Direct Aiming Point and Mortar Angle: From reports received it is clear that one or other of the two compass methods of paralleling was most frequently employed by mortar units in action, and that the D.A.P. and Mortar Angle methods were seldom, if ever, used. In view of this, therefore, it has been decided: (i) To discontinue teaching the D.A.P. method of paralleling at this School, since it is neither the quickest nor most accurate method, and since, due to their tactical siting, suitable D.A.P.s are infrequently available to mortars. (ii) To continue to teach the Mortar Angle method (although extremely slow) as an alternative for use on occasions when neither Compass method is practicable.

THE ART OF TEACHING

The final justification for any army is success in battle . . . you cannot have success in battle unless you have a well-trained army, and you cannot have a well-trained army unless you have good instructors. Finally, you cannot have good instructors unless those discharging that function have some knowledge of the art of teaching . . . If you have acquired the art of teaching you can pass on your knowledge and the men under you will

become good soldiers and good fighters. The moral guilt of a bad instructor will be measured by the corpses of his comrades on the battlefield. Yours is a vital job. Take it seriously. Get down to it and determine that you will be satisfied with nothing short of excellence.—*Digested from an article by Capt. S. Feehan in "An Cosantoir" (Eire) June 1943. Condensed from U.S. Military Review for CATM.*

ADVANCED BAYONET TRAINING

This article outlines an exercise for developing "split second" action and alertness in bayonet training. It was extracted from the British War Office Infantry Bulletin for CATM.—Editor.

Stage I

Object: To practise men in the split-second engagement of an enemy at ground level, i.e., in shell holes, fox holes, slit trenches, etc.

Method: Have about eight bayonet ground sacks in a rough circle or rectangle at varying distances from the student. The student at the commencement of the exercise will be in the centre facing any direction. Each sack has a 12-inch circle painted on it. Inside the circle are painted the figures 1 to 8 consecutively. Each sack, therefore, has its own number.

Conducting: The instructor orders any number, viz., "EIGHT". On this command the student rams home the bayonet in any normal or unorthodox manner he chooses. He is not allowed to:

- (a) Change direction before making his point.
- (b) Obtain direction before making his point.
- (c) Pause to consider where the number is.

His next number is rapidly ordered as he is in the act of withdrawing from the numbered sack previously ordered.

Scoring (for competition purposes): For each point which, in the instructor's opinion, would have caused penetration, two points within the 12-inch circle and

one point on remainder of the ground sack.

Points to Note:

1. The numbers 1 to 8 should, in the elementary stages, run consecutively round the circle. They can be varied, i.e., inter-mixed later as progress is made.

2. Men rapidly become good at points to the left or left rear. Points to the right are much more difficult. More training is therefore necessary in this direction.

3. The speed obtained even in the early stages is too quick to be measured even with a stop watch.

Stage II

Object: As for Stage I, except at approximately waist level, i.e., enemy coming from behind trees, hidden in and behind bushes, etc.

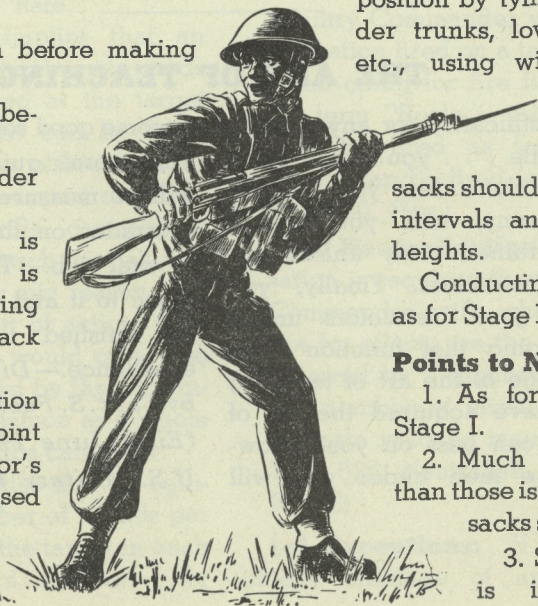
Method: Reconnoitre in close country a group of about eight small trees and/or large bushes with a small gap (large enough for one man with a rifle and bayonet) in the centre.

The site is the same, with eight numbered ground sacks at about waist or chest height. Fix the sacks in position by tying to the slender trunks, lower branches, etc., using wire or, if not available, then strong cord. The sacks should be at irregular intervals and at varying heights.

Conducting and scoring as for Stage I.

Points to Note:

1. As for 1 and 2 in Stage I.
2. Much smaller sacks than those issued as ground sacks should be used.
3. Siting the sacks is important for



the success of this stage. They should be positioned to represent an enemy only half seen behind a tree or behind a bush (so that the student has to lunge right through the bush) or enemy hiding in lower branches, etc.

4. Position student so that there are lower branches forming an obstruction in certain directions. This prevents him from simply swinging his bayonet round in the direction of the enemy. By this means he is compelled on occasions to swing his rifle in a contrary direction to that in which he eventually makes his point.

Stage III

Object: To exercise men *ON THE MOVE* in "split-second" engagement of enemy suddenly located, i.e., in an emergency.

Method: Reconnoitre a "line of advance" through wooded, gorse and shrub covered country which should, if possible, be interspersed with shell holes, trenches, sunken roads and other ordinary obstacles. Lay tracing tape from start to finish of "line of advance" selected. Site the same, with eight (or more) numbered ground sacks at difficult points along the route.

Conducting: The student is ordered to advance at a reasonable brisk walk along the tracing tape. He is told that he must engage with a bayonet any enemy he encounters and that these may be in front or behind him, to right or left, or even up (in trees) or down (in slit trenches, etc.).

Scoring.—As for Stages I and II.

Points to Note:

1. As for 2 in Stage I.
2. The sacks should be varied in size according to the target it is intended to represent, e.g., a small man in bottom of a trench, a large man resting behind a bush.
3. Siting the sacks is of paramount importance. Examples of their possible positioning are:

(a) In and on the near side of a trench so that the student cannot see it until he has jumped, or is jumping, the trench. The result of this is that he has to make a "split-second" decision (sometimes almost whilst in mid-air) to jump, or more often simply fall back into the trench to bayonet his enemy.

(b) Beyond an impenetrable large bush or hedgerow. The student has to decide in a flash whether to go around the bush or through an easily spotted largish gap in the hedgerow at lightning speed.

(c) As the student comes on to high ground, have a sack sited below in such a position that student must jump over a wire obstacle or crash through a bush on to his opponent, pointing as he goes.

4. Progression in this stage can be obtained by having the exercise done:

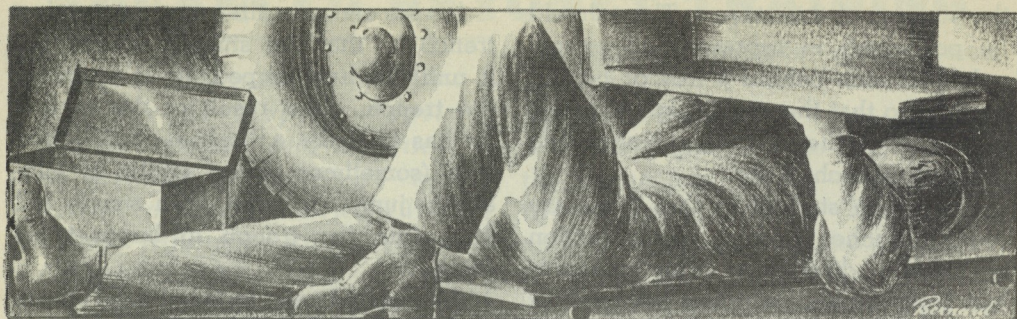
- (a) At the walk.
- (b) At a steady double.
- (c) At half speed.
- (d) At (a), (b) or (c) above whilst passing through a smoke screen.
- (e) In failing light (dusk) and/or first light (dawn).

5. In this stage the direction of the "line of advance" and the position of the sacks should be constantly changed.

THE LEADER

The leader must know what he wants, think rapidly, and tell his subordinates clearly and simply what is desired. The leader should always seek the easy, correct way to perform a task. Very frequently that is not done. The bright subordinate quickly detects the inefficiency of his superior when he does things the hard way.

—Maj. Gen. C. H. Corlett, *Commanding General, XXVI Corps, (U.S. Army).*



RCEME'S JOB FOR UNRRA

Here is another interesting article on the work of the Royal Canadian Electrical and Mechanical Engineers written specially for CATM by the Directorate of Mechanical Engineering, NDHQ. It tells of the work done for the United Nations Relief and Rehabilitation Administration.—Editor.

"Can you overhaul a couple of thousand trucks at the rate of one every 91/2 minutes?"

Of course Ordnance didn't use those exact words, but when RCEME learned all the details that is what it amounted to.

"O.K. Let's have it. Where are these trucks and what do we have to do with them? Are there spare parts available? Can we get the extra tradesmen?"

"The trucks are mostly at New Sarum and Central Mechanization Depot, London, and the spares are available or can be obtained. The men, now that's another question. That's your worry!"

When other branches of the service were letting men return to civil life, and indeed many of the best tradesmen in RCEME were anxious to get back to civilian jobs, that was the picture that confronted RCEME late last summer.

"We have sold 2,284 vehicles to the Mutual Aid Board for UNRRA to be

shipped to Europe before winter sets in. You're familiar with the condition of these 1940 and 41 vehicles; you know what is usually required in the matter of time to put such vehicles in good running condition. This job required that these vehicles be put in shape to operate efficiently with the minimum of trouble for at least another 5,000 miles."

Move By Truck

Without trucks, UNRRA would be unable to distribute food and clothing to the areas in liberated Europe where it was most needed. Damage to railways and heavy losses of rolling stock made it necessary to move nearly all relief supplies by truck. For instance in Yugoslavia, we are told, out of something like 2,000 locomotives in operation prior to the war, less than 25 were in working order when the Nazis left. And again in Albania, from the capital Tirana to Durazzo, some 15 bridges were blown up after the retreating enemy.

Needless to say, any trucks which UNRRA could possibly get, apart from those available from Allied forces on the spot, would have to come from Canada and the U.S.A. These 2,200 trucks then were urgently needed and RCEME's job in reconditioning them would be a notable contribution to the work of UNRRA.

We knew that these vehicles were in poor condition; they had been used in training many thousands of drivers with

little time out for other than necessary maintenance. Many had been exposed for three and four years to the salt air of the Atlantic and Pacific coasts or Newfoundland. We knew that vehicles in a similar condition required roughly 50 manhours for a complete overhaul in RCEME Workshops throughout Canada.

What we didn't know but must determine included the following: What working space would be required? What tools and equipment would such a program require? How much skilled manpower would be needed and could the men brought from many different Units work successfully together? Were quartering and messing facilities adequate for a large detachment of special craftsmen? What arrangements could be made for transportation of personnel between their barracks, CMD and New Sarum? How could the vehicles, many of them "non-runners", be convoyed the 20 miles from New Sarum to London?

Project Gets Underway

Arrangements were made for 500 of the vehicles to be "farmed out" to RCEME shops at Toronto, Camp Borden, Kingston, Petawawa and Queen's Park, London. This reduced the number of vehicles to be reconditioned on this special project to roughly 1,700, but with an estimated requirement of 50 manhours per vehicle it meant that every possible minute must be used productively if the job were to be finished in time.

July saw the start of the program with existing facilities, but as in most emergency jobs of this nature, the first seven weeks or up until the end of August, proved to be an experimental period. By that time it could be seen that ordinary methods would not produce the results necessary to finish the project by the required deadline. How that was finally done is a tribute to the resourcefulness of RCEME officers and

men, with the whole-hearted co-operation of Ordnance, CMD, and others.

In order to avoid bottlenecks in the reconditioning procedure, a plan of line production was developed which decentralized the various phases of the work. As was already known, many of the vehicles were not in running order and there was no way of determining the repairs necessary to make them serviceable. Therefore, at New Sarum the vehicles were "pre-serviced". This consisted of steam cleaning, an "In" Workshop Inspection, an engine tune-up, and a thorough check for defects in electrical system and running gear.

As can be seen, the vehicles arrived at CMD with some of the operations completed. The 20-mile road test enabled the driver to add his observations to the preliminary "In" Inspection form which was then turned over to the CMD Vehicle Section.

Go To Workshop

The vehicles were then delivered to the workshop receiving lanes, Fords in one lane, Chevrolets in another, where the mobile body repair crew effected minor repairs with a portable welder, or moved those requiring major body repairs to the static welding shelters. After mechanical repairs, the vehicles were road tested and delivered to "Out" Inspection lane. If the vehicles



PHOTO INTERPRETATION TEAMS

"Why didn't somebody tell me about this before?" asked the sergeant. He had just finished studying a stereo pair of aerial photographs of a section of the enemy line through which he had to lead a patrol that evening. Turning to his squad he remarked, "I don't think we'll have such a rough time tonight on this job. Take a look for yourselves."

This was the first briefing of a recon patrol by the photo-interpretation team attached to the 44th Infantry Division, then pushing up through Alsace to the German border. It was a new experience for both parties and the beginning of a lively and productive collaboration.

The sergeant, with a five-day growth

of beard and the muddy stains of fox-hole life on his fatigues, was a character out of Mauldin's cartoons. At first he had the normal skepticism about information from the rear concerning affairs up front. However, that morning when the patrol was being discussed in the regimental Command Post (HQ), somebody had remarked that "maybe the PI (Photo Interpretation) team might have some information about that area." Motivated by the not unnatural desire to return with his patrol intact, the sergeant drove back to the division CP for information to supplement his scant knowledge of the enemy positions.

The courier had just arrived with

RCEME'S JOB

(Continued from preceding page)

passed inspection, they were delivered via the wash rack to the stripping area; if not, they were placed in the "Reject" lane and returned for additional work by the original crew. After repainting, they were turned over to the textile area for coach trimming.

After final inspection, defective vehicles were returned to the original crew and the remainder checked for spare wheels, tarpaulins, side curtains, etc., and placed in convoy lines.

The effectiveness of the inspection crews and indeed the quality of the work as a whole, is evidenced by the fact that 564 vehicles were convoyed to Windsor without mechanical failure. Out of some 1,200 vehicles delivered to Oshawa, only 14 required attention and two of these were involved in accidents.

The entire production was based on a "production week" whereby 250 vehicles would have to be completed each week. By working overtime Tues-

days and Thursdays, this weekly quota was completed during every week of the project on a 5-day week basis.

This program proved that by proper decentralization and using a "production line" plan, vehicles can be overhauled on a second echelon basis. Work in static mechanical stalls can be narrowed down, ensuring a constant flow through the ancillary phases. It was only necessary to provide each section or area with sufficient qualified personnel and facilities to maintain their output. Altogether, by adding the times of all operations, each vehicle had 48.2 productive manhours expended on it, which was very close to the original estimate of 50 manhours per vehicle.

It shows too that the Army craftsmen will do a thorough job under intelligent leadership, without the incentive of war, when he is told "what it's all about" and when working conditions and recreational facilities are made as good as possible.

the latest "milk-run" photos. As interpreter, I called the sergeant over to study the areas in which he was interested. (See sketch on page 16.)

The enemy held a road with open ground to the south and to the east over which the patrol would approach. The highway was back-stopped by a corner of a forest which broke away to the north. Roughly paralleling the road was a single-track railway which, on emerging from the forest, swung in a curve to the south. A shell-battered farmhouse lay inside the curve and was believed to be one of the anchors of the German defence. The patrol was to penetrate beyond the road and, as a prelude to a line-straightening attack, was to locate and to evaluate the enemy's defences.

The stereo pairs revealed several shallow defiles up which the patrol could advance. Between the farmhouse and the corner of the forest several weapon pits hugged the shoulder of the road. Tracks leading from these pits evidenced their use as OPs, probably at night. Along the corner of the woods—it was winter and the trees were stripped of foliage—other weapon pits and several likely MG positions, linked by a short trench,

This report, written by Lt. E. Hartrich and extracted from the U.S. Infantry Journal for CATM, indicates the value of air photo interpretation, the importance of which was only too well realized by Infantry patrol commanders in operations. It is important for all officers to realize the necessity of having accurate information concerning terrain and enemy positions before patrols are sent out, and in the periods of training for Canadian Army Reserve Force units this fact must be constantly borne in mind. All ranks must be given practice in studying air photos.
—Editor.

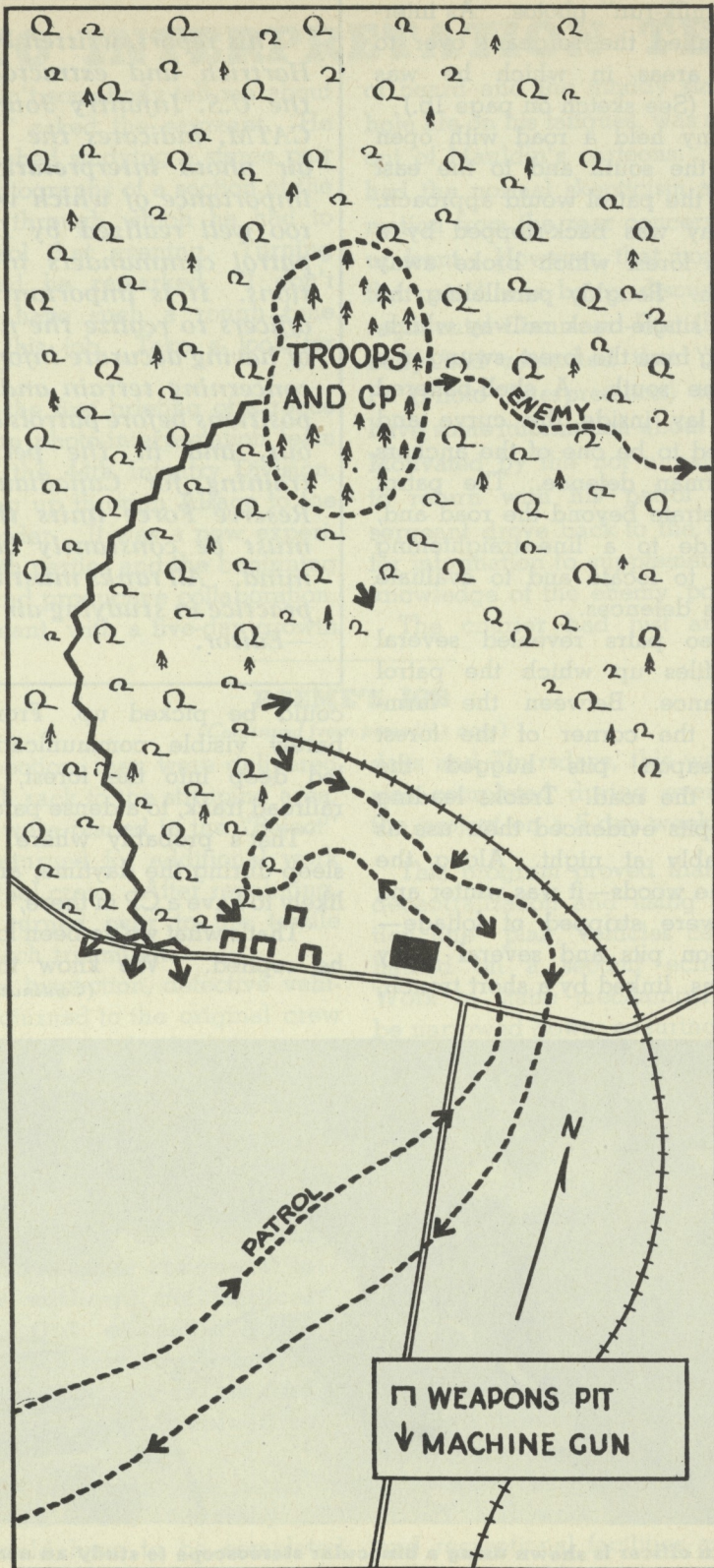
could be picked up. From these a barely visible communication trench led deep into the forest, across the railroad track, to a dense patch of pines.

"That's probably where the Krauts sleep during the daytime, and they are likely to have a CP in there," I ventured.

"That's what we've been looking for," he replied. "We know they are in
(Continued on Page 17)



A Canadian officer is shown using a binocular stereoscope to study an aerial photo.



there but we couldn't figure out where they hide in the daytime."

Further examination revealed several paths leading from the pine thicket to a gully on the north edge of the forest. It appeared that the Germans approached their lines from the rear along these trails.

At the edge of the forest, where the railroad line emerged, was a dark spot in the snow, which I identified as an MG position. Pointing an indignant finger at it, the sergeant said, "That's where they've been firing at us, from just about there, but we never could locate it exactly before."

When the interpretation was completed and all identified German installations were marked on the photos, I asked the sergeant, "When you come back, let us know what you found. You can help us with your ground reports, because we might make a mistake or miss something."

Two days later he was back. His patrol had penetrated the enemy's line to the railroad. It substantially confirmed the original interpretation of the defence installations, which it found manned at night. The patrol did not penetrate the woods to the rear but returned with a first-hand knowledge of the main defences protecting that sector. What impressed me most was that no casualties occurred.

For unlike the interpreter who works with 1:10,000 scale photos at some distance from the shooting, the patrol leader comes to close grips with the enemy. Even in the darkness of night he sees and hears the enemy and locates the occupied positions—provided that he carries with him a mental picture of the enemy's installations. This he obtains from the PI team. This

partnership can be fruitful and supplementary.

Unfortunately, many lower units are unaware that the PI team attached to division can furnish such information. On his own initiative this sergeant made the trip to the division CP and carried away a picture that guided his planning and the actual carrying out of the mission. He knew the danger spots to be avoided; he could chart his course in and out of the enemy line. He did not go out blind.

Several weeks later another patrol went out from an adjoining unit. There was not enough time to brief the men at the PI room. As the patrol approached the enemy lines, a German MG fired on it. This position had been reported previously by the PI team but the information had not filtered down to the patrol. Only four of a ten-man patrol returned that night, a high price for inadequate preparation.

TO THE UNKNOWN LEADER

Whenever we speak and think of the great Captains and set up our military altars to Hannibal and Napoleon and Marlborough and such like, let us add one more altar "to the Unknown Leader," that is, to the good company, platoon or section leader who carries forward his men or holds his post, and often falls unknown. It is these who in the end do most to win wars. The British have been a free people and . . . this tradition of freedom gives to our junior leaders in war a priceless gift of initiative.—*Field Marshal Lord Wavell.*

THE SNIPER IN MODERN WAR



Sniping is the art of the hunter, applied to war. It is hunting with man, the most dangerous of all animals, as the quarry. As long as man has gone to war his Generals have found use for picked bands of specialists, exploiting their skill in the hunter's art, and the accuracy, in their hands, of the hunting weapon of the day. No one, however much of a sniping enthusiast, will claim that the subject is anything more than a side line in the whole ugly business of war. But most commanders, who have fought in the campaigns of the last few years, will be ready to state that it is a sideline that has borne fruit, out of all proportion to the number of men involved.

Sniping has ended up very much on the map. In the Italian hills and on the plains of North West Europe, the versatile Canuck, born and bred in the large cities of Canada, has been turning himself into the hunter, and going out on the hunter's path with the self assurance of the professional.

The sniper's battle is a very personal one. In such lies its appeal to many, and its distastefulness to some. Admittedly there are only a few who hold this latter view, but there are those who hold it as a dirty game, and perhaps cowardly

into the bargain. This view has done much harm towards the development of sniping, and is worth mentioning because it is based on ignorance of the term, which has often been used loosely to cover all manner of assassinations and other crimes. Surely this is a grave injustice to the sniper, who is called upon to do this role. To work alone, or with possibly a single companion, often far forward of the physical and moral support of friendly troops, calls for qualities of which no man need be ashamed. And at the end of it, as the result of individual prowess in the deadly game of individual skills at arms, one enemy machine gunner or sniper or observer may be out of the game for good. And that means, let it not be forgotten, that today, or tomorrow or next week somebody on our side will live who would have died.

If there are occasions when the sniper's attributes find scope in the attack, it is in defence that the bulk of his work is done. The expression and the idea of domination of the enemy by sniping is no new one. That, in fact, is the whole object of sniping in defence; and in the

" . . . this prestige, which the snipers have earned by feat of arms, must be maintained in times of peace." In these words, which appear in the accompanying article condensed from the "Infantry Conference" (England), a plea is made for peacetime training of the sniper. This material was submitted for use in CATM by the Directorate of Infantry, NDHQ.
—Editor.

campaign in North West Europe, from "D" Day to the end, this object was achieved in no small measure.

It was a surprise to some people to find that the battalion's sniping team, consisting of eight men, when given their chance, were able to influence the security and morale of their whole battalion and not infrequently to influence the actual course of the battle.

Sniping is a weapon of opportunity, but the sniper can be used offensively to stalk an enemy, or defensively to lie in wait for the enemy to come to him. A sniping policy must be offensive to be effective, and in most cases will be a mixture of alternately stalking and waiting. It is a wise commander who positions his snipers to hit at enemy preparations and thereby cover his own.

This is the direct opposite of the "live and let live" policy, which allows the enemy to sum up our dispositions at his leisure. Anyway, those units who used their snipers offensively are emphatic about the results achieved in wresting the initiative from the enemy. The beauty of the system of the sniper section, sometimes taking over the sole responsibility for the rest of the battalion's security, was the extreme economy of manpower. This, of course, normally applied only to the hours of daylight, but not entirely, because many an incredulous German patrol has been decimated in a moonlight night by a pair of snipers using a telescopic sight.

An important thing to remember is that in 1940 we were told that sniping was dead, and that view still persisted until 1943 when our armies ran into Germany's well-trained snipers in Tunisia. Only when we crossed to Italy and continued to lose officers and NCO's, would people believe that

sniping had come alive. Training in sniping in England had long since died and hurriedly produced equipment was unsatisfactory.

School of Sniping

Late in the autumn of 1943 a small School of Sniping was set up. Their task was to evolve sound training to workout needed alterations to equipment and to "sell" sniping to an uninterested army. It was urgent to get sniping on some sort of footing by "D" Day as we knew that the German had great experience and efficiency in the subject. By last winter (1944), we had undoubtedly beaten the enemy sniper, and were taking constant toll of his side, with very few losses on our own. But what can only be described as aggravating is the fact that we had developed an excellence in training, and we had developed very good equipment by the end of the last war; and in the interval we threw both gratuitously away.

And in the last war we only managed just in time, because in 1914 the Hun took complete mastery of the trenches, with his skilled Corps of snipers; and only at the end of 1915 were we brought, in desperation, to start a counter-organization, which only gained supremacy after a long struggle, and the loss of many lives. The parallel between the story of sniping in this war and the last is clear enough. In both we see the same apathy and lack of training, the same lack of equipment, the same toll of British lives and British leaders, in each case the enemy's flying start, with a belated struggle to catch up with him and, be it noted, in the end beat him.

History in fact has repeated itself, word for word. Fortunately today sniping is in a strong position. Plenty of interest has, for the moment, been awakened as the fruit of no inconsiderable success. We

have good, if not perfect, sniping equipment, and the sniping section established in its place at battalion headquarters, with a sound code of training evolved.

But those who are interested in the game are perturbed at the insidious danger of history repeating itself once more. We have got to keep the thing alive in the Army, and that can only be done by keeping the Army itself alive to the danger. The task of sniping is not one to be undertaken without preparation, or on the spur of the moment. To do this rarely brings success, and often results in needless loss of life. Success comes only by hard training, followed by careful planning and reconnaissance, coupled with confidence, and a burning desire to seek out the enemy.

Careful selection is needed to find the right men to take on the job. Often the potential sniper is also the potential NCO, for it must be realized that mere promise as a shot is not enough. Certainly a standard of marksmanship, far higher than that aimed at in the ranks, will be demanded of him. But most men, with careful training, can achieve this.

Attributes Required

More important are the attributes of character, intelligence, self-reliance, and physique; for the sniper has a multitude of things to learn about his trade, and once initiated, must become his own general, self-sufficient, self-disciplined, patient, and enduring. He must be cunning to outwit his prey, and absolutely truthful in giving account of his doings. There is no room for the sniper with fishing stories. But these men will not be forthcoming unless the officers of the battalion are taught to esteem the snipers on the highest level. This they have learned to do at the present day; and somehow this prestige, which the snipers have earned by feat

of arms, must be maintained in times of peace. Time has been short, and the expert is not made in a fortnight.

SECRET EAST INDIES BASE

(U.S. Military Review)

On the convoy route to India on the small coral island, Addu Atoll, part of the Maldive group of islands about 500 miles west of Colombo, a force of Royal Marines constructed a secret naval base in the Indian Ocean in preparation for any offensive the Japanese might launch in the Far East.

The base was begun in September, 1941, before the Japanese struck at Pearl Harbor. The Marines, drawn from the first mobile naval defence organization, worked against time and tropical disease to hack out of the jungle a fleet anchorage. The port was of great strategical importance, lying on the convoy routes round the Cape of Good Hope or Suez to India.

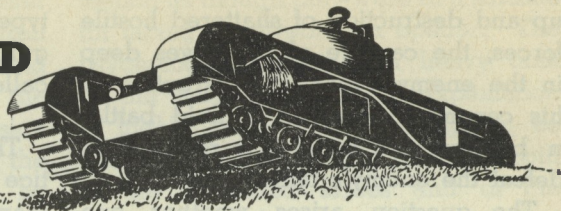
First Convoy

Four months after the Marines landed, the first convoy of five troopships, escorted by the cruiser HMS Emerald put in to water and fuel. Afterwards, the port was used regularly by troopships and naval vessels. In 1942 the Queen Mary stopped at the island, carrying returning Australian troops from the Middle East back to their country.

The base, which was called Fort T, was quickly built, though disease played havoc with the working troops. More than 23 percent had to be evacuated in the first three months. Coastal batteries, searchlights, signal towers, roads, camps, administrative buildings, and jetties were constructed, and the surrounding islands were linked together by causeways. Batteries of guns controlled the approaches.

All these difficulties were surmounted, and the base formed a vital link in the chain in the Far East and Australia.

THE ROYAL ARMoured CORPS OF THE FUTURE



Development of armour by the Allied Forces during the Second Great War and what the future role of tanks may be is told in this article. Extracted from the "London Times", it was submitted for publication in CATM by the Directorate of the Royal Canadian Armoured Corps, NDHQ.

At the conclusion of every war ideas go into the melting pot. On this occasion there is a bewildering volume of ideas about armoured warfare. Developments have been many, varied and rapid, and they continued up to the very end. Now there is time for reflection and room for experiment, which it is most important should continue in peace.

The question of tank tactics, fairly simple at the outbreak of the war, became complex before it ended. The minefield, first revealed as a formidable defence when the French closed up to the Siegfried line in 1939, never lost its potency and contributed its own development in the shape of mines not responding to magnetic influence. Anti-tank artillery and ammunition were steadily improved.

The tank, supported from the air as early as the Polish campaign of 1939, was in later stages attacked from the air either directly or through the medium of artillery ranged from aircraft. One-man weapons proved unexpectedly successful, particularly in close or broken country.

Armoured forces committed to the offensive experimented fruitfully with local defensive tactics, luring on the rash opponent, to knock him out as a preliminary to their own advance. Tactics varied widely in accordance with conditions, so that armoured warfare was conducted at one time by the great German convoy, with the armour in front and on the flanks and the soft-skinned vehicles inside, such as operated on the Russian plains and on a smaller scale in the Libyan desert, at others by the couple of Shermans got by hook or by crook across the gorge of an Italian river to support a hard-pressed bridgehead position, or the single Tiger lurking for prey in a copse in the Norman Bocage.

The tank also took over new functions with which it had had no previous associations, developing specialised forms in the process. It became a flame-thrower, a mine-sweeper, a mobile armoured searchlight, a mobile bridge. One type carried a petard for use against concrete. Another type became amphibious.

If, in search of simplification, we ask the question "What is a tank for?" we may thus get answers not altogether simple. From the tactical point of view, however, the complications and the derivatives may be disregarded and the reply reduced to something in the nature of the following:

A tank is required for fighting at close quarters in a tight battle in association with infantry; it is also required for the break-through, the

exploitation, the pursuit, the rounding up and destruction of shattered hostile forces, the capture of objectives deep in the enemy's rear, the disruption of his communications in a fluid battle; in both sorts of battle it is required to defeat the enemy's tank.

The question arises whether one type of tank can accomplish all these things. If it can, everyone would prefer to do with one. Can it be equipped with the thickness of armour and the gun-power necessary for the maul and at the same time the speed, the ability to cross normal bridges, and other qualities necessary for the wide ranging?

Armour And Gun-Power

It must be borne in mind that armour and gun-power are closely inter-related. Thick armour enables a tank to close in and may thus enable it to get full value from a gun not quite as good as that of the enemy; compensate for thinner armour because it can knock out the hostile tank at long range. The tank man's ideal may be expressed in the words of Schiller's Joan of Arc: *Der schwere Panzer wird zum Flugelkleide*. But no one has yet invented heavy armour which will serve as a flying suit.

This country began the war with the theory that two types of tank were required, and, though this is not always remembered, with a fairly good close-quarter or infantry tank, the Matilda. The Germans, with their immense superiority in resources and preparedness, supremely confident of smashing any opposition which might be encountered, did not trouble about an infantry tank at first. But very soon—the decision was taken well before they were forced on to the defensive, and tentative prototypes were made before the war—they began to produce two: the Tiger, purely for the tight battle; the Panther, lighter, faster, and with more power of manoeuvre. It is known that they were going much

farther. They turned out the prototype of a tank of 180 tons, with a 12.8cm. gun, 23 ft. long, which was to have been called the Mouse.

Greater Weight

The Germans also adopted the practice of mounting the gun next heavier than that mounted in the tank on a tank chassis, sacrificing all-round traverse and armour for the crew in favour of greater weight of projectile and longer range. The heavy self-propelled gun proved a first-class weapon, but they did not regard it as replacing the heavy tank, and there is little evidence that it did so either with them or with the British and Americans. It was, however, invaluable for experimental purposes, the heavy self-propelled gun of today being the heavy tank of tomorrow.

The British followed up their early heavy tanks with the Churchill. It started badly owing to its production having been rushed, but was successfully reconstituted and proved efficient. In the testing country of Tunisia, particularly as used by an exceptionally fine armoured regiment, the North Irish Horse, it restored several ugly situations and gained a great deal of credit, but it could not be armoured like the Tiger or take a powerful gun. It had no successor in the British forces while hostilities lasted. Field-Marshal Montgomery has expressed the view that only one type of fast tank is required, and it is therefore to be assumed that he did not press for the production of a successor to the Churchill to be accelerated for the western invasion.

British Experience

Field-Marshal Montgomery was going into a campaign which he intended should be offensive throughout. He could confidently expect air ascendancy and great artillery superiority, as well as numerical superiority in tanks. He has been in one the architect and builder of victory. His view

is more valuable than that of any other single man. But he would not himself suggest that it is sacrosanct or should be immune from examination in the light of such evidence as the outside critic can obtain. And some of the evidence about the part played by the German heavy tank is remarkable.

In the Tunisian campaign there was a time when the Tigers in the theatre are believed to have numbered less than a dozen, and yet this force represented on land what the Bismarck represented at sea. On one occasion it was attacked by a force of Shermans some 15 times its own strength, which lost 20 tanks before the Tigers drew off.

It is submitted that the whole picture in Tunisia would have been different had the Allies possessed even a handful of first-class heavy tanks.

In Normandy there may have been some Tigers and Panthers in the German armoured divisions, but the real strength of the enemy in heavy tanks is believed to have lain in two detached battalions. Yet this force temporarily came near to dominating the battlefield. The heavy tanks were effective against all arms. On the other hand, on July 18, 1944, three British armoured divisions attacking side by side, after one of the heaviest air bombardments in history, were held up with loss by German anti-tank batteries, which the cruiser tanks could not face. When the German front broke, the cruisers came into their own and thoroughly proved their value, but when the warfare again became close on the German frontier the heavy tanks once more played havoc with the Shermans.

The Allies could afford the loss of the tanks, but not that of the crews. A factor on which all the "user" evidence, that of squadron and troop commanders, is insistent is the moral danger of sending men into action time after time

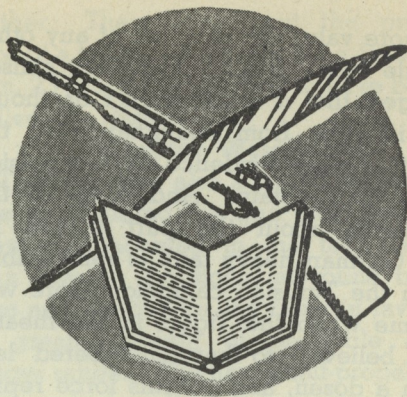
feeling as though they were in a sardine tin facing a powerful tin opener. The psychological effect of a heavy tank in the early stage of its exploitation is highly important. It is apt to be classed as "invulnerable" by men both of the armoured forces and of the infantry, and their reaction may affect the whole conduct of operations. On the Allied side the rocket-carrying Typhoons of the RAF did much to even the balance, and without them the position would have been parlous. Yet it does appear that a strong case can be made for the heavy tank for close fighting and that this question should be accorded earnest consideration in planning for the future. In such a tank mobility can, to a large extent, be sacrificed to armour. Here the German heavy tanks, when contrasted, point the lesson. The Panther was probably the "prettier" piece of work, though rather the less reliable, but it was the more vulnerable, and consequently it never had a tithe of the Tiger's success.

If the heavy tank is to be maintained in the Royal Armoured Corps its place is not the armoured division. It is essentially a reserve weapon for special brigades or even, in a post-war army, special battalions. It might be grouped with the collection of specially-equipped tanks mentioned earlier in this article, which in the 21st Army Group were placed in a formation known as the 79th Division.

Careful Study

However that may be, its abolition should not be decided upon without careful study. And the first step in such a study would manifestly be a series of unbiased appreciations of the armoured fighting in North Africa, Italy, Normandy and the Rhineland, including the evidence of German commanders, with a view to deciding whether its presence would or would not have produced quicker and less costly results.

CANADIAN ARMY EDUCATION



HOW IT'S DONE AT A16

Keeping in mind the fact that the Rehabilitation Training Programme attempts to prepare the soldier for civilian life and seeks to develop his native aptitudes into the skills necessary for his making a living as a civilian, the education staff at A-16 CITC, Calgary, Alta., decided upon two procedures by means of which it was hoped that every man contacted would gain considerable value even though he might be posted out of the centre before completing his course of training.

Screening Interview: The first procedure was that of the screening interview. A man who had no job to which he might return, or who signified that he wished to change his job, was classified along with those who definitely stated that they wanted specific training. The man was first interviewed by the Army Examiner who on the basis of native aptitudes, background, and previous experience, estimated the man's relative chances of success in various types of work. The man who had no idea of what he was going to do was advised as to where his general aptitude lay in order that he might, if he wished, prepare for work along that particular line after being discharged.

A Plan For Each

All men interviewed by the AE were then referred to the Army Education Officer who assumed the responsibility of planning a course of training for the individual man by making use of all available material on University, Canadian Vocational Training (CVT) courses,

and those courses offered within the training centre. As each man was interviewed he was given a plan on which he might work. Academic prerequisites to technical courses were pointed out, and the institutions where these courses could be secured ascertained.

The value of the screening interview has been demonstrated by the number of further inquiries made and by the number of men who have begun preparatory and refresher courses.

Instructional Technique: The second procedure examined by the education staff was that of instructional technique. To ensure that each man coming for shop instruction should receive the maximum benefit from even a short period of training, all instructors re-arranged their courses so that each lesson was a complete unit of work in itself, no matter how small it might be, and regardless of the fact that the man might never complete enough units to cover the equivalent of the original 100-hour course. The principle involved was that of giving enough theory to permit practical work representative of the kind of skill to be carried on. Thus, based on the man's aptitudes and on his background, the instructor would present the type of training required. Within a very short time the man would be able to say, "This is going to be my trade," or "It's not what I thought it was going to be." In either case, the

experience would be of value to the man in preparing for civilian life.

Commercial instructors used a similar technique in appraising personnel requesting training in typing, shorthand, and bookkeeping. Enough basic instruction was given to enable a man to decide for himself whether he was suited to this type of work or not. A man who remained a week was capable, on the average, of carrying on by himself with the help of basic technique he had gained.

May Be "Rusty"

In considering requests for academic training the instructors kept in mind the fact that after a number of years of Army life a man's school record might mean little because of his gaining knowledge and new skills on the one hand, and because of his becoming "rusty" in certain knowledge and skills he had acquired in pre-war days. Thus, credit for much general knowledge obtained in Army courses and from Army experience would not be found on academic

records. Conversely, a man with Grade XI mathematics credited to him on his school certificate would rarely have Grade XI mathematics in his head. It would be extremely difficult for him to carry on with Senior Matriculation mathematics without an adequate review.

Before registering for a course, therefore, it was important that his actual knowledge be ascertained. To this end the academic staff devised several graded tests, remodeling them where necessary from time to time, until a test was developed which gave sufficient information for a fairly accurate placing of students in each subject. Every student was given this placement test as part of his first day's work. The results were explained to him, and he was advised regarding necessary refresher courses before commencing more advanced study.

Since CLES Correspondence courses are generally self-explanatory, the instructors have concentrated on the man's basic education.



A screening interview in progress.

SO YOU WASTED YOUR TIME!

This is a condensation of an article written by the District Education Officer, M.D. 12, and published in "The Beret", a publication of the 8th Infantry Training Battalion, Maple Creek, Sask. It claims that, contrary to the opinion of some, the soldier has learned many things during his time in the army.—Editor.

Have you considered just what you imply when you say: "My time in the Army has been wasted?" That a fond parent should think the four or five years wasted is one thing. But you have been through it, through the training and experience. Wasted? I wonder. Let us give it more thought.

In most of your army experience you have had a sense of physical fitness. Oh, I know. P.T. in the cold grey dawn was a bore. But there was that feeling of well-being, the satisfaction of being able to take it when the going got tough. It will be good to take back to civilian life the knowledge that a bit of exercise and sport can give that fitness. Things get tough sometimes in civilian life, too.

Discipline

Then there is that thing called discipline. It is a prominent part of service life. And as in civilian life there was a stage when it was imposed by someone else. At home and at school there had been the "do's," the "don'ts," and "mustn't's." But gradually, if it was a good home and a good school, we became part of the team and imposed the discipline on ourselves. The army was like that, too. Gradually we became part of the team and we knew, sometimes from tragic experiences, that breaches of discipline could be measured in terms of the lives and safety

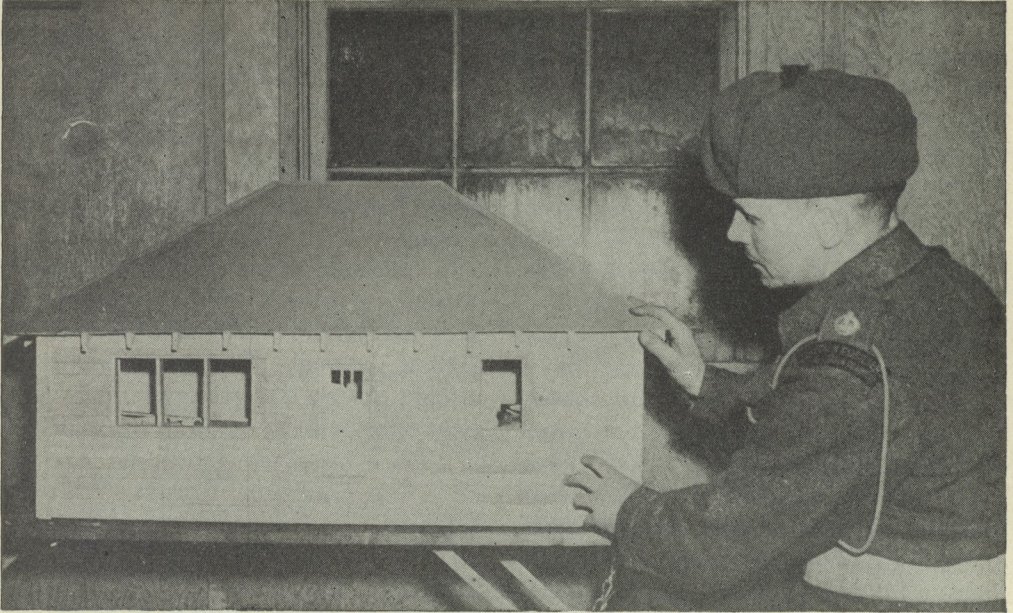
of our buddies. That is a valuable lesson for the peace time, too. Make no mistake about it, the winning of the peace will call for a discipline of at least as high an order as that required in the army. If you have realized the value of discipline and team work in your army experience, you haven't wasted your time.

We've heard a good deal about man management, too. The army was one long experience of managing and being managed. Courses in Job Training—Instruction, Methods, Relations—were held in Canada and Overseas and some 16,000 soldiers were trained in these. Your experience in getting on with or being in charge of men in the army is valuable experience. There isn't much you can do in civilian life that won't prove its value. Time spent in gaining it was hardly wasted.

And that part of man-management that involved instruction, that's valuable too. Were you an instructor? The experience you gained in passing on to others a bit of information or a skill is very much in demand in civilian life. No, it doesn't make you a school master right off the bat. But it is a good foundation if you do go in for school teaching. And it is valuable experience in other employment if you have to show how a thing works or how to do something.

But let me go back to emphasize one point again. Team work. Depending on the other members of the team became almost second nature to you in the field. You played your part there, too. The team work was there from the closely integrated planning and carrying out of Combined Operations to the job of an Infantry section

BUILDINGS AND BUILDERS



Canadian Army Photo

Maj. W. Nuthall, of London, Ont., instructor in the Building Construction course for soldiers at Camp Ipperwash, Ont., inspects the partially completed red-roofed model house built by Sgt. DesRosiers, sergeant-cook at the Camp. Sgt. DesRosiers hopes to build such a home for himself.

These notes on the Educational Training Program at A29 CITC, Camp Ipperwash, Ont., were prepared by Maj. D. A. Sutherland, M.C., District Education Officer for M.D. 1. They outline the work being done in the Camp's workshops.
—Editor.

With Civvy Street just around the corner and visions of shortages of skilled workmen and construction materials that may adversely affect their cherished plans, many soldiers at Camp Ipperwash are learning a lot about building construction. They intend to have a hand in building their own homes when they get out of the Army and so avoid some of the impact of the housing shortage, so far as they themselves are concerned.

The workshops in this Camp are hives of industry; here are found, in various stages of development, model houses which may some day be replaced by full scale structures in the town or cities of Western Ontario.

Some time ago Maj. D. R. Brown of Kitchener, now retired from the Army, build a model house at the workshop. This spring he plans to erect in his home town, a house on the scale of the model he built. The estimated cost is \$8,500.

Sgt. DesRosiers, the sergeant-cook at the Camp, built a very fine model house. He plans a full scale model some day in his home town, Windsor.

Experienced Instructor

Maj. W. Nuthall of London, Ont., gives instruction in this course. After the first Great War, he was manual training instructor in the Department of Soldiers' Civil Re-establishment at West-

POST-WAR MINESWEEPING

A hundred British minesweepers are engaged on the greatest sweep of the war—the clearance of the vast defensive mine barriers laid around the shores of Britain to protect coastwise shipping. A hundred thousand moored mines were laid in these barriers during the war and, although some broke away in gales and drifted ashore, many thousands still remain. In addition, there are hundreds of enemy ground mines—magnetic and acoustic or a combination of both—which lie outside the war channels and were not swept during hostilities. Large areas have already been cleared to allow free passage for ships and fishing craft, but the task ahead of the minesweepers

is still formidable.

The mines in these fields are being cut and sunk, for they have little value as scrap. The TNT with which they are filled would be worth little, and there is nothing in their cases that would repay the cost and labor of salvage.

In addition to the eleven flotillas at present engaged, 22 special minesweepers have been built to operate in shallow waters. Sweeping was restricted during the winter months. The main effort will be made in the summer of 1946.—*Digested from an article in "The Fighting Forces" (Great Britain). Extracted from U.S. Military Review for CATM.*

BUILDINGS

(Continued from previous page)

minster Hospital, London. He has had a life-long interest in this type of work and he finds keen satisfaction in coaching the new veterans.

Distinctions of military rank scarcely exist here. Rear-rank privates and full-fledged field officers work shoulder to shoulder at carpenters' benches building models of their own design. They do not limit themselves to models of houses but pay some attention also to making furniture for their homes. For example, Maj. Ross of Stratford and Sgt. Tobin of St. Mary's have worked together in the building of a side table. Cpl. Jones of Windsor and Sgt. Soners of Sudbury are working together on a bookcase. And so the story goes. There is no lack of interest in this work. Model houses, a piece of furniture, every bit of the work is done with keen concentration. No activity has created more interest than this training in building construction which they are enabled to participate in as they await their return to Civvy Street.

TIME

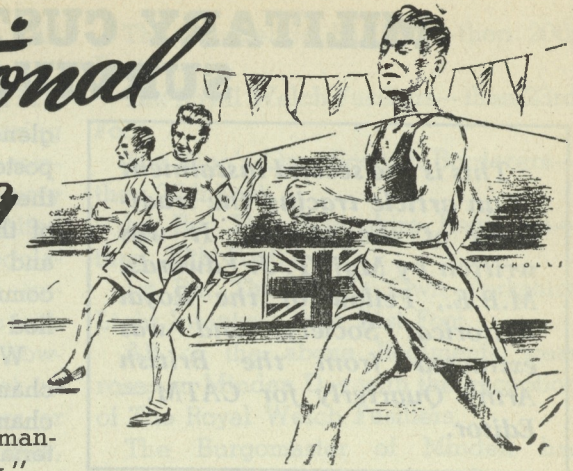
(Continued from Page 26)

working smoothly in impossible situations. Team work is needed on Civvy Street, too, though its need may not seem so obvious. It is always harder to win through in peace time but it is the way we can make our victory count. Let your experience in team work with your unit make you a good member of the team on Civvy Street.

Credit Side

That lists just a few of the service experiences that can well be written on the credit side of the ledger. No mention has been made of the advantages of travel (even in a troopship), of seeing new places and meeting new people. What you do with all this experience depends on you. Your time in the army wasted? I think not, unless, of course, you throw away all the valuable experience you have gained. You are not likely to do that.

Recreational Training



SPORTSMANSHIP

It has been said "without sportsmanship there could be no democracy."

Necessity created the "Posture and Play Plan" for the Canadian Army; it embraces Physical and Recreational Training, and in addition to the obvious physical benefit to be derived from this form of training there is another advantage: prevention of crime.

A large number of courts martial was reported recently in one Military District. Evidence proved that in almost every case lack of interest in the army was a factor in the delinquency. It was also revealed that in the majority of cases *no interest had been taken in school games or sports, due, no doubt, to lack of encouragement and direction.*

These men, therefore, had never learned to mix or co-operate with others.

Make sure that *your* unit has a well organized program of Physical and Recreational Training. Remember, if a sporting spirit is lacking it is likely due to the lack of leadership, the lack of proper leadership with initiative, and a creative plan to suit the circumstances.

Never forget the necessity for *coaching* the individual in the fundamentals of the game; it makes him feel welcome and confident that he is progressing and becoming a part of the team.

While one army is being demobilized in Canada, a new army is being organized. It is the responsibility of all instructors to see that the peacetime army is made sport-minded. Physical fitness depends on games well played, and the future of our army depends on that.

"Be fit, for honour's sake, be fit."

RECREATIONAL SHOOTING AT CAMP BORDEN

With 19 teams composed of 36 persons competing, the first Commander's Recreational Rifle Shooting Contest was held at Camp Borden recently. Teams were composed of six men each, as well as one CWAC team.

Following are the results for the men's team, place, unit, team and score being given in that order, the possible being 600: 1st, LSH, No. 4, 564; 2nd, A22 CAMC TC, No. 2, 563; 3rd, LSH, No. 1, 561; 4th, No. 15 Company RCAMC, CHQ, 552; 5th, LSH, No. 5, 547, and CAC, No. 1, 547 (tie); 6th, CWAC, No. 1, 545.

Women contestants: 1st, Lt. (N/S) E. J. Wallace, CBMH, 97; 2nd, Sgt. M. Dick, CWAC, 96 (possible 100).

MILITARY CUSTOMS AND SURVIVALS

This is the second instalment of an article tracing the traditions of the service. It was written by Maj. T. J. Edwards, M.B.E., Fellow of the Royal Historical Society, and was extracted from the British Army Quarterly for CATM.—Editor.

The Cameronian's Annual Conventicle: The 1st Bn. The Cameronians (Scottish Rifles)—the old 26th Foot—commemorates its raising in 1689 by a custom as interesting as it is unique. One of the saddest phases of Scottish history is associated with the repressive measures authorized by Charles I, Charles II and James II against the Presbyterians in Scotland. An extreme sect of the Presbyterians was led by Richard Cameron, the adjectival form of whose name is perpetuated in the title of this Regiment.

Charles I's attempt to thrust the Anglican Book of Common Prayer upon Scotland drove the majority of the people to enter into a National Covenant. These dissenters met for religious worship in private houses until they were prohibited by Charles II's Conventicle Act. Such measures only drove rebellion underground, and the militant Covenanters had many clashes with the Regular troops sent to enforce the law.

Picquets Posted

It was in these circumstances that The Royal Scots Greys and The Royal Scots Fusiliers came into being in the latter part of Charles II's reign and were employed originally against the Covenanters who had resorted to holding their meetings in the confines of the

glens. During such meetings they posted picquets on all the approaches to their meeting-place to give warning of the approach of the King's troops, and the service did not begin until the commander of the picquets had satisfied himself that all was safe.

When William III, the Protestant champion, came to the throne matters changed considerably for the Presbyterians, who raised for the new King two regiments—The King's Own Scottish Borderers and The Cameronians. The King's Own Scottish Borderers were raised by the Earl of Leven in March 1689, but the followers of Cameron were a bit suspicious of William and of General Hugh Mackey, the General Officer Commanding in Scotland. Eventually their fears were dissipated, and they raised a regiment from among the Cameronian sect, under the colonelcy of the 18-year-old Earl of Angus, whose Commission is dated the 19th of April 1689.

The original organization of this Regiment corresponded in some features to a Presbyterian congregation: each company had an elder and every man carried a Bible in his haversack.

In commemoration of the unique origin of the 1st Bn. The Cameronians, a Conventicle is held at Douglas in Ayrshire annually. Picquets are posted as in the old proscribed days and the full ceremonial of a Conventicle is carried out as far as possible.

In token of its covenanting origin this Battalion always marches to church without either the band or pipes playing. In addition to the Annual Conventicle, it also sends out picquets whenever it holds a religious service in the open, and the service does not begin until

the picquet commander reports "All Clear" to the commanding officer.

Wearing of Emblems with Uniform: The custom of wearing emblems in various forms to commemorate important events is very ancient and is not entirely prohibited in the Army, although "King's Regulations" prohibit the wearing of unauthorized ornaments and emblems with uniform. General authority is, however, given for all ranks when not on duty to wear their national emblem or flower on their respective Saint's day, i.e.:

Rose on St. George's Day (23rd of April) for English personnel.

Thistle on St. Andrew's Day (30th of November) for Scottish personnel.

Leek on St. David's Day (1st March) for Welsh personnel.

Shamrock on St. Patrick's Day (17th of March) for Irish personnel.

All ranks are permitted to wear a poppy on Armistice Day (11th of November).

Minden Day (1st of August): Of the more particular types of emblems worn perhaps the "Minden Roses" are the best known. The battle of Minden was fought on the 1st of August 1759, during the Seven Years' War, when the British and their Allies heavily defeated the French.

The origin of wearing roses to commemorate this victory lies in the fact that as our troops marched across Minden Heath they plucked roses from the briars in their path and stuck them in their coats and hats. There are six "Minden" regiments, viz:

The Suffolk Regiment—then 12th Foot.

The Lancashire Fusiliers—then 20th Foot.

The Royal Welch Fusiliers—then 23rd Foot.

The King's Own Scottish Borderers—then 25th Foot.

1st Bn. The Hampshire Regiment—then 37th Foot.

1st Bn. The King's Own Yorkshire Light Infantry—then 51st Foot.

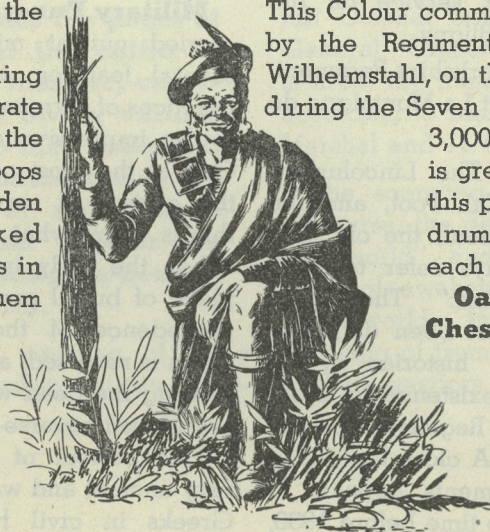
All of the above Regiments wear roses on Minden Day with the exception of The Royal Welch Fusiliers.

The Burgomaster of Minden has presented to The Hampshire Regiment some rose-briars which flourish at the depot at Winchester.

St. George's Day: The ancient badge of the old 5th Foot, now The Royal Northumberland Fusiliers, is the well-known device of St. George killing the Dragon. This Regiment honours St. George by carrying out the ceremony of Trooping the Colours upon each 23rd of April, when the Colour pikes are decked with wreaths of red and white roses and the drums are also decorated. All ranks wear red and white roses in their headdress.

In addition to the two regimental Colours, a "Drummers' Colour" is also similarly decked with a wreath and trooped by the 1st and 2nd Battalions. This Colour commemorates the capture by the Regiment, at the battle of Wilhelmstahl, on the 24th of June, 1762, during the Seven Years' War, of about 3,000 French. The Colour is green and is carried on this parade by the smallest drummer then serving in each battalion.

Oak-leaves of the Cheshire Regiment: It was an old custom of The Cheshire Regiment to wear oak-leaves in their headdresses and to carry wreaths of oak-leaves



on the top of their Colour pikes on certain occasions, such as when members of the Royal Family are present, a birthday of the Sovereign, on Proclamation Day in India and on the anniversary of the Battle of Meeanee—17th of February. The battle was fought during the war in Sinde in 1843.

Cockades: The wearing of cockades was as much a civil as a military practice centuries ago, but it gradually fell into disuse. In the Royal Warrant of 1768 all ranks were ordered to wear a black cockade in the hat, but this in time gave place to tufts, backles and plumes, such as are now worn with bushbies and bearskin caps. The regimental patches on foreign-service helmets is a survival of this practice, but there are a few units which are permitted to wear cockades proper. In these cases the cockades commemorate distinguished service in co-operation with French troops during the Great War, and the cockade is made of the colours of the ribbon of the French Croix de Guerre.

The units are:

2nd Bn. The Devonshire Regiment, granted for their exploits on the Aisne in 1918.

4th Bn. The King's Shropshire Light Infantry, granted for service on the 6th of June, 1918, at Bligny.

8th Bn. The West Yorkshire Regiment, granted for services at La Montaigne de Bligny in July, 1918.

Army Cousins: The Lincolnshire Regiment, the old 10th Foot, and the Worcestershire Regiment, the old 29th and 36th Foot, always refer to each other as "our cousins." The origin of this custom has not been definitely established, but the historian of the 29th Foot traces its existence to about the 1830's when this Regiment and the 10th were in India. A close friendship between these Regiments appears to have existed for some time before 1830,

and in the 1840's this was sealed by the 10th making the 29th officers permanent honorary members of their mess and, it is said, the adjutant of the respective Regiments addressed each other as "My Dear Cousin" in correspondence.

Exchange Messages

This relationship is as close today as ever it was, and expression is given to it by the prevailing custom of an exchange of telegrams on the anniversary of the battle of Sobraon—10th of February, 1846, fought during the first Sikh War—in which both Regiments took part, and, further, that whenever The Lincolnshire Regiment troop the Colour, the official regimental march of The Worcestershire Regiment—the "Royal Windsor"—is always played by the band and drums when marching from the left to the right of the line. And again, this march is always played by the band of The Lincolnshire Regiment at the conclusion of any programme before the playing of its own regimental march. The converse practice is observed in The Worcestershire Regiment—the "Lincolnshire Poacher," the regimental march of The Lincolnshire Regiment, being played when they troop the Colour and in band programmes.

Military Funerals: The ceremonial carried out at military funerals has several features which remind us of practices of bygone days and which add to the impressiveness of the occasion. One of the most noticeable features is the custom of reversing the order of things from what they are normally. When the body is being taken to the place of burial arms are reversed, the precedence of those who follow the coffin is reversed, and if a horse follows bearing the dead warrior's boots, these are placed reverse-wise in the stirrups.

This custom of reversing things is very ancient and was carried out by the Greeks in civil funerals as well as

military. When Sir Philip Sidney was buried in 1586 the troops who accompanied the cortege to the ship at Flushing, for the conveyance of his body to London, "trailed their swords and muskets in the dust." At the state funeral in London there were in attendance "300 citizens trained for war, all holding their weapons reversed." Captain Venn, a well-known military writer of the 17th Century, refers to "pikes trailing reversed" at the burial of a "private soldier." The carrying of muskets in the reverse manner is supposed to have been first done at the funeral of the great Duke of Marlborough in 1722.

Horse Also Buried

In ancient times it was a practice which our Saxon forefathers perpetuated, of burying a warrior's horse with him. As late as the 18th Century it was the custom in some European countries to bury the chargers of great military commanders with their late masters. The idea behind the practice was that they might be of use to their masters in the next world. We do not follow this practice, but we remember it in the present-day custom of leading the charger to the graveside behind the coffin.

In former times the pages of nobles followed the coffin of their deceased masters, carrying the regalia of the various Orders to which they belonged. This is perpetuated to-day by the carrying of an officer's decorations and medals on cushions by insignia-bearers behind the coffin.

The origin and meaning of firing three volleys of musketry at the grave-

side do not appear to have been established beyond question. Fortescue (Vol. 1, p. 90) states that "the musketeers fired three volleys over it (the corpse) in the name of the Trinity"—this in reference to the 16th Century.

Referring again to the burial in London of Sir Philip Sidney, the account states that "Rounds of small shot were thrice fired by all men present and from the great ordnance on the walls two volleys were discharged as the corpse was taken from the shore" in Holland to the ship; and at the London burial—"a double volley of shot from the church-yard informed the world outside that Sir Philip Sidney had been buried."

Usual Custom

However, three volleys seem to have been the usual custom from the 17th Century onwards, and might possibly have had its origin in the pre-Christian era practice when the pagan warriors cremated their dead comrades. At these ceremonials they rode on horseback round the burning pyre three times. Originally the volleys were fired inside the church, but the smoke and noise soon caused that practice to cease. At the present day the three volleys are fired at the funerals of all ranks up to and including the rank of full Colonel only; at the funerals of General Officers a salute of guns is fired, the number of rounds varying according to rank, e.g., 19 for a Field-Marshal and 11 for a Brigadier.

The sounding of the Last Post is, of course, the deceased's "good-bye to this world" and the Reveille is the hope of awakening in the next and better world. In Trojan days there was a "clang of trumpets" at the cremation of their warriors.

ORIGIN OF THE BERET

(From the "Palestine Post")

How did the beret come into existence? Soldiers have wondered at one time or another how this peculiar, but practical form of headgear came to be adopted, writes "Trunk Call."

Most members of the Royal Armoured Corps know that it was the distinctive cap of the Royal Tank Regiment, but in most cases their knowledge ends there and a good deal of mythical information circulated about its origin.

The following account by the late Gen. Sir Hugh Elles may be of interest to readers.

Adopting Enemy Headgear

"Some time at the end of 1917," he writes, "at dinner one night at Bermicourt we discussed two well-worn subjects:

"(a) Would the war ever come to an end, and when?

"(b) If it did, what would happen to the Tank Corps in peace time?

"We agreed that it ought to go on, and proceeded to talk about its uniform.

"Someone, I think it must have been Fuller, pointed out that after every war the British Army had made a habit of adopting some head-dress belonging to its enemies; the bearskin of the Guards came from Napoleon's Imperial Guards; the Lancers' hat came from the Germans; the slouch hat came from the Boers, and so forth. It happened that there lay at Bermicourt just then, resting, a regiment of Tirailleurs Alpains, and the bright idea occurred, I think to myself, that we might make an exception at the end of that war, and adopt a head-dress from our Allies.



"The choice lay between the beret breton, which the Tirailleurs Alpains wore, and the beret basque (Borotra—though nobody had ever heard of Borotra then) which were worn by our



comrades of the chars d'assaut. Neither of these really met with favour; the breton was considered sloppy and the basque skimpy. So we fell back upon the version which was then very popular amongst girls' schools in England. We circularised a large number of girls' schools and received a large number of berets of different colours. And eventually, after a stern contest with the War Office, our black beret was, surprisingly, authorized."

In reporting to the Imperial Diet after American troops occupied the country, the new Japanese government admitted that out of 62,795 warplanes, Japan lost 51,109—or five out of every six planes—and 684 of her 1,217 warships. The Diet was also informed that none of Japan's 12 battleships was seaworthy at the end of the war and only two of her 25 carriers were "actually capable of navigation."

—From the (U.S.) Marine Corps Gazette.

IS WAR PRIMARILY A MATTER OF WEAPONS?

This article is a condensation of a review by Brig. Gen. D. Armstrong, U.S. Army, of the book "Armament and History" written by Maj. Gen. J. F. C. Fuller and published by Charles Scribner's Sons, New York, 1945. The review was extracted from the U.S. Infantry Journal and condensed for CATM.—Editor.

In the development of armament through the ages, Gen. Fuller uncovers a law, a principle, and five essential characteristics of weapons. These must be understood if we are to grasp the significance of changes in the "instruments with striking power" used to fight battles, and of the general influence of armament on history.

The law of military development simply means that in order to win wars armies must adapt themselves to the changing phases of the civilizations which form their environment. For example, after the industrial revolution, with the growing importance of science and invention, survival of the fittest in a test by arms meant that the better army would be more and more mechanized. With the accelerating pace of technology and scientific research today, obsolescence of weapons is swiftly inevitable. To keep an army up to date is therefore extremely difficult and costly.

"Military Rhythm"

Gen. Fuller deduces a principle from this law which he calls the "constant tactical factor." This is none other than the well known fact that a new weapon of offence has always brought forth defensive measures to counteract it. In Gen. Fuller's words: "Every im-

provement in weapon power has aimed at lessening the danger on one side by increasing it on the other. Therefore, every improvement in weapons has eventually been met by a counter-improvement which has rendered the improvement obsolete, the evolutionary pendulum of weapon power, slowly or rapidly, swinging from the offensive to the protective and back again in harmony with the pace of civil progress, with each swing in a measurable degree eliminating danger." Consequently tactical development has been cyclical from the offensive to the defensive, and this military rhythm has profoundly influenced history. Today the offensive is in the ascendant with the atomic bomb, the ultimate in striking power.

In his analysis of the effectiveness of the weapons, Gen. Fuller notes five characteristics which define their powers and limitations. These are:

1. **Range of action:** The greater the reach or range of a weapon, the more speedily can striking power be brought into play.

2. **Striking power:** The greater the striking power of a weapon, the more effective will be the blow struck.

3. **Accuracy of aim:** The more accurately a weapon can be aimed—thrown or projected—the more likely is it that the target will be hit.

4. **Volume of fire:** The more the number of blows dealt of missiles thrown or projected in a given time, the greater the effect is likely to be.

5. **Portability:** The more easily a weapon can be carried, hauled or moved, handled or wielded, the more rapidly will it be brought into use.

The most important or dominant characteristic of weapons, according to Gen. Fuller, is range of action. If an army is equipped with aircraft,

artillery and rifles, in his opinion aircraft is the dominant weapon because it has the greatest range, and it is Gen. Fuller's belief that combined tactics should be shaped around the airplane. On the other hand, the fifth characteristic in the list, i.e., power of movement, should govern military organization.

The Deductions

Let us see what deductions he draws from these premises. Certainly the average reader of this book will be convinced that the lessons of military history incontrovertibly prove that weapon power, i.e., superior weapons, inevitably means victory. Gen. Fuller quotes approvingly from one of his earlier writings in which he stated: "Tools, or weapons, if only the right ones can be discovered, form 99 per cent of victory . . . Strategy, command, leadership, courage, discipline, supply, organization and all the moral and physical paraphernalia of war are nothing to a high superiority of weapons—at most they go to form the one per cent which make the whole possible. . . It is machine power and not manpower which wins in war. . . . War is primarily a matter of weapons, and the side which can improve its weapons the more rapidly is the side which is going to win."

It is a dangerous doctrine, in my own opinion, to preach to Americans to put their trust in weapons almost to the exclusion of every other factor in military power. Such a theory is particularly tempting now as our people debate the issue of universal military training. In their reluctance to accept the patent responsibility of each individual to serve his country, many will welcome the thought that they can transfer this responsibility to a piece of machinery.

But Gen. Fuller's own words refute the universal applica-

tion of these broad generalizations. Considering Germany's failure in the Russian campaign he writes: "In the German 1941 and 1942 campaign in Russia, faulty strategy and inadequate cross-country supply limited their success." That puny one per cent of Gen. Fuller's estimate, then, was largely responsible for the second retreat of an invader from Moscow in spite of superior weapons.

Let us examine the Nazi invasion of France. Is it possible that something other than German tank-air superiority had anything to do with that Victory? In "The Six Weeks War", Theodore Draper writes:

"Without pretending to reach any conclusions on the subject of French matériel on the basis of available information, it can be seen that, under the most favorable conditions, France's inferiority in tanks and planes was dangerous. But it was the tank and aviation doctrine which made it fatal. Like the manpower, the matériel was spread out along the entire frontier and all through the rear as if every division and every position were equally important."

Maginot Line

On this same question of the use of tanks by the French, Gen. Fuller comments that the Maginot Line could have been made a formidable barrier by assembling a powerful manoeuvre force of tanks on its left flank. Here again planning and strategy might have played a vital rôle. Therefore we must conclude that with modern weapons Napoleon's remark that the moral is to the physical as three to one is no longer valid, but neither is Gen. Fuller's estimate sound that strategy and morale are to the physical as one to ninety-nine.

As a matter of fact, an attempt to invert any ratio to show the relative importance of tangible and intangible elements in warfare is doomed to failure. The integration in war of political, economic, psychological and strategic factors is such that relatively there is a constant shift of values between these elements. Moreover, there is serious danger, as this book amply demonstrates, in considering only one element of warfare, and in exaggerating the importance of that element as a part of the whole. We had still better train our available manpower in order to prevent war. We must exercise our imagination and our intelligence in the realm of tactics and strategy besides doing our utmost in research, technology and actual production of newer and newer weapons if we are to survive.

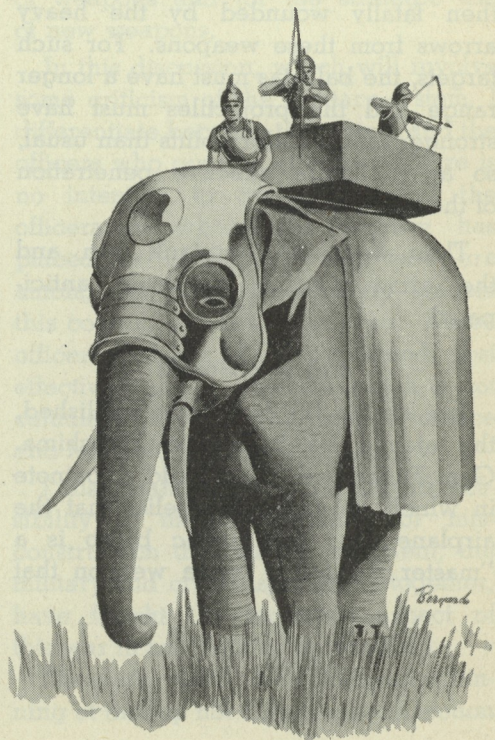
Gen. Fuller is certainly correct in his estimate of the basic importance of weapons in war. A better balanced estimate, however, is required of the relative importance of the other elements.

There is unfortunately no opportunity to comment on many points in the main body of the book which is concerned with the historical analysis of weapon development. There is, however, one rather astonishing omission in the history of Roman warfare which, because it provides precedents for modern methods of warfare, is most interesting. I refer to the use of elephants and the defensive measures that were taken to counteract this master weapon.

The elephant, like the tank, was the great tactical problem of the age, but how the elephant menace was finally overcome is not described. The elephant carried head armor and it had a tower on its back corresponding to the

modern turret on a tank. A driver and crew of four men were placed in each tower so that these men armed with bows and arrows provided all-round fire. In other words, the elephant was not only armored by reason of his thick hide but he also had armor plate to protect him, at least in front.

Gen. Fuller merely tells us about the defensive devices designed to injure the elephants' feet. These would correspond to the anti-tank mines. Other more effective defensive measures, however, finally nullified this form of attack. For instance, Cæsar provided elephants of his own in order to accustom his men to the sight of them and to learn "what part of the body was most vulnerable." Livy tells where that was in XXI, 55—"the light cavalry speared the elephants under their tails where they could be wounded most easily because of the thinness of the skin." Is this not reminiscent of the study of the vulnerable areas of our modern tanks in defensive action against them?



In much greater detail, Vegetius about 380 A.D., in his famous book on the *Epitome of the Military Art*, described the anti-elephant defence as follows: "Elephants in battle terrify both men and horses on account of their enormous bodies, their hair-raising trumpeting, and their strange shape. Various methods of repelling these attacks were devised. A chariot drawn by two well armored horses, with a crew of two men equally well protected with armor, attacked the elephants with very long spears. The armor rendered them invulnerable to the arrows fired from the turrets on the elephants, and they could avoid the charging beasts by reason of the swiftness of the horses."

Here is the ancestor of the tank destroyer. Vegetius continues: "Heavy ballistas on a two-horse or two-mule mount are located in firing position behind the infantry line. If the elephants break through the line and come within range of the ballistæ, they are then fatally wounded by the heavy arrows from these weapons. For such targets, the ballistas must have a longer range and the projectiles must have stronger and broader points than usual, so as to assure effective penetration of the elephants."

Thus were the anti-tank gun and the armor-piercing projectile anticipated.

Atomic Bomb

Just before the book was published, the atomic bomb fell on Hiroshima. Gen. Fuller had time to add a footnote in which he stated his belief that the airplane plus the atomic bomb is a "master weapon", i.e., a weapon that

monopolizes fighting power. Only a few weapons in the past have justified this designation, and their reign has been brief.

Consequently, Gen. Fuller believes history will repeat itself; that the "constant tactical factor" will work again. His concrete suggestion is interesting. He believes that radio-controlled devices can locate and destroy by the same atomic weapons, attacking planes or robot bombs. He adds: "Coincidental with this form of fighting, there is another form which will be more difficult to neutralize. It is the horizontal in contradistinction to the vertical use of the atomic explosive rocket—that is, as a ground instead of as an air projectile. What the answer to this problem is I am unable to suggest. But that there will be an answer is probable; for thus far in the history of war the constant tactical factor has never failed to operate."

Can Be Restricted

The author is well known as a soldier with strong political leanings that are as likely to color his views as his strongly held ideas on weapon power affect his historical interpretations. He is convinced that war cannot be eliminated. Since war has been restricted in the past, however, he believes that it can be restricted in the future. At present oil is the essential element in military potential. The internal-combustion engine is the motive power that moves weapons to the place where they can be most effective. Therefore until a new prime mover is discovered, oil will have an important bearing on the question of war and peace.

SCIENCE AND SECURITY

The importance of new weapons in modern warfare is generally understood. It is evident to all thinking people that the evolution of new weapons may determine not only the outcome of battles but even the total strategy of war.

In the past, the pace of war has been sufficiently slow so that this nation has never had to pay the full price of defeat for its lack of preparedness. Twice we have just gotten by because we were given time to prepare while others fought. This time the margin was narrower than in 1914. The next time—and we must keep that eventuality in mind—we are not likely to be so fortunate.

Prepare at Once

It is imperative, therefore, that . . . we begin at once to prepare intelligently for the type of modern war which may confront us with great suddenness sometime in the future. We all hope

This article, condensed for CATM from the U.S. Infantry Journal, was written by Dr. Vannevar Bush, U.S. Office of Scientific Research and Development. It outlines a forward-looking plan for post-war scientific research in the U.S., based on a working partnership between the military and civilian scientists. The writer does not "pull his punches" and while it was written for U.S. consumption, there is much in the article that will interest Canadian officers who have an eye to the future.—Editor.



that no such event will occur. We all hope that means will be found to secure peace, are anxious to do our full part in bringing about an international organization and understanding that will truly preserve peace, but in the meantime we need to keep our powder dry. We need to be effectively organized.

I would like to summarize four important principles:

FIRST: There must be adequate planning at the top both for the evolution of weapons and for the strategic use of new weapons.

In this discussion, which will involve some criticism of the military system, I differentiate between the system and the officers who operate under it. There is no intention to criticize any of the officers in whom this country has placed its confidence and who are among the most able military leaders this country has ever produced. These officers and men have performed most effectively under a system which is not calculated to make the most of science and technology in modern war.

I also want it clear beyond all possibility of misunderstanding or misconstruction that, in my judgment, the military and civilians, working together, have fought the technical aspect of this war in an effective partnership.

There is need for technical planning at the top not only to give direction

and drive to new developments and their use; there is an almost equal need for such planning at the top in order to co-ordinate the work of the several branches of the services, both in the development and in the use of the new weapons in which more than one branch is directly interested.

It is still true, and it will always remain true, that for the effective performance of any organization, especially a military organization, responsibility must be definitely assigned, and responsibility and authority must go together. This sound principle should never be departed from.

Modern weapons call for complex programs involving many skills. . . . Today, a single complex unit of offence or defence, such as a radar-controlled anti-aircraft installation, may cut across many of the traditional branches of the military service. A complex weapon on the order of the German V-bombs might, for example, involve Chemical Warfare if it were an incendiary, Air Forces if it were borne by wings, Signal Corps if it involved control devices, Engineers if it needed emplacements for launching, and Ordnance. . . . No one branch sees the whole picture. No one branch can give over-all direction.

Position of Authority

The requirements of modern war have outrun the erstwhile satisfactory formal organization. Bureaus and services can have responsibility for parts of a complex development, instituted and ordered from the top, but often no one bureau or service can do the whole job itself. Nor, in fact, can it be done from the top unless some of the men in positions of great authority grasp the trends of science and its implications. This they can do only if science and its applications have bulked large in their professional careers.

The problem, therefore, is to provide some means by which scientific and

technical thinking of the highest calibre may fuse with military thinking at the top level of command.

SECOND: The position of the technical man in uniform must be improved.

It is not enough merely that technical and scientific planning be done at the level of high command. The position of the technical man should be improved throughout the length and breadth of both the services. Men in responsible positions should have better technical training. Conversely, soundly trained technical men should be eligible for high command. Lastly, broad or complex programs of research and development should have a status at a staff level.

Art of Command

Under conditions of modern war, a grasp of broad technical trends would seem to be as fine a qualification, when combined with indoctrination in the art of command, as an officer of the top rank could possibly have. Yet the practice of the two American services seems to have been based on the assumption that technical specialization is incompatible with high command.

Men in uniform should receive better and more fundamental scientific training. Provision should be made for advanced scientific training of large numbers of officers either at special service schools or through a fuller utilization of existing colleges and universities. The War College idea is a sound one. It should be extended to include an advanced military college devoted to the evolution of weapons and its relation to strategy.

Until technical men in uniform are given better training, and until they find a readier route to positions of command, it is certain that the top levels of our military command will not grasp the full implications of military innovations and will not be organized to handle

them to optimum advantage in some possible future highly technical war.

The services have not yet learned—as industry was forced to learn a long time ago—that it is fatal to place a research organization under the production department. In the services, it is still the procurement divisions who maintain the research organizations. The evils of this arrangement are many. Basically, research and procurement are incompatible. New developments are upsetting to procurement standards and procurement schedules. A procurement group is under the constant urge to regularize and standardize, particularly when funds are limited. Its primary function is to produce a sufficient supply of standard weapons for field use. Procurement units are judged, therefore, by production standards. Research, however, is the exploration of the unknown. It is speculative, uncertain. It cannot be standardized. It succeeds, moreover, in virtually direct proportion to its freedom from performance controls, production pressures, and traditional approaches.

In research, a scientist agrees to use his best efforts in the solution of a particular problem, and he is paid for the effort and talent he devotes to the job. Since Research is speculative, a research scientist must be paid—or promoted—whether or not he succeeds in solving the assigned problem.

Separate Group

What is required is a separate organization within the services for research, for development, and for rapid procurement, in experimental production, of small lots of new equipment to be used for field testing, and in critical situations for actual use against the enemy. Such an organization must be in the hands of trained enthusiasts, and, although linked at all levels with all branches of the services, it should report directly to an officer on the very

top level of command who has the training, vision, and competence to direct the broad formulation of new weapons and devise the techniques by which they should be employed.

THIRD: There should be a genuine scientific interlinkage between the services.

The Broader Problem

This problem of technical interlinkage between the services is only incidental to the important, broader problem of adequate inter-relation between the services on all subjects. The technical problems of the services are not the same, yet they overlap broadly. The fact that the problems and points of view of the services differ to some extent would be a distinct advantage in any interchange of ideas. This cross-fertilization of ideas between two groups, each with its own particular set of problems, has long been established as an essential prerequisite to successful research. Scientific achievement on one set of problems can often furnish the key to progress on a broad front.

FOURTH: There should be some form of partnership between civilian scientists and the military.

An improved form of civilian collaboration with the military on military research should be worked out. This may be done within the services or outside of them, by means of a civilian scientific body with both the power and the funds to initiate research.

The problem of working out within the services a status for civilian scientists and technical men is particularly acute. American practice has been to insert such civilians at various levels. As a result, civilians have had to report directly to the uniformed personnel at the level to which they were attached. In spite of notable individual exceptions, this practice does not attract into the services scientific and technical men of the highest calibre.

WINTER POSITIONS AND SHELTERS

Handling of weapons and ammunition over snow-covered terrain and the thickness of snow required to protect men against bullets are some of the points dealt with in this article. Written by Capt. R. Gallusser of the Swiss Army, it appeared in the "Revue Militaire Suisse" April 1945 and was extracted from the U.S. Military Review for CATM. It will be of particular interest to officers who have been engaged in winter warfare training in Canada.—Editor.

A snow-covered terrain slows down movement and renders the task of taking up a position very difficult for the Infantry. The natural undulations of the terrain which afford precious shelter to the combatant during the warm seasons

of the year are, in winter, deeply covered and made level by a white mass of snow. The soldier is obliged to make his way laboriously across great slopes where he seeks (sometimes in vain) a defiladed position from which to fire his weapon. Every step requires extra effort, and he leaves a highly visible trail in the snow as he moves ahead. He is hampered when taking up his position, and the tripod or support of his weapon will begin to sink in the snow as soon as he opens fire. The gunner is in danger of being sighted by the enemy before he has a chance to open fire with his own weapon.

How is the soldier to adapt himself to these particular conditions?

With respect to the carbine the solution is relatively simple, for the marksman is able to assume the squatting or kneeling position and obtain proper support for his elbows against his body—unless he prefers to fire in a

SCIENCE AND SECURITY

(Continued from previous page)

One solution to the problem lies in the great expansion of the offices of the secretaries in peace, with a civilian branch devoted to research and development. This has its distinct advantages. It can be carried to the point where there is a full structure, on basic research, on far-reaching developments, in civilian hands, within the control of the department itself, but in parallel with the current improvement of existing weapons by the bureaus and services. The experience of the British, and their further development of this scheme after the war, will be worthy of serious study. The scheme is, however, contrary to what has long been pre-war American practice.

Regardless of what the internal organization of the services may be, it is desirable to have outside of the services themselves a civilian body with authority, and funds, to conduct research on matters which have military significance.

In the meantime, there should be a Research Board for National Security under the National Academy of Sciences, to bridge the gap between the termination of the Office of Scientific Research and Development and the eventual creation of an independent agency under mandate from the Congress.

prone position with his rifle resting on his pack, which in turn rests on the skis he has previously removed.

Ski-Stick Attachment

We propose for the automatic rifle a solution which gave us good results. It consists in the permanent attachment of a ski-stick disc to each leg of the bipod. The automatic rifle, without any support, may be used instantaneously in meeting engagements and in assault fire, supported against the hip of a standing or kneeling automatic rifleman. In order to permit another type of firing which is advantageous from the point of view of getting into position rapidly, it is well to fasten the bipod to the middle of the barrel. In this case, the automatic rifleman concealed in the snow has only to push the automatic rifle forward, thus raising it, and he is in a position to open fire.

The total weight of the heavy machine gun can be lessened by detaching its tripod and mounting the weapon on its pack frame, which in turn is attached to the gunner's skis. The gun may be mounted thus in a few minutes in the vicinity of the firing position.

The taking up of position is extremely rapid, for the gunner is able to crawl forward, pushing the gun ahead of him. When being fired the gun is very stable, owing to the support provided by the skis. With a little practice it is possible to move the gun horizontally and vertically.

This emergency method permits a more rapid and flexible employment of the machine gun in a winter war of movement. However, the precision and density of its fire is slightly less.

The tripod, which is so cumbersome in taking up positions in deep snow is, nevertheless, indispensable when one is faced with the organization of a defensive position. For final protective fires at night or in fog the tripod alone assures accurate cross fires.

In order to regulate more easily the fire of all Infantry weapons in the snow or to designate a target rapidly, it is necessary to carry a few rounds of tracer ammunition. Skilfully employed by platoon and squad leaders, it will be very useful and save ammunition and time.

Over difficult terrain, especially when going up grade, it is well to have explosives and ammunition carried by sturdy skiers, especially trained and provided with sealskins. (Strips of seal-skin are attached to the under surface of skis to prevent the skier from sliding backward in his tracks.) This is more satisfactory than attempting to improvise toboggans, which are always heavy, not very stable, and likely to run over and dump their loads when crossing slopes in a lateral direction.

In constructing defensive positions, our men always ask the question: "How thick must the snow be to protect us against bullets?" This depends mainly on the consistency of the snow, which may be dry, wet, newly fallen or packed. Our latest tests show that a wall of 1.60 metres (about five feet) thick, built of blocks or normally packed snow, offers adequate protection against all infantry projectiles at normal ranges, i.e., 200 metres and over. Even bursts of machine gun fire were not able to penetrate such thicknesses. The fragments of a mortar projectile which exploded less than one metre from the wall were not able to penetrate it. The outer portion of the wall was destroyed, however, and a hole .60 of a metre deep and about 1.50 metres wide was made. Only anti-tank projectiles which delayed action fuzes were able to pierce the same wall without destroying it.

White clothing and camouflage cloths enable our men to adapt themselves and their weapons perfectly to the winter

landscape, but their shadows and the tracks they leave in the snow betray their positions to a dangerous degree, especially to enemy aviation. In the majority of cases it is impossible to eliminate these tracks and "simulate" an undisturbed field of snow, especially in the case of a defensive sector in which a unit has been living and working for several days. Apparently the best method would be to chop up the area around a position by means of a multitude of crisscrossing tracks. Throwing ashes in front of dummy embrasures to make the snow appear dirty would also be helpful in deceiving the enemy.

It will be necessary at the very outset to construct alternate emplacements

for the weapons. In our estimation this matter is more important in the mountains than on level terrain, for the premature loss of a gun may be followed by much more serious consequences in a large sector held by meager forces. By a judicious distribution of limited fire means to several centres of resistance it will be possible to obtain a large base of fire and lessen to a certain extent the damage suffered from enemy fire, especially from aerial attacks.

We attempt to confuse the enemy's observation and fire by means of a carefully studied organization and by use of imagination, so as to make him feel, at the proper moment, the full effect of our concentrated fire.

TEN POINTS OF LEADERSHIP

(By Col. J. B. Ladd in *The Army Officer—*
Extracted from U.S. Military Review)

1. Be a vigilant leader. Know your men. Use good judgment and common sense.

2. Be a competent leader. Know your "stuff." Make quick, sound, definite decisions. Use simple plans. Issue clear, complete, and concise orders.

3. Be an efficient leader. Maintain unity of command, co-operation, and teamwork. Develop mutual trust, confidence, cohesion, and initiative in your unit. Follow up your decisions, plans, and orders with clear-cut, vigorous action.

Keep Faith

4. Be a loyal leader. Keep the "soldier's faith," in service, fidelity, and duty. Take a vital, sincere interest in the welfare of your men and officers. Build esprit de corps.

5. Be a trustworthy, dependable leader. Never let your men or officers

down. Deserve their trust. Drive hard to accomplish your missions on time.

6. Be a firm, friendly leader. Cultivate character, respect, courtesy, good will, good manners, tolerance, dignity, and tact. Treat your men as you would wish to be treated.

7. Be a resolute leader. Set the examples of force, courage, valor, esprit, honor, and high morale of your command.

Disciplined Leader

8. Be a disciplined leader. Remember, hard work and iron discipline doubles victories and halves losses.

9. Be an alert leader. Always be on guard. Protect and take care of your men. No man is fit to command who neglects his "all-around securities."

10. Be an aggressive leader. Pay strict, prompt attention to duty, justice, and responsibility. Practice what you preach. Set the high example in the cardinal virtues of command. At all times, teach your officers and men battlefield leadership.

Army Bookshelf



"Decisive Battles of the World." Fifteen by Sir Edward S. Creasy, nine by Robert Hammond Murray. 620 pp. \$3. Published by The Military Service Publishing Co., Harrisburg, Pennsylvania, U.S.A.

Any person who maintains that the Second Great War, with its problems of welding nations together against a common enemy, its fluctuating international policies and its incredible weapons for waging war, has little relation to any other war would undoubtedly change his opinion after reading this book. Though focussing on only one battle in each war, the authors are still able to give the reader an insight into the international or national politics provoking hostilities and the final outcome.

Each battle is faithfully dealt with, not only in detailed narrative but also in map illustrations. Accounts are given of 24 decisive engagements—decisive because, in the opinion of most historians, they have affected the course of history and nations.

From the Second Great War, the future historian will probably select El Alamein and Stalingrad as decisive battles in world history.

Following are some of the battles selected by the authors as being decisive in world history with reasons for their selection:

Marathon: Broke the myth of Persian invincibility, and initiated the gradual ascendancy of the principles of European civilization.

Metaurus: Ended Rome's struggle with Carthage, thus ensuring Rome's 200 years of unchallenged sovereignty.

The Armada: Defeat of Spain's navy saved England from control by Rome through Phillip II of Spain, and ensured the laying of a firm foundation for perpetuation of the Protestant faith.

Blenheim: Destroyed at one stroke all the vast plans of Louis XIV for world domination.

Waterloo: Halted conquest by France.

Mukden: Results world wide; disrupted Russia, drew England into European affairs on the side of France and against Germany. Laid the foundations for the Russian Revolution of 1917, and completely undermined the theory of the supremacy of the West over the East.

From the battles listed it is evident that all were carefully selected. These authors give their readers increased depth of knowledge of history, wars and military and political tactics involved in any war, and that the Second Great War was nothing more than the culminating effect of all wars fought in recorded history. It is the weapons for waging war that change, not the tactics. They remain intrinsically the same.—*F.N.P.*



HAND GRENADE

Editor, CATM: In the January (1946) number of CATM is a short article on the marginally-noted subject which includes a photo showing the fragments from a detonated No. 36 grenade. It is felt that in certain respects this article is misleading, and the following comments are offered for your information.

The first paragraph of the article reads as follows:

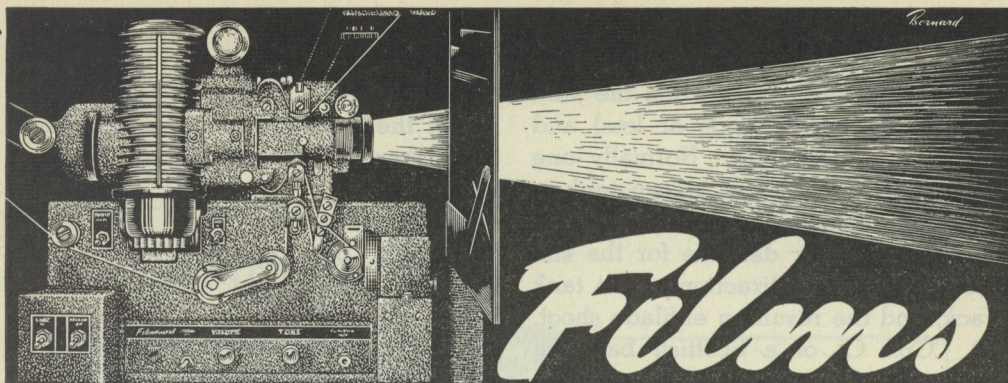
"Lethal effect of the No. 36 hand grenade is graphically shown in the accompanying photo taken at A30 CITC, Utopia, N.B. These pieces are the fragmentation of a blown grenade and the shrapnel effect of this weapon is clearly shown. Note the different sizes and the number of pieces—80—and the base plug, centre-piece and striker and spring. It will give you an idea of how effective a No. 36 can be when used against the enemy."

The lethality of a projectile depends on so many factors, that consideration of only one factor, viz, number and weight distribution of fragments, cannot give a true picture of its effectiveness. Exception is taken, therefore, to the first paragraph of the article in CATM No. 58, and particularly to the first sentence. The lethal effect is **NOT** shown in the accompanying photograph. All that is shown are the coarser fragments into which a grenade breaks

up when detonated in the manner described. No conclusions can be drawn.—*Major M.*

(Editor's Note: Maj. M's interest in the CATM article referred to is appreciated. His letter dealt extensively and scientifically with the fragmentation and lethality of the grenade, but unfortunately, for Security reasons, only the portions reproduced above could be published. While CATM, by inference, may have exaggerated the lethality of the No. 36 grenade, we are sure Maj. M. will admit that it's a very handy little weapon to have when you're in a tight spot.)

The velocity of war has reached such a stage that delay is fatal. Air power and amphibious operations vitally changed the pattern of the conduct of this last war. Atomic developments and supersonic speeds open a vista of immediate changes much more radical, in which the velocity of war is increased to unimaginable rates. Warnings of impending wars are no longer the custom of aggressive nations.—Lt. Gen. R. S. McLain (U.S. Army).



(For your information the following films have recently been distributed.)

Vocational

1. SS-610 The Restaurant Operator (10 mins)
 - (a) This film, in the "Vocational Guidance Series" deals with the possibilities of the restaurant business. The four main types—table service, self service, counter service and curb service—are described together with the managing and operating requirements.
 - (b) Distributed to All District HQ Film Libraries.
2. SS-611 Laundering and Dry Cleaning (10 mins)
 - (a) This film points out the opportunities for expansion in the laundry and dry cleaning industry. It shows the consecutive steps in laundering and cleaning a variety of materials and describes the facilities available for specialized training in this line.
 - (b) Distributed to All District HQ Film Libraries.
3. SS-612 The Baking Industry (10 mins)
 - (a) Discusses the various jobs open in the baking industry including those of a technical nature such as chemists, etc., and shows operations both in a large commercial bakery and in a small retail bakery.
 - (b) Distributed to All District HQ Film Libraries.
4. SS-598 What About Jobs (35 mins)
 - (a) This US film points out to job seekers the importance of background and method in obtaining a job. It stresses good school background, sound advice from school counsellors, known aptitudes, right attitude and proper handling of application forms and creating the right impression during interview.
 - (b) Distributed to All District HQ Film Libraries.

Medical and Hygiene

1. MN-3428A Introduction to Combat Fatigue—Patients' Version (30 mins)
 - (a) Analyzes fear and follows the development of fear reactions into combat fatigue symptoms. Film effectively relates symptoms of combat fatigue (startled reaction, irritability, nightmares, tension, etc.) to their causes through realistic flashbacks of simulated combat activities in a combat area.
 - (b) Prints of this film are available for loan on request to the Army Central Film Library, NDHQ.
2. FB-184 Psychiatric Procedures in Combat Areas (45 mins)
 - (a) This US film depicts graphically the treatment of psychiatric cases at Div, Army and base levels and shows the system of these exhaustion cases from Battalion Aid Stations to Division Clearing Stations. Treatment of minor and more severe cases is shown and return to combat of cured cases or replacement of others is outlined.
 - (b) Prints of this film may be obtained on loan on request to the Army Central Film Library, NDHQ.

ANTI-TANK GUNS

(Continued from Page 7)

exception to this rule is when the tank is really close (150 yards or less) and there is no alternative. Normally one shot in the side of any known tank is enough to brew it up, and this emphasises the need for defilade for the six-pounder from the direction of the tank attack, and the resulting enfilade shoot.

2. "Cpl. O. of a Scottish battalion was with a six-pounder which was ordered to occupy a very forward position. It was not possible to move up until dark when they man-handled the gun up and dug it in. The enemy kept on putting up flares and firing at them, and it was extremely difficult to work. These difficulties increased as the night went on and the detachment was eventually compelled to lie flat and dig with their hands.

Gun Camouflaged

"The gun was sited near three knocked-out Shermans. At first light the detachment saw a blown-up six pounder nearby; they put this in position again and camouflaged it to look as though it was in action. At 0650 hrs, enemy tanks were seen coming forward from the village of Bretteville. Someone excitedly shouted 'Tanks—look-out', to which the gun detachment replied 'That's all right—we can see them—keep quiet'.

"Gradually about 20 tanks came into view and the D.C. gave 'Engage'. Just at that moment the layer was wounded and the D.C. took over. The leading tank was getting uncomfortably close, but as it kept head on to the gun they allowed it to come on, and shot up

two others which showed their sides. When the leading tank was 150 yards away they shot it in front and brewed it up.

"Altogether they shot nine tanks from this position—one head-on at 150 yards and eight sideways on at about 400 yards on an average. The gun had only 24 rounds of Sabot shot, and ran out of ammunition after getting its ninth tank. More ammunition had been sent for but had not arrived. It was, therefore, decided to withdraw and join a gun detachment of the A/Tk battery. Later on in the day the detachment took over another gun and succeeded in killing another tank and reaching double figures. Owing, presumably, to the careful siting of this gun in the first place, not a single shot was fired at it. All the enemy fire was directed at the derelict Shermans and the decoy six-pounder."

Comments by Infantry Heavy Weapons School:

(a) This action stresses again the importance of an enfilade shoot and the success of the six-pounder, manned by a good detachment, using Sabot ammunition at a reasonable fighting range of about 400 yards.

(b) The difficulties of getting the gun into position unseen must be realised and overcome, as they were here.

(c) The success of dummy guns, the careful siting of the gun with the flash defiladed, and good all round concealment are well illustrated here. These points should be stressed and thoroughly practised in training.

FILMS

(Continued from previous page)

General

1. SS-609 Orders from Tokyo (20 mins)

- (a) This technicolour production shows the devastation wrought by the Japanese on Manila following orders from Tokyo to destroy the city.
- (b) Distributed to All Dist HQ Film Libraries.

THIS MONTH'S COVER . . .



On its cover this month CATM salutes Canada's new Governor - General with a Canadian Army Photo. The Canadian Officers Training Corps issue will appear at a later date.



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SWEATIN' IT OUT

By Mauldin



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"MY COMPANION AND I FIND THESE TRANSATLANTIC FLIGHTS
VERY TEDIOUS . . ."