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The Cover
A Royal Canadian Engineer operator handling a bulldozer.

CANADIAN Army JOURNAL

The object of the Canadian Army Journal, which is published by the Directorate of Military Training under authority of the Chief of the General Staff, is to provide officers of the Active, Reserve and Supplementary Reserve Forces with information designed to keep them abreast of current military trends and topics, and to stimulate interest in current military affairs.

Modern Man-at-Arms

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1: The Revival of the British Infantry Soldier

The campaigns of the late war demonstrated again and again the supreme importance of good infantry. Between 1939 and 1945 the British infantry soldier was fully restored to his old high status and renown, from which he had been rudely shaken by the long spells of stagnating trench warfare of 1914-18 and the Army's subsequent preoccupation with machines and armour.

The revival began in 1940, after the campaigns in Norway and France had shown the high value which the Germans still placed on infantry (with all the importance they also attached to armour) and the advanced state of fitness and training to which they had brought their foot soldiers. Dunkirk was not far behind us when the first special units were formed for unorthodox training in preparation for surprise raids by sea on the Germans establishing themselves along the Channel coast of France, and Mr. Churchill wrote a memorandum calling for the raising of a corps of parachute troops to go to battle by air. Those special units, soon to be called Commandos, and the parachutists, who between them so greatly stirred the romantic sense and national spirit of their countrymen, were basically infantry soldiers. They fought as infantry when they came to grips with the enemy on the ground. They quickly took a place comparable to that of the lightly equipped and fast-marching Rifle regiments in the Army in the Peninsular War.

Commando Training

Soon the potential value of some aspects of the "commando" training to the ordinary infantry was apparent

to a few of the more imaginative soldiers, and the outcome of their study of the new technique was the opening of the first so-called "battle school" in Sussex early in 1941. At this remarkable centre of advanced infantry thought and practice, then purely a divisional concern, the first instructors and their pupils on the early courses together evolved standard systems of "battle drill" and elementary tactics, for the section and the platoon, designed to translate the discipline of the barrack square to the field. These exercises they combined with the negotiation of ingeniously arranged obstacle courses to develop individual fitness, quickness, and resource. Experiments were also made with the use of live ammunition and grenades in special exercises.

The new training ideas, encouraged by higher authority, soon spread beyond the original divisions and through the armies at home and oversea. New battle schools were opened and increasing use was made of live ammunition for the process which came to be known as "battle inoculation". With these developments came a new interest on the part of the Army itself and the whole nation in the infantry arm, with an enhanced respect for the foot soldier, of whom more and more different and difficult accomplishments were being demanded.

Some of the younger commanders had been disposed, perhaps, to think of the "foot slogger" as a piece of "cannon fodder" which could be made in a few weeks (as they had heard that he was in the previous war) of indifferent material apart from the physical; able to shoot a bit with the rifle and sling a grenade; to sit stolidly in a trench for days and now and then walk stolidly forward with a fixed bayonet behind an artillery barrage or a wave of tanks; to march endlessly carrying a vast weight of equipment. These began to revise their judgments.

Master of Weapons

They saw the soldier who fought on foot becoming the modern man-at-arms, but master of weapons that in number, variety, and power were beyond anything that ever entered his medieval predecessor's mind. They saw him toughened to endure every kind of hardship; quicker and more resourceful than ever before in the field. He was constantly learning new tricks. One of them was handling pieces of artillery, as anti-tank weapons; first the two-pounder gun and later the six-pounder. By the middle of 1942 the British infantryman had been transformed into a most formidable fighter, trained and ready to bear his mighty part in the victorious advances which were to begin at Alamein. His weapons now numbered about 14, counting the different types

of grenade separately, and the fire power of even a platoon was astonishing.

The other arms also, the RAC, the RA, the assault units of the RE, and the RAF, were developing rapidly their powers and methods of support for the infantry. As the war advanced their aid became so massive and readily available that infantry in battle were tempted to lean upon them more and more and to rely less upon their own initiative and considerable fire power. In, say, a brigade group action it was so easy to "whistle up" the strong help of the guns, the "funnies" of the RAC specialists, or the fighter-bombers, that commanders sometimes were understandably disposed to let their infantry sit back, making little effort until the enemy positions had been completely blasted for them. Thus the infantry again began to lose a little of their self-confidence, and with that something of their new-built prestige.

These tendencies caused some military experts, mostly not experienced infantry soldiers, to advocate the formation of a Corps of Infantry and the abolition of the regimental system. In their view the battles on the Continent were showing that it did not much matter how battalions were made up—the infantry had only to move forward to occupy ground already won for them by the other arms.

Regiments Reduced

The Corps of Infantry idea was strongly and successfully resisted, but with the war over, the subsequent British withdrawal from India, and none of the "cold war" commitments of the last three years then envisaged, it seemed expedient, in pursuit of the policy of the "balanced army", to reduce the infantry arm. The 64 regiments (apart from the Brigade of Guards), each of two battalions, were halved by the putting of one battalion of each into "suspended animation", and the surviving battalions were organized into 14 groups of regiments, each group having a common territorial or military specialist association.

Fortunately there had remained after the war some among those in authority who realized that at the outset of any future major conflict the British infantryman certainly would again have to stand and fight on his own feet, with little of the backing by tanks and guns and aircraft he had become accustomed to expect during the later phases of the war. Therefore his weapons and training must now be brought once more to the highest pitch of efficiency. They recalled the object of his training as an individual as so admirably stated in *Infantry Training*, 1937—to produce

> a formidable fighting man like an expert hunter; always alert and seeking an opportunity of striking at his quarry or watching his movements with a view to further opportunities;

confident and expert in the use of his weapons; skilled in the use of ground and able to stand fatigue without undue loss of efficiency. He must be determined, inquisitive, and self-dependent, but must always remember that he is acting as one of a team. He must be highly proficient with the pick and shovel and able to erect wire obstacles and protect himself against gas. Above all he must be highly disciplined-for by discipline alone can morale be main, tained; it is the bedrock of all training.

This object is kept well in view at the School of Infantry at Warminster, the establishment responsible for teaching the handling of infantry units in battle and their co-ordination with other arms, particularly tanks. For these purposes there are stationed at the school, in addition to a demonstration battalion of Regulars, a squadron of tanks, a battery of artillery, detachments of RE and Royal Signals, and also an officer of the RAF, and for the study of the armies and tactics of potential enemies there is also Intelligence staff. Wings of the school at Hythe and Netheravon are concerned respectively with small arms and with the heavier support weapons of the infantry company.

The Rifle's Role

During the war the light machine-gun came more and more into favour with the infantry and less regard was paid to proficiency with the rifle, even though a new model with improved sighting had been introduced. But now the rifle is being accorded fresh recognition as the basic and the most economical killing weapon, skill with which is the foundation of proficiency with all other shooting weapons, and with the rifle still goes the bayonet for the final assault.

The two weapon wings of the school are constantly engaged in studies and experiments aimed at providing arms of the utmost power combined with mobility, especially those for use against tanks, for the section, the platoon, and the company. The infantry anti-tank weapons of the late war are likely soon to be superseded by more formidable pieces, and tests are also going on with yet another type of rifle (incidentally the British Army is one of the few still using the hampering bolt-action).

Some changes in unit organization have been found necessary. The chief one has been the reconversion of the machine-gun battalions to ordinary infantry units and the redistribution of their Vickers medium machine-guns among the infantry generally. Every battalion now will have a complement of Vickers guns, for which the former carrier platoon will be responsible. The wartime reconnaissance battalions also are gone with the disbandment of the Reconnaissance Corps, and those highly mobile and adaptable units are already missed.

(To be continued)

The Defence of Hong Kong

By
Colonel C. P. Stacey, O.B.E., A.M., Ph.D.,
Director of the Historical Section, Army Headquarters, Ottawa

Foreword

In this issue the Journal is privileged to reprint a portion of *The Canadian Army, 1939—1945*,* an official historical summary of the Army's battles in the Second World War. This section is taken from Chapter XVII of the book ("The Army in the Pacific War, 1941—1945"), and in the version here printed, certain corrections and additions have been made as a result of new information that has come to hand since the book was published. Owing to its length, the extract has been divided into two instalments: Part 2 will be published in the next issue. Copyright is reserved in all countries adhering to the Copyright Union, and permission to reprint must be obtained from the Department of National Defence.—*Editor.*

* Published in 1948 by authority of the Minister of National Defence. 354 pp. with 12 paintings in colour by Canadian War Artists, and 18 maps, 15 of which are in colour. $2.50 post prepaid from King's Printer, Ottawa.

Dispatch of Canadian Troops

The possibility of Canada's contributing to the security of Hong Kong was first suggested by the British Government in September, 1941, a little less than three months before the Japanese attack.[1] At this time, it will be recalled, there were already three Canadian divisions and a tank brigade in Britain, while another division was moving thither shortly.

As the telegram sent by the

[1] *Mr. Churchill has revealed that in January 1941 he refused to entertain a suggestion from the Commander-in-Chief in the Far East that Hong Kong should be reinforced. Subsequently he 'allowed himself to be drawn from this position'.*

Photo courtesy Major G. B. Puddicombe

Mount Nicholson and Wong Nei Chong Gap, Hong Kong. This rugged area in the centre of the island was the scene of fierce fighting by the Winnipeg Grenadiers.

Dominions Office in London to the Government of Canada on 19 September 1941 was the basis of the subsequent Canadian action, and as under wartime conditions it could not be included in the Report of the Royal Commission which investigated that action in 1942, it is printed here. The text has been paraphrased in accordance with security regulations:

MOST SECRET

United Kingdom Government has been conferring with late G.O.C. who has lately returned to this country upon the defences of Hong Kong. In the event of war in the Far East accepted policy has been that Hong Kong should be considered as an outpost and held as long as possible. We have thought hitherto that it would not serve any ultimate useful purpose to increase the existing army garrison which consists of four battalions of infantry and represents bare minimum required for its assigned task.

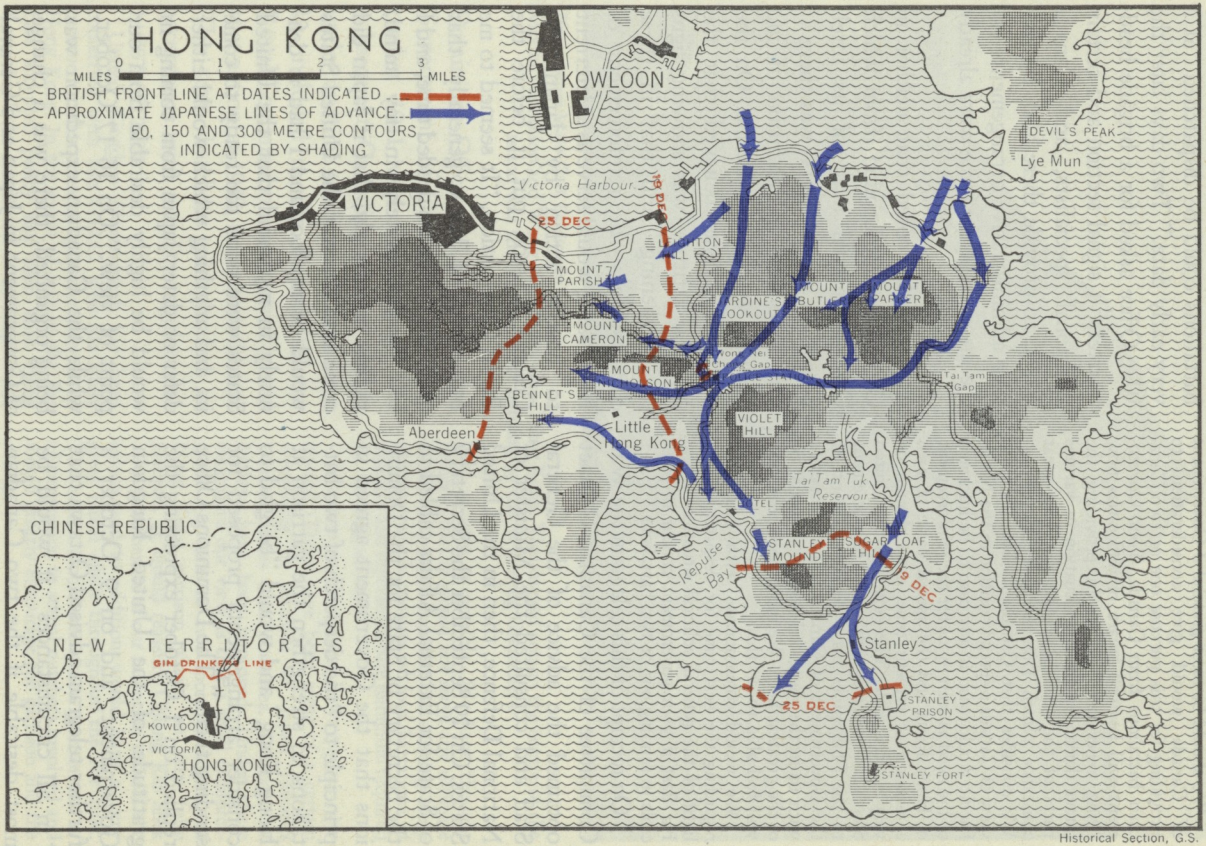
Situation in the Orient however has now altered. There have been signs of a certain weakening in attitude of Japan towards United States and ourselves. Defences of Malaya have been improved. Under these conditions our view is that a small reinforcement (e.g. one or two more battalions) of Hong Kong garrison would be very fully justified. It would reassure Chiang Kai Shek as to genuineness of our intention to hold the colony and in addition would have a very great moral effect throughout the Far East. This action would strengthen garrison out of all proportion to actual numbers involved and would greatly encourage the garrison and the colony.

We should be most grateful if Government of Canada would give consideration to providing for this purpose one or two Canadian battalions from Canada. Your Government will be well aware of difficulties now being experienced by us in providing the forces demanded by the situation in various parts of the world, despite the very great assistance which Dominions are furnishing. We consider that Canadian Government in view of Canada's special position in the North Pacific would wish in any case to be informed of the need as seen by us for the reinforcement of Hong Kong and the special value of such a measure at present time, even though on very limited scale. The fact that the United States have recently sent a small reinforcement to the Philippines may also be relevant. If the Government of Canada could co-operate with us in the suggested manner it would be of the greatest help. We much hope that they will feel able to do this.

We would communicate with you again regarding the best time for despatch in the light of the general political situation in the Far East if your government concur in principle in sending one or two battalions.

On receipt of this telegram the War Committee of the Canadian Cabinet obtained the advice of the General Staff and consulted the Minister of National Defence, then in the United States. On 29 September the Secretary of State for External Affairs cabled to the Secretary of State for the Dominions that the Government agreed in principle to "the despatch of two battalions to strengthen the garrison at Hong Kong" and would "be glad to consider arrangements proposed for sending them." The Dominions Office replied on 1 October expressing the gratitude of the United Kingdom Government; and on 9 October a further telegram advised Ottawa that "in all circumstances" it would be most desirable if the two Canadian battalions could be dispatched "at a very early date." Two days later the War Office asked for a brigade headquarters, a signal section and certain additional specialists, and Canada agreed to provide these also. By this time administrative arrangements for the dispatch of the force were already under way.

It will be noted that neither in Ottawa nor in London (from which Ottawa derived most of its intelligence on such matters) was there at this time any apprehension of immediate war in the Pacific. On the contrary, it was believed that the Japanese attitude was showing signs of "weakening" and that in these circumstances the reinforcement of Hong Kong would serve as a deterrent to hostile action by Japan. As Colonel Ralston put it before the Royal Commission, "It seemed to me from what I knew generally that above all things we needed time, and I had very definitely in my mind, rightly or wrongly, that if Japan did come into the war the United States would be in, too; and I had it definitely in my mind that the United States were none too ready to come in, and anything which would either defer or deter Japan from coming in would be highly desirable from our point of view." On 16–17 October, while the Canadian expedition was being organized, there was a change of Government in Japan and General



Historical Section, G.S.

Tojo became Prime Minister. This, however, was evidently not interpreted as involving immediate danger of hostilities, and it was still hoped that Canada's proposed action would have a useful deterrent effect. On 30 October the Chief of the Imperial General Staff cabled the C.G.S. at Ottawa thanking him for the speed with which the force had been organized, and remarking, "The moral effect of their arrival in November will be much greater than it would have been two months later". As the Report of the Royal Commission pointed out, it is quite clear that both in London and Ottawa it was considered that the troops being dispatched to Hong Kong would be "employed in garrison duties".

The Chief of the General Staff (General Crerar) recommended the selection for this duty of two battalions which had lately been employed on similar tasks outside of Canada: the Winnipeg Grenadiers (commanded by Lt.-Col. J. L. R. Sutcliffe), who had recently returned from Jamaica, and the Royal Rifles of Canada (commanded by Lt.-Col. W. J. Home), who had similarly returned from Newfoundland. These units had been mobilized since 1 September 1939 and 8 July 1940 respectively and were "of proven efficiency". It was naturally considered undesirable to disrupt the organization of a division intended for the European theatre by withdrawing two battalions from it. It seems doubtful whether units more efficient in any significant degree than those selected could have been obtained without actually bringing battalions back from the Corps in England—which was clearly out of the question.[2] The officer selected to command the force was Colonel J. K. Lawson, a Permanent Force soldier then serving as Director of Military Training at Ottawa, who was promoted Brigadier. With him as Senior Administrative Officer went Colonel P. Hennessy, whose function it was to handle special Canadian administrative business, of which there would be a good deal in such a detached force.

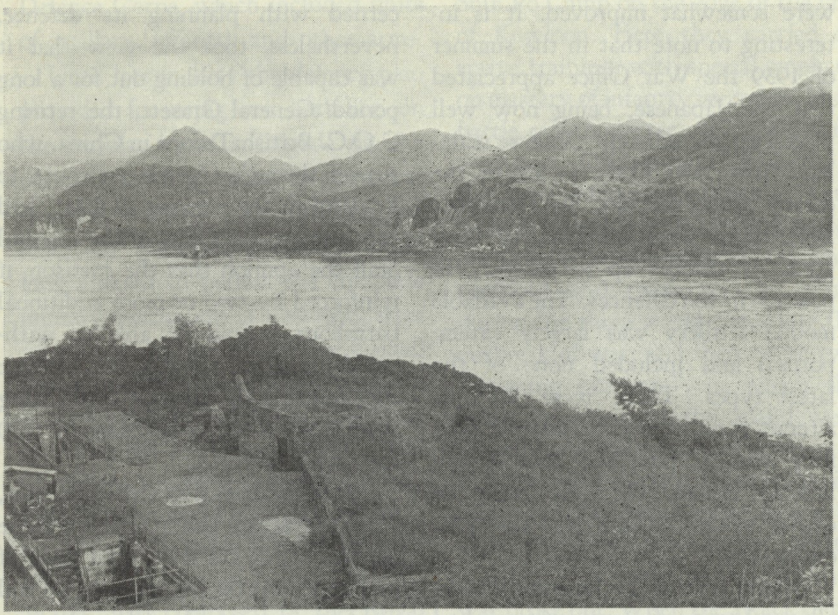
The units were to take their "first reinforcements" with them, and accordingly required drafts to bring them up to this additional strength. It was later reported that men not fully trained were posted into them, and the Royal Commissioner found that, in fact, of 448 new volunteers transferred to the two battalions at this time, approximately 120 had received less than the sixteen weeks' training normally prescribed as requisite before men were sent overseas. The explanation was found in the

[2] *Readers interested in the details of the organization of the force will find the evidence reviewed in "Report on the Canadian Expeditionary Force to the Crown Colony of Hong Kong," by Right Hon. Sir Lyman P. Duff, G.C.M.G., Royal Commissioner (Ottawa, 1942).*

need for "speed and secrecy": the whole process, including the grant of embarkation leave and the move to the West Coast, had to take place between 9 October, when the units were warned for overseas service, and 27 October, when they sailed; and in the interest of secrecy it was undesirable to extend the search for qualified volunteers beyond a few localities. The Commissioner concluded that the fact that six per cent of the men of the whole force fell short, in varying degrees, of the accepted standard of training, did not detrimentally affect the force's fighting efficiency. In spite of the outbreak of war three weeks after the force arrived at Hong Kong, all the men concerned had opportunities for improving their training before 7 December.

On one point the Commissioner concluded that there had been some administrative slackness. The "Awatea", the ship which carried the troops to Hong Kong, sailed with some cargo space empty and it appeared likely that she could have carried a few (though only a few) of the force's 212 transport vehicles had they been available. Twenty vehicles, including six Bren carriers, were in fact sent forward with this in view, but reached Vancouver after the ship had sailed. In the Commissioner's opinion this could have been avoided by greater energy and alertness on the part of Movement Control. As it was, these twenty vehicles were loaded along with all the others on the American vessel "Don José", which sailed from Vancouver on 4 November. Under orders from the United States naval authorities, this ship went by way of Honolulu and Manila, reaching the latter place only after war had broken out with Japan. The vehicles accordingly never reached Hong Kong but were diverted with Canadian concurrence to the use of the United States forces in the Philippines. The vehicles intended for the "Awatea" would have been useful at Hong Kong, for transport was short there. On the other hand, the lack of them certainly had no significant effect upon the outcome of the fighting.

A total of 1973 Canadian officers and soldiers (plus two Auxiliary Services Supervisors) sailed from Vancouver on 27 October in the "Awatea" and her naval escort, H.M.C.S. "Prince Robert". The passage was uneventful, and useful training was carried out on board. "C" Force, as the Canadian contingent was called, reached Hong Kong on 16 November and was greeted by the Governor, Sir Mark Young, and the G.O.C. British Troops in China, Major-General C. M. Maltby, who was also commander of the fortress. So far the whole transaction had been cloaked in secrecy, but with the movement safely completed an announcement was now issued to the effect that "a Canadian



RCN *Photo*

Lye Mun Passage at the northeast corner of Hong Kong Island. (Mainland in background.) This photograph illustrates both the rugged nature of the terrain and the narrowness of the strait separating the island from Devil's Peak Peninsula.

Force under the command of Brigadier J. K. Lawson" had arrived at Hong Kong and would serve as part of the garrison there.

HONG KONG AND ITS DEFENCES

The Crown Colony of Hong Kong consists of Hong Kong Island, the adjacent mainland peninsula of Kowloon, and beyond the latter the "New Territories". Its total area is 410 square miles. The Island itself is about 29 square miles in extent and very mountainous; there is almost no flat ground. The strait between island and mainland is less than half a mile wide at its narrowest point, the Lye Mun Passage at the island's northeast corner. The population of the Colony early in 1941 was 1,500,000. The vast majority were Chinese, many of them recent arrivals. There were certainly some Japanese agents and sympathizers among them.

The colony had always been a "defended port" of some strength, but following the Washington treaties of 1922 any improvement in the defences had been precluded by the agreement then made to maintain the *status quo* in such matters in this part of the Pacific. This arrangement lapsed only in 1937. Thereafter the defences

were somewhat improved. It is interesting to note that in the summer of 1939 the War Office appreciated that the Japanese, being now well placed on the adjacent Chinese mainland, were less likely to attack the colony from the sea. In December 1941 there were some thirty fixed guns, of calibres up to 9.2-inch, in position in the defences. The available mobile artillery was largely extemporized and included none of the latest types. There were 20 anti-aircraft guns, of which however only four were 3.7-inch and two 40-millimetre Bofors, the rest being of earlier models. There was no radar equipment.

By the time of the Japanese attack, all naval units of any importance had been withdrawn to European waters or south to Singapore (they could have accomplished little at Hong Kong) and only a few small vessels remained. This was less serious for the defenders than their total lack of air support. At the colony's airfield there were at most six military aircraft, and there was no hope of assistance from outside, for the nearest R.A.F. station was Kota Bharu in Malaya, roughly 1300 miles away to the south-west. This isolation was the fatal feature of Hong Kong's strategic situation, more particularly in view of the nearness of Japan and of Japanese bases in Formosa and on the Chinese mainland. Those concerned with planning its defence, nevertheless, took the view that it was capable of holding out for a long period. General Grasett, the retiring G.O.C. British Troops in China, who passed through Canada en route to England in the summer of 1941, had expressed to the Chief of the General Staff the opinion that the garrison, if reinforced by two or more additional battalions, would be able to withstand for an extensive period of siege such forces as the Japanese could bring against it. Reserve supplies for 130 days were on hand.

After the arrival of the Canadians, General Maltby had available for the defence of the colony a total force of just under 14,000, including naval and air force personnel and such non-combatants as nursing sisters. The military force included two coast regiments and one anti-aircraft regiment of the Royal Artillery (all containing many Indian personnel), a regiment of the Hong Kong and Singapore Royal Artillery (Indian troops with British officers), and two engineer companies. There was one battalion of British infantry (the 2nd Battalion, Royal Scots), one British machine-gun battalion (the 1st Battalion, Middlesex Regiment), and two Indian infantry battalions (the 5th Battalion, the 7th Rajput Regiment and the 2nd Battalion, the 14th Punjab Regiment). Not least useful was the Hong Kong Volunteer

Defence Corps, which included units of artillery, infantry and other arms.

Until late in 1941 the defence plan provided for using one battalion on the mainland and a brigade on the island in the first phase. In the event of attack from the landward side, the mainland positions would be held long enough to permit the complete military evacuation of Kowloon, after which the defence (except for a small bridgehead on Devil's Peak Peninsula covering Lye Mun Passage) would be concentrated on the island. The Canadians' arrival permitted the G.O.C. to increase his mainland force to a full brigade. The Mainland Brigade, commanded by Brigadier C. Wallis, was composed of the Royal Scots and two Indian battalions. The Canadian signal section was allotted to this brigade. The Island Brigade, under Brigadier Lawson, consisted of the two Canadian battalions (the Winnipeg Grenadiers in the south-west sector, the Royal Rifles in the south-east) and the Middlesex Regiment. The Canadian units, facing the sea, both had beach defence for their primary role; the Middlesex with their Vickers medium machine-guns had the task of holding the system of pillboxes (over seventy in number) with which the whole island was girdled.

Although their battle stations were on the island, the Canadians were quartered on the mainland, at Sham Shui Po Camp on the edge of the city of Kowloon. Here they carried on active training, with special emphasis on mastery of infantry weapons. Their battle role, however, received careful attention. Officers and N.C.Os. of the two battalions, down to and including section commanders, carried out several reconnaissances of defence positions and roads on the island during the three weeks preceding the outbreak of war; and there were two "manning exercises", in which the battle positions on the island were actually occupied by one platoon of each company for several days. Beginning on 1 December, one platoon of each company moved into battle positions, and remained there until war broke out. When the attack came, then, the Canadians had some knowledge of the ground over which they had to fight, though much less than they would have had at a later time.

It will be noted that the task to which the defence scheme assigned them was a static one, designed to counter an attack from the sea. In this role they were never employed, as no such attack took place. The battalions did a considerable amount of actual fighting in the general areas of the island allotted to them in the original plan. The fighting, however, took the form of mobile warfare against an enemy advancing across the island's remarkably rugged terrain from the direction of the mainland.

(To be continued)

NATO Training

By
Sqn. Ldr. L. P. Valiquet,
Officer in charge of Instructional Techniques, RCAF Training Command
Reprinted from The Roundel, Air Force Headquarters, Ottawa

Life these days at RCAF Station London is no drab affair. If, perchance, you are interested in learning a foreign language, instruction can be readily provided at Crumlin Airport in Norwegian, Italian, French, Flemish, or Dutch. If you're just looking for a change of food, the chef will probably recommend his gekookte tong, kjott salat, or spaghetti al ragu. The bar can provide kummel, sauterne, chianti, or Bols. Assorted uniforms (complete with red, orange, or gold rank badges) are available in a wide range of materials and colours — white silk for walking out, royal blue serge for the CO's parades, and navy doeskin for formal occasions.

This colourful aura surrounding Station London may be described as the NATO effect — a phenomenon that has already spread to Station Centralia and that may soon be expected to engulf Station Summerside. In a word, the RCAF is now training student pilots and navigators from five European nations signatory to the North Atlantic Treaty. As under the BCATP in the Second World War, Canada, through the RCAF, is again providing flying instruction to those of her allies whose training facilities are incommensurate with their needs. Although the number who will begin training this year is small — 68 pilots and 48 navigators — the important point is that the defence plans of the North Atlantic Treaty Organization have now reached the performance level.

Aims of the Course

As the name implies, the purpose of the Pre-Flight Orientation Course is to provide a cushion that will reduce the shock of intensive aircrew training under conditions unfamiliar to the students from abroad. Our prime concern during this adjustment period is to make our European visitors feel at home in their new surroundings. We must answer their questions and assuage their fears. Imagine the thoughts and feelings of Sgt. Michel Humbert from Paris, France, as he enters Canada for the

first time. "What sort of land is this?", he wonders. "What are Canadians like? How does RCAF discipline differ from our own? How shall I make myself understood in my poor English over the intercomm? And what about the boys from the other countries? — how shall I get along with them?"

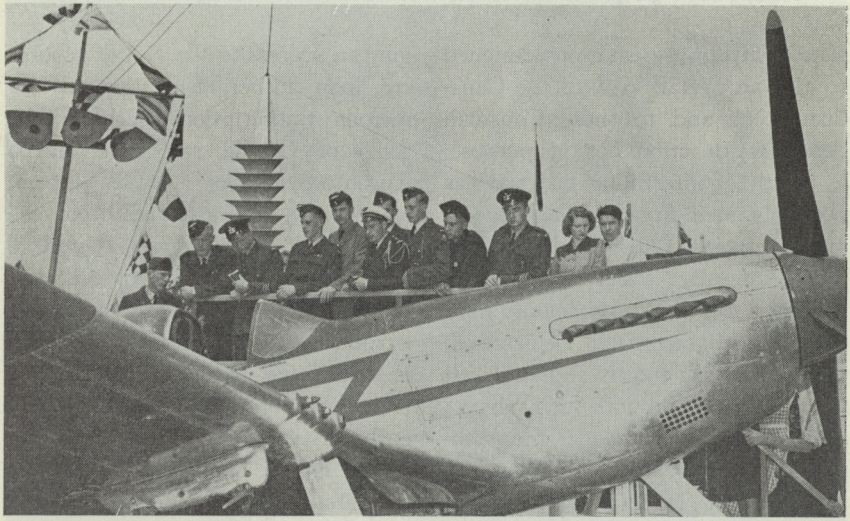
It was with questions such as Sgt. Humbert's in mind that the directing staff at RCAF Station London set up the following objectives for the NATO Orientation Course:

- To introduce trainees to Canada and the RCAF.
- To develop a vocabulary of essential aeronautical terms so that subsequent air and ground instruction may be readily understood.
- To develop a speech technique that will ensure that trainees are able to maintain effective radio communication while in flight.
- To develop a genuine NATO spirit by promoting understanding and a sense of solidarity among the various national groups.

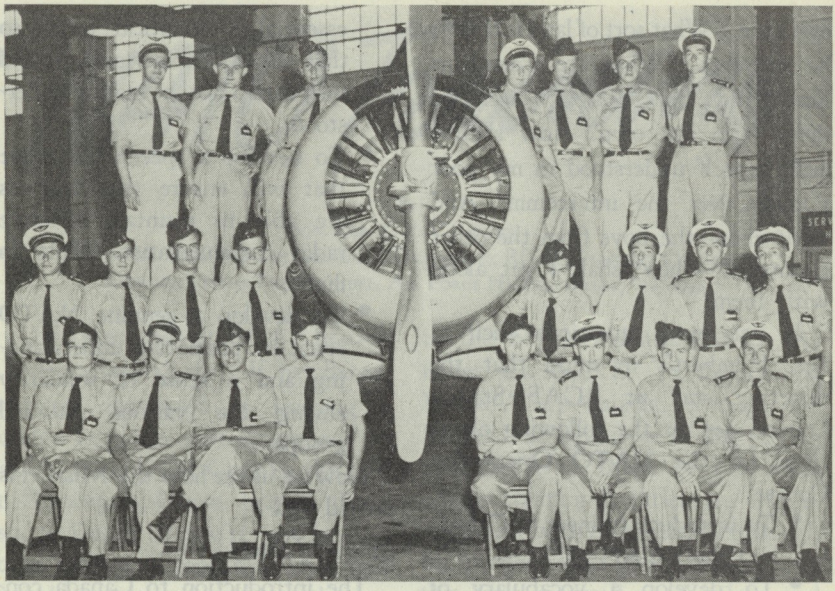
Now let us see how this Mission is carried out.

Course of Study

The introduction to Canada con-



Norway, France, Holland, Belgium and Canada are represented among this NATO group looking over a Mustang at the Canadian National Exhibition, Toronto.



French NATO group. (Pte. M. Humbert is seated fourth from the right in front row).

sists of fifteen presentations designed to give an overall view of the Canadian scene and to show Canadian democracy in action. For this purpose, a wealth of interesting material has been obtained from various government agencies. One popular feature is a carefully selected series of National Film Board colour films depicting characteristic elements in the Canadian social and cultural pattern. Films deal with such subjects as the Calgary Stampede, the Winnipeg Music Festival, the Toronto International Trade Fair, Montreal by Night, "Happy Valley", and so on. The CBC, in addition to arranging an address to the NATO course by John Fisher, has supplied numerous transcriptions such as the songs of Giselle, recordings of the Toronto Symphony and CBC Operatic Society, and excerpts from the "Canada at Work" series. It will be clear that the objective of this part of the course is to please and amuse as much as to instruct. The approach is descriptive, not propagandist, and trainee response has been extremely enthusiastic.

The RCAF familiarization lectures are pared down to the essential facts required to permit our NATO trainees to cope with Canadian

Service life. The only topic discussed in detail is the organization of a flying station. Useful information relating to Service etiquette and customs is summed up in a brochure that is issued to each trainee on arrival. In these periods trainees are invited to draw comparisons between Canadian procedures and those in effect in their own countries. Thus, much lively discussion ensues.

The hard core of the Orientation Course consists of lectures, demonstrations, and practical exercises which aim to promote the acquisition of a technical vocabulary. Under the general title of "Service English", instruction is provided to student pilots in terminology relating to theory of flight, navigation, meteorology, and the parts and controls of the Harvard aircraft. Similarly, the navigator syllabus in technical English is based on the Air Navigation School course of study.

In the Harvard classes, individual instruction is given on actual aircraft. After the English nomenclature of the instruments and controls has been mastered, the trainee is put through a series of cockpit drills which develop his ability to react

A group of Dutch trainees talk with Mrs. R. G. Ravesloat, wife of the Dutch consul, during Dutch Appreciation Week.

Flying Officer J. Spiegelenberg (left), of Holland, compares cap badges with Sqn. Ldr. L. P. Valiquet (the author) and Lt. André Maes, of Belgium.

quickly to rapid-fire orders given in English.

Speech training exercises complete the technical phase of instruction. Here the trainees are drilled in the standard form of R/T patter, and practice is given in the proper method of speaking over a microphone. After the standard sequence and phraseologies have been learned in the classroom, the trainees return to the hangar for intercomm practice and communication between tower and aircraft. Aerodrome control is taught by means of a scale model illustrating circuit procedure at RCAF Station Centralia.

The Problem of Language

One of the problems that had to be faced early in the course was the fact that the knowledge of English varied widely not only from group to group but from individual to individual within each national group. Generally speaking, the Norwegian, Belgian and Dutch candidates spoke English reasonably well and

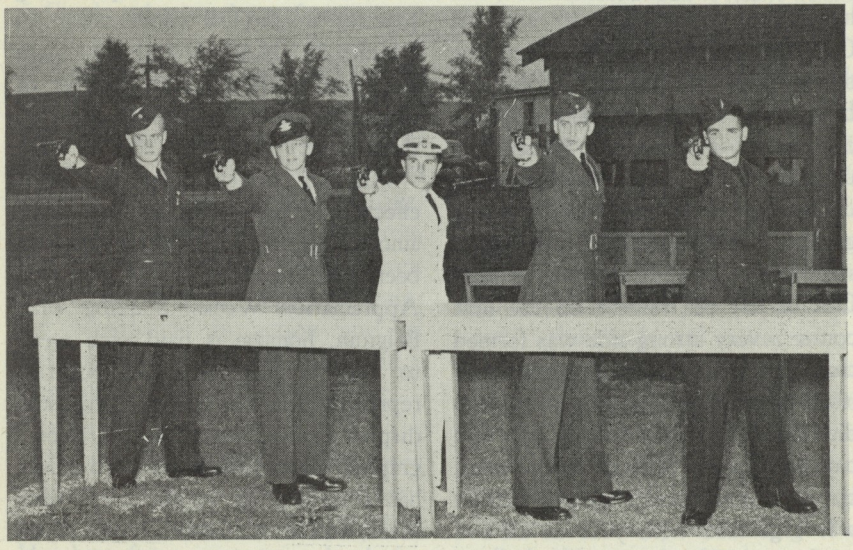
understood with little difficulty. The Italian group's English varied from good to poor. Of 27 French trainees on the first course, 21 spoke no English on arrival. We have therefore been compelled to run parallel courses, one in English and one in French, and this division will continue right through flying training. It is believed that this marks the first time that the RCAF has offered a course of training in the French language, and indications are that the experiment will be successful.

All NATO trainees have shown a keen desire to improve their English, and there has been full attendance at special after-duty language classes held twice weekly. There is general agreement among all nationalities that a knowledge of English is important not only for present training purposes but also to ensure effective liaison in any future emergency.

The NATO Team

So far we have been discussing the methods used to implement the first three objectives in our training mission. It remains to consider the final aim, that is, the development of a genuine NATO attitude.

The growth of team spirit has been perhaps the most gratifying result obtained from the course.



Revolver practice by North Atlantic Treaty Organization students at RCAF Station London, Ontario. Represented here, left to right, are Norway, Belgium, Italy, Holland and France.

This has been achieved in a number of ways, all of which serve to offset the natural tendency of the individual to seek companionship in his own national group. Despite a difficult accommodation problem aggravated by separated arrival dates, an attempt was made to mix the nationalities within the flights and also in their sleeping-quarters. This dispersal is being continued at Centralia, where Canadian flight cadets share the same barrack rooms with their NATO comrades.

Two other factors that have greatly contributed to course unity at Station London are inter-flight sports and after-duty social activities. In the games programme, trainees have been introduced to seasonal Canadian games and also given the opportunity of playing soccer and basketball, which are very popular, of course, in Europe. Soccer has undoubtedly been the chief common denominator linking the various groups together. Their clean and skilful play is a pleasure to watch. Out of the 68 trainees on the first course a very strong side was formed that gave an excellent account of itself against the best teams in the district. Not only were all five nationalities represented on the team, but a highly vocal cheering section was organized with yells in all five languages. The most popular means of exhortation was an international rendition of a French song improvised for the occasion—"Allez NATO!"

The presence of University Reserve Flight Cadets at Station London has made possible a full round of extra-curricular activities. Five outstanding Canadian cadets were selected to assist the NATO staff in handling entertainment, and evenings have been as carefully planned as the daily routine. The entertainment committee has arranged such activities as a tour of London, week-end picnics, free shows at the local theatres, dances, visits to industrial firms, and a highly successful trip to the Canadian National Exhibition. Two ideas deserving special mention are a date bureau and a scheme for providing practice in English conversation in which 27 NATO trainees were partnered with the same number of Canadian cadets for daily chats in the lounge.

Another project that has been effective in promoting understanding among the five NATO groups has been the inauguration of National Appreciation Weeks. Starting with Belgium, homage is paid each week to one of the NATO countries represented on the course. A national display in the form of posters, photographs, travel folders and pamphlets has been set up in the conference room, and an attractive brochure on the country of the week distributed to each trainee. Wednesday of each

Photo by George Lilley

Sgt. Gerard W. Akkerhuis (left) and Sgt. Marinas P. Schoots of the Royal Dutch Signals are examining machine shop equipment at the RCEME School, Barriefield. These two Dutch veterans are the first NATO soldiers below the rank of commissioned officer to receive training in Canada, and on completion of a radar course at the School they will return to units in Holland as instructors.

national week is set aside as a special day for the nation concerned. At the evening meal favourite national dishes are served with a menu printed in the appropriate language. The guest of honour is the consul from the nearest consulate, who is given the opportunity of seeing the training programme in action and of meeting his countrymen. Films and a stag party round out the evening.

Trainee Reaction

In any training situation the most important factor is the trainee himself. Let us return to Sgt. Michel Humbert for a moment and ask for his impressions after five weeks at RCAF Station London. He says:

"I am beginning to think Canada is the happiest country in the world. Everybody seems satisfied and well-to-do. Canada is so huge a land; it's a real continent in itself. It shows power and richdom. What a difference to Europe! Highways, railways, air lines and sea lines join the different towns, thousands of miles away. Everything is different to our own country — the towns, the roads, the signals, the houses, the food, the people. People look very nice and polite, but you feel immediately their whole different way of thinking. We smell the liberty, the freedom of the New World, and every day we believe more and more in the un-

known treasures of this country. We never dreamt to find such a land, so happy and gay . . . "

Michel's impressions of Canada are echoed by his comrades from the other NATO lands. They have their dislikes too, of course, most of them centring round food. They will tell you, with commendable restraint, that the food is good, but the preparation is—well—different! The Dutch object to "the food all mixed together on one plate," and the Italians deplore the lack of garnish and sauces in Canadian salads. Corn-on-the-cob is universally taboo, on the same grounds that Dr. Johnson rejected oatmeal porridge.

Trainee response to classroom instruction has been characterized by sustained enthusiasm and unswerving attention. Results of weekly progress tests have been uniformly high and pay tribute to the quality of the trainees. Consider, for example, the first course of student pilots.

The Italians have all attended the Italian Aviation Academy, which compares favourably with the Royal Military College or Royal Roads. They have also completed 35 hours' air training on Stinsons. The French trainees were selected on the basis of an exhaustive battery of aptitude tests, and many have had either civilian flying, or soaring experience. The Dutch and Belgians, in addition to a rigid series of selection tests, have had about twelve hours on Tiger Moths. The Norwegians have had five years of high school and were carefully screened both for knowledge of English and for flying ability as revealed by the visual Link trainer. There is no doubt whatever that these lads are absorbing instruction.

Conclusion

A survey of the results obtained on the NATO pre-flight orientation course points to two firm conclusions. First, the course is doing the job for which it was designed. Apprehensive trainees arriving at Station London are going on to flying training with their morale high, and confident in the knowledge that they are well-equipped for the task ahead. First reports are that, thanks to their orientation training, they are doing well in the initial phase of their flying instruction.

Secondly, the orientation course has shown that the NATO idea rests on a sound psychological basis. At RCAF Station London, young men differing widely in language, traditions and outlook, have learned to work together and play together as one team. This spirit of unity augurs well for the future. One dares to hope that on the democratic soil of Canada a seed has been planted from which will develop a better understanding among the free nations of the western world.

PROGRESS IN AA DEFENCE

By
Capt. P. Martel, ba, basc, ptsc, RCA,
Directorate of Armament Development, Army Headquarters,
Ottawa

Had we at our disposal projectiles of infinite velocity, like the death rays and the cosmic disintegrators of the comic strips, then the anti-aircraft problem would be reduced to the location of the enemy and the aiming of our weapon at him. We would be like the searchlight operator sweeping the skies with his narrow beam and illuminating the enemy aircraft for a fraction of a second.

At the root of the difficulties facing the anti-aircraft defences to-day is the relatively long time of flight of the shell, which, by introducing delays of many seconds between the instant the gun is fired and that at which the shell explodes, makes the odds more than ten to one in favor of the airplane. The importance of a short time of flight can be emphasized by stating that the chances of a kill are approximately inversely proportional to its square. For instance, if a weapon has, for a given range, a time of flight half that of another, its chances of a hit are four times greater.

On account of the time of flight we are, literally speaking, glorified duck shooters, aiming ahead of the target after assessing its velocity and direction. We must point the gun at some point in the sky where we hope that both the shell and the aircraft will meet.

The anti-aircraft problem is three dimensional. It consists of the detection of a target in the skies under all conditions of visibility, of its identification and, naturally, of its destruction. To solve it, we must be able to pick, at any instant, from all aircraft overhead those of interest, locate them with great accuracy, compute continuously where they will be a few seconds later, aim a gun at that point and finally detonate a shell where it will do maximum damage, taking into account such imponderables as wind aloft, temperature of the air and of the propellant, variations in the weight of the shell, and, the last but not the least, the tremendous capacity of human beings for errors.

The best brains of the world have been engaged for many years in the thankless task of searching for solu-

tions to the problem. They have produced numerous answers which, as time goes on, involve bigger and more complicated instruments, the size and weight of their products growing with some power of the increase in accuracy achieved rather than proportionally to it. The present solution to the anti-aircraft problem rests on five basic steps and it is my intention in the present article to review the trends in the development of the instruments which enable us to direct our anti-aircraft fire.

The basic principles underlying Anti-aircraft Fire Control can be listed as follows and the development of the instruments can be traced chronologically in the same order:

1. Early warning.
2. Local warning.
3. Accurate location.
4. Computation.
5. Control of the weapon.

Without the amazing scientific discoveries made during the study of the basic steps of Warning and Location, no new weapon would be possible to-day. The hostilities ended in 1919 with the various armies in possession of fairly powerful guns, since the science of ballistics is much older than the airplane. However, they were lacking considerably in adequate means to control them accurately when firing at an aerial target.

At such an early stage light and sound were the only features which made the detection of airplanes possible. These physical phenomena were utilized to the utmost but the instruments designed produced too poor a quality of data to permit prediction of a future position of the target except under ideal conditions. Computers were also in their infancy and no one today would dare to compare the Brocque Predictor to a modern electronic instrument.

Radar was literally the break in the clouds which, within its limits of accuracy, solved the problem of Early and Local Warning and also of Accurate Location. Subsequently the two first principles of anti-aircraft defence attained such a peak of technical development that they have passed from the research into the engineering stage and that it is now up to their tactical employment to be investigated. It is certain that the new weapons which will result from the investigations of the fifth principle will require an extensive net of Early and Local Warning. It is also certain that radar will be the basic instrument of that net.

Early and Local Warning

Early Warning is that phase of the defences which involves the knowledge of all aircraft flying over friendly territory and their identification. It is ably performed by the Air Force, as they have at their dis-

posal the sources of information from their control of friendly air traffic and from their long-range radar sets. It is mostly a problem of assessment and rapid communication and does not require the split second accuracy of gun control.

Of greater interest to the anti-aircraft gunners is the Local Warning, as it is their first contact with the enemy. Based on the local warning information is the decision as to which target will be engaged first, and which gun will engage the target. It is also the source of information which will enable the correct pointing of the position finder instruments in a minimum of time.

The doctrine of Early and Local Warning has seen many changes and even today the importance attached to it varies with the countries. When, before the advent of radar, Early and Local Warning were usually the same and taken care of by visual look-outs, very crude information was passed down to the batteries as to the rough position and nature of incoming raids. With long-range radar the situation has changed considerably: it is now possible for each battery to its search own area and to combine this information with that available from adjoining sites and from the Air Force warning net.

The long-range radar sets have introduced new factors in the problems of centralization versus decentralization of the control of the defences. The tendency towards more centralization can be followed throughout the last war, during which every time a new instrument was introduced a period of greater centralization was attempted, followed usually by a reversion to some form of local control as the limitations of the new instrument were better known. This tendency to control the Anti-Aircraft Defences from a Central Control Centre has always existed and any step backwards to local control has never been willingly conceded but rather tolerated pending the development of more accurate and more complex instruments, which, in the years to come, may make possible a Control Centre entirely automatic, where all information will be collected and assessed in a matter of seconds.

Accurate Location

Although essential to Early and Local Warning, it is in the third phase of the AA defences that radar permitted the major advance. While for warning, the primary requirement is not so much accuracy as range, so that the maximum length of engagement time can be obtained, for accurate location the great accuracy in range measurement permissible by radar was ideal.

The means at our disposal to track an enemy target can be dichotomised as passive and active. The first instruments devised for anti-aircraft

position finding used the passive approach: they utilized some feature of the aircraft to detect it and follow its course. However, passive means suffer from the disadvantage that the source of the information is in the hands of the enemy or at least out of our control and that continuous and accurate range measurement is almost impossible. On the other hand, they are less susceptible to jamming and result in much simpler instruments. Active means consist of any method in which the source of the target illumination is in our hands, where it can best be controlled. These types of instruments are necessarily more elaborate and more susceptible of being jammed by the enemy, but they usually make up in accuracy what they lose otherwise.

Sound locators were the first of the passive instruments and gave a fair indication of the direction of an airplane, but they suffered from the basic defect of passive devices: range could not be measured except by triangulation, using two or more locators. Even with such an elaborate set-up, the quality of data was not sufficient to warrant the prediction of the target future position. On account of the relatively slow speed of sound, the data was always stale by 10 to 20 seconds, which meant, in the days of the sound locator, an error of some five hundred yards. The most that could be achieved was a rough prediction at which a barrage of shells was fired.

Visual means were by far superior to sound. Radar even today does not compete with a good operator tracking a target through a telescope for accuracy in bearing and angle of sight. However, visual means fell down also when they were used to measure range. The data produced was irregular and the accuracy low. Fortunately it was in this respect that radar showed much superiority. Radar's chief contribution resides in the improvements achieved in continuous range measurements from which accurate rates can be determined. Radar is the first active integrated instrument to be designed and is also the best position finder so far. Searchlights can be excepted as they are not properly speaking an instrument but merely a help for visual tracking.

Will we ever see a reversion to passive means of observation? It is an open question which will be solved only by deeper studies. It is possible, for instance, that in the new realm of guided missiles some other feature of the target than sound and light may prove suitable, like the heat of the jets, the magnetic and electrostatic fields surrounding the airplane or, maybe, the radiation of some atomic particle. Mentioning all these possibilities may be only daydreaming, but there is still a very large field of

Science as yet completely unexplored.

Computation

It is well known that an important part of the overall error of present anti-aircraft systems result from the necessity of predicting the future position of the target. We meet here the major obstacle to accuracy: time, both as time of flight and as "smoothing" time in computation. The longer the time of flight the greater the total error introduced by velocity measurements and the greater the time available to the target to manoeuvre out of range.

The simplest way of computing the target future position is a piece of paper on which its course can be extrapolated. Obviously this process is slow. Time is wasted in plotting, finding out from the range table the time of flight of the shell, etc. The process can be speeded up considerably by using an automatic computer which does the extrapolation automatically. Many types of computers have been designed, some with the origin of the co-ordinate system at the target, others with the origin at the gun. Some use polar co-ordinates, others cartesian.

In the American, British and Canadian service, the latter types seem now to be favored, although it involves the transformation of the range, bearing and angle of sight to the target as measured by the radar into eastings, northings and height and, after prediction, a reconversion to quadrant elevation, bearing and fuze. The advantages of such a system are constant and smoother rates and ease of correction for wind and displacement. The adoption of this type of computer followed by many years the design of the first instrument which was of the polar co-ordinate type. In light anti-aircraft predictors and computing sights, where the time of flight is short and simplicity is paramount, polar co-ordinates are still used.

Computation today, like radar, does not offer any major problem of design. The basic scientific principles are well known and it is now possible to build computers capable of solving instantaneously the most difficult equations. There is still, however, great opportunity for improvement in the field of better and more rugged components.

The main difficulty in the development of computers is the measurement of target velocity or, to speak technically, of rates, in the minimum of time. For greater accuracy, the rates must be smooth and smoothness means averages and weighting functions; these operations take time. The longer the time, the smoother the rates, but also, the more stale the data and the shorter the time of engagement.

All types of computers make one major assumption, namely, that the target will continue to fly during the time of flight of the shell the same

course as it did during the measurement of the rates, whether it be on a straight line or on a curve. Prediction of future position can be done as well in either case. All that is involved for curve course prediction is the addition of second and third derivative terms to the basic equation of the target linear trajectory. The value of any prediction other than that based on a straight line course has not been fully proved yet and there is no value to any prediction when the pilot flies a random course. Any hits are then merely due to chance.

Control of the Weapon

This final step of the defences involves not only the correct pointing of the weapon but also the explosion of the warhead at the optimum distance from the target.

Emphasis nowadays is on complete automatic control. It has been found that, through no fault of his, the human operator is slow and that a human link is an important source of error when dealing with targets flying at speeds of 400 to 600 miles per hour. The operator has therefore been replaced in all modern instruments by automatic controls with instantaneous electrical transmission at data. At the gun it is called Remote Control. Remote Control is just a glorified name for an ordinary servo-motor. At the end of a transmission cable we receive electrically from the computer the required position of the gun and to it we compare its actual position. If these positions are different, an error signal is passed through an amplifier and operates a motor which turns the gun in such a direction as to minimize the difference. This operation is done almost instantaneously and repeated continuously so that the gun follows exactly the output of the computer. The motor does merely what the operator did before but much faster. The mere fact of fitting a gun with remote power control certainly doubles and in many instances triples its chances of hitting.

We could go one step further and control the shell instead of the gun. We would in effect reduce the time of flight to almost zero as we would continue to control the projectile until it practically hits the target. The possibilities of this system are such that most countries today spend millions of dollars for research and development in the field of guided missiles.

As soon as a guided missile becomes operational or, even more, concurrently with its development, we complete the cycle of AA development. However, the solution is far from being final. The onus will be switched back to warning and computation which will become the major sources of trouble and require major re-design to be able to compete with the advances made in the projectile efficacy.

The last problem in the control of the weapon is the detonation of the warhead at the optimum distance. Until the introduction of reliable fuzes, there were few advantages in increasing the muzzle velocity of AA guns. The old mechanical and powder time fuzes were the sources of errors as large as 200 feet at the target when the shell was fired with a velocity of some 2500 feet per second. As the error of time fuze is measured in terms of fractions of a second, it is obvious that for a given fuze and a given error the larger the velocity of the shell, the larger will be the miss distance. The situation was changed completely with the introduction of proximity fuzes, which are rightly considered as the second major discovery of the last war, the first one being the atomic bomb. By bursting consistently at the right distance from the target, the proximity fuze quadruples the effectiveness of AA fire.

Conclusion

One of the most significant developments in the technique of warfare today has been the employment of a larger number of aircraft, both of the piloted and of the pilotless types. Consequently, any protective system of the future must be flexible enough to cope with a large variety of targets at the same time. Increased speed of targets requires rapid and accurate decision at a central control point and a reduction of the time of preparation before opening fire. All essential data should therefore be assembled in convenient form for observation. Search coverage should be complete and rapid so that no target can come over the defence area without detection in time to be engaged. A corollary of this statement is that search should be independent of the tracking phase, thereby requiring at least two radar sets.

Due to the increased speed of the targets, data smoothing circuits should permit the computer to furnish to the guns accurate firing data in the shortest possible time. The computer should also be capable of providing curvi-linear prediction; however, in the light of massive formations and of the high speeds forseeable in the future, the manoeuverability of the airplanes will be considerably reduced and provision for large radii of curvature only should be sufficient.

Finally, to reduce the number of weapons deployed, their range should be increased considerably together with their accuracy. We have been told of the wide possibilities offered to us by guided missiles in increased accuracy. Fortunately, they are also susceptible of very long ranges compared to guns. Let us hope that they will be the answer to the supersonic high altitude bomber.

The Yukon Field Force 1898-1900

WRITTEN SPECIALLY FOR THE JOURNAL BY THE HISTORICAL SECTION, ARMY HEADQUARTERS, OTTAWA

The Canadian soldier has played a greater part in the development of modern Canada than many of his compatriots realize; and all his services have not been rendered on the battlefield. One little-known example of service of a different sort is the work of the Yukon Field Force, which helped ensure order in Canada's farthest North-West in the feverish days of the great gold rush.

The discovery of gold in the Klondike in August 1896 led to a rush to the Yukon, which began in 1897 and swelled to a flood in 1898. In the train of the gold-seekers came all types of humanity, both male and female, many of them of very questionable character. All told, about 42,500 people poured into the Territory.[1] The North-West Mounted Police—first sent into the Yukon in 1894—were reinforced, and to assist them in maintaining law and order a force of 203 volunteers from the Permanent Militia[2] was dispatched there in the spring of '98.

The Yukon Field Force, authorized by order-in-council 21 March 1898, was commanded by Lt.-Col. T. D. B. Evans of the Royal Canadian Dragoons and composed as follows:—

Staff	5
The Royal Canadian Dragoons	16
Royal Canadian Artillery	49
The Royal Regiment of Canadian Infantry (now The Royal Canadian Regiment)	133

The Force, armed with Lee-Enfield (.303) magazine rifles and two Maxim

guns[3] left Ottawa on 6 May and arrived at Vancouver 11 May. Three days later it embarked on the steamship *Islander* and proceeded to Wrangell, in the Alaska Panhandle, the passage taking two days. Transshipping supplies and equipment on 17 and 18 May to the stern-wheelers *Strathcona* and *Stikine Chief*, the Force proceeded on 19 May up the Stikine River to Glenora, the *Stikine Chief* arriving on 21 May. The *Strathcona* was delayed for a few days on account of engine trouble.

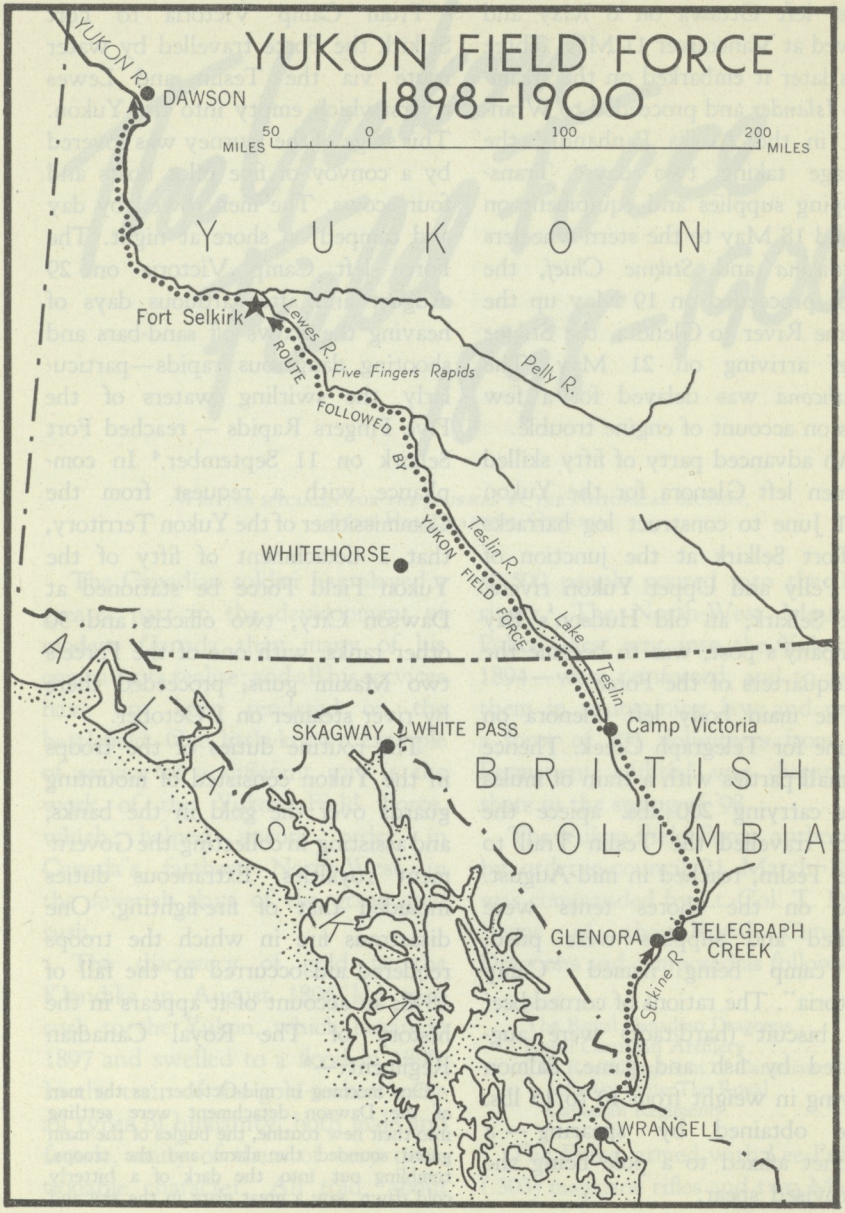
An advanced party of fifty skilled axemen left Glenora for the Yukon on 1 June to construct log barracks at Fort Selkirk at the junction of the Pelly and Upper Yukon rivers. Fort Selkirk, an old Hudson's Bay Company's post, was to become the Headquarters of the Force.

The main body left Glenora on 9 June for Telegraph Creek. Thence in small parties with a train of mules each carrying 200 lbs. apiece the Force travelled the Teslin Trail to Lake Teslin, reached in mid-August. Here on the shores tents were pitched and supplies were piled, the camp being named "Camp Victoria". The rations of corned-beef and biscuit (hard-tack) were augmented by fish and game. Salmon varying in weight from 10 to 15 lbs. were obtained by spearing — a bayonet affixed to a pole being the improvised spear.

From Camp Victoria to Fort Selkirk the Force travelled by water route via the Teslin and Lewes rivers which empty into the Yukon. This stage of the journey was covered by a convoy of five pilot boats and four scows. The men rowed by day and camped on shore at night. The Force left Camp Victoria on 29 August and after arduous days of heaving the scows off sand-bars and shooting dangerous rapids—particularly the swirling waters of the Five Fingers Rapids — reached Fort Selkirk on 11 September.[4] In compliance with a request from the Commissioner of the Yukon Territory, that a detachment of fifty of the Yukon Field Force be stationed at Dawson City, two officers and 50 other ranks, with one of the Force's two Maxim guns, proceeded there by river steamer on 1 October.

The routine duties of the troops in the Yukon consisted of mounting guards over the gold in the banks, and assisting in collecting the Government royalties. Extraneous duties included that of fire-fighting. One disastrous fire in which the troops rendered aid occurred in the fall of 1898; an account of it appears in the history of The Royal Canadian Regiment:—[5]

> One morning in mid-October, as the men of the Dawson detachment were settling into their new routine, the bugles of the main guard sounded the alarm and the troops, tumbling out into the dark of a bitterly cold dawn, saw a great glare in the sky and



Historical Section, G S

knew that Dawson City was on fire. A carouse in the Monte Carlo theatre had resulted in an upset oil lamp, so the story later ran, and a score of buildings were blazing fiercely. For a time, despite the efforts of the Mounted Police, the Yukon Field Force detachment, and of the civilian population, the fire spread rapidly, the danger being intensified when certain of the civilian salvage crews discovered whiskey in a blazing saloon, dragged a half dozen barrels to the street, stove in the tops, and invited all so inclined to drink as much as they wanted. Meanwhile the flames swept on. Dynamite was used without effect, but eventually a fire-engine, released by the Yukon Commissioner from a warehouse where it lay in bond, supplied streams of water which brought the fire under control. Blocks of the town lay in ashes by this time; the remaining blocks would also have burned but for the work the police and the troops accomplished.

In September 1899, Headquarters were transferred to Dawson City; the Force was reduced by fifty per cent and became known as the Yukon Garrison. The troops withdrawn consisted of four officers and 93 other ranks. Their return was by way of the White Pass to Skagway, thence by steamer to Vancouver and by rail to home stations. Major T. D. R. Hemming, R.C.R.I., who arrived in Dawson City in October, succeeded Lt.-Col. Evans in command of the Garrison. Steele in his *Forty Years in Canada* commented:—

> We were very sorry indeed to see them depart, for they were generous comrades and good soldiers, and had been of great assistance to us [the Mounted Police]. Little did I think that in a couple of months the majority of them would be on their way to South Africa,[6] and that we should serve side by side with them in fighting for the Empire.

On 1 July 1900 a small unit of the Non-Permanent Militia was organized in Dawson City, the Dawson Rifle Company,[7] consisting of three officers and 39 other ranks. The balance of the Yukon Garrison, being no longer necessary as such, had been withdrawn upon the opening of navigation in June that year, leaving their rifles and ammunition "in the custody of the North-West Mounted Police".[8]

Four of the officers who served among the "Sourdoughs" attained general rank in the First World War. Major T. D. R. Hemming completed his army career as Major-General (C.M.G.). He was G.O.C. M.D. No. 3 from 1913 to 1918. He died in June 1944 at the ripe old age of 82. The Medical Officer, Surgeon-Major G. L. Foster, became Major-General (C.B., F.R.C.S., LL.D.) and was Director General of Medical Services, Overseas Military Forces of Canada, 1918–1919. He died in May 1940. Captain H. E. Burstall, R.C.A., later Major-General Sir Henry Burstall, K.C.B., K.C.M.G., commanded the Artillery of the Canadian Corps, 1915–1916, and from December 1916 to demobilization was G.O.C. 2nd Canadian Division. He died in February, 1945. Captain P. E. Thacker became Major-General (C.B., C.M.G.) and was Adjutant General, O.M.F.C., 1918–1919. He died in July 1945.

(See following page for Footnotes)

ON THE WRONG TRACK

During the winter campaign in Italy in late 1944, when the First Canadian Division was fighting across the Sangro, the vehicle congestion on the main routes was something terrific, with the result that a convoy might wait for hours to cross the only bridge.

Viewing the possibility of a long delay with some alarm, the officer in charge of a convoy heading north spotted a well-developed set of vehicle tracks branching off from the main route just where he was held up, and decided that where one convoy could go his could follow. On arriving at the bank of the river and noticing the tracks emerging on the far side, he jumped to the obvious conclusion that the water must be shallow and thereupon drove in followed quickly by two or three of his 3-tonners. The vehicles sank completely out of sight.

After being rescued, he learned that the route he had followed was that normally used by a platoon of DUKWS*. — *Contributed by Brig. J. W. Bishop, OBE, Vice Adjutant-General, Army Headquarters, Ottawa.*

* *Amphibious vehicles.*

THE YUKON FIELD FORCE

(*Continued from preceding page*)

Footnotes

[1] Canada and its Provinces (*Toronto, 1914*). *Vol. XXII, page 607.*

[2] "*12 officers and 191 of other ranks, making a total of 203, or 24.4 per cent of the total [permanent] establishment.*" (Department of Militia and Defence, Report for the year ended 31 December 1898, *page 37*).

[3] Ibid, *pages 3 29.*

[4] "*The march of this force across an hitherto but little known and very difficult country was conducted with judgment and skill on the part of the officer in command. The difficulties encountered were not unlike those experienced by the Red River Expedition in 1870.*"

(*Major-General E. T. H. Hutton, Commanding Canadian Militia*, Report of the Department of Militia and Defence, year ended 31 December 1898, *page 25*).

[5] *R. C. Fetherstonhaugh*, The Royal Canadian Regiment 1883–1933 (*Montreal, 1936*), *page 76.*

[6] *Among the officers of the Yukon Field Force who served in South Africa were Lt.-Col. T. D. B. Evans — who went out as second in command of the R.C.D., won the C.B. and returned a second time as Colonel in command of the 2nd Regiment, Canadian Mounted Rifles; Major D. C. F. Bliss (Supply Officer); Captain H. E. Burstall, R.C.A. (who served in South Africa with the R.C.R.); Captain C. St. A. Pearse; Lieut. P. E. Thacker (Captain and Adjutant at Dawson City), and Lieut. L. Leduc.*

[7] *The Dawson Rifle Company was disbanded 2 Nov 05 (G.O. 234/05).*

[8] *Report of the Adjutant General.* Sessional Paper No. 35, 1901, *page 43.*

A COMPARISON

FIELD ARMIES
RUSSIAN—AMERICAN—BRITISH

MAJOR S. J. WATSON, RE,
IN THE ARMY QUARTERLY (GREAT BRITAIN)

PART 2

NON-DIVISIONAL TROOPS

The Higher Command—In England the Chiefs-of-Staff of the three Services are separately responsible to the Government. In the USA the Chairman of the Chiefs-of-Staff is responsible to the Government for all three Services. In Russia the head of the MVS Unified Command of the three Services is himself a Minister of State; moreover, under him the supply and administrative directorates of all three Services are grouped in a single organization called the "Rear of the Armed Services." Thus, instead of three separate Services, each with its own channels to civil industry and manpower, Russia can be said to have integrated her war effort under two main headings:—

(a) The Armed Forces as one entity.

(b) The Rear, which includes the mobilization and direction of civil industry and manpower.

These are supported on the home front by the MVD; and behind the enemy's front by the Fifth Column, which may also include partisan bands.

Higher Formations — The field armies of all three nations are flexibly composed of divisions grouped according to operational requirements. For example, typical war-time armies might be composed as shown in Table 1.

Russian army groupings may be expected to be somewhat similar. The Russian "Fronts" of the 1939-45 war roughly corresponded to the American and British Army Groups. All the above formations have additional support and administrative

Nation	No. of Corps	Corps Components	Total Divisions
Britain	3	Three infantry divisions or two infantry divisions + one armoured division.	9
USA	3	Three infantry divisions + one armoured division.	12

Table 1

units incorporated under corps or army command. Indications of the comparative peace-time strength of the armies of the three nations are given in the following figures quoted from the 1949 edition of Whitaker's Almanac:—

England, as at 7 July 1948. . . 530,700
USA, as at 1 June, 1948. . . . 542,000
Russia: peace-time annual intake exceeds. 1,250,000

DIVISIONAL TROOPS

General — England, the USA and Russia assess their relative fighting strengths in terms of divisions, since the division is the basic formation in which all arms and services are found. Both Russia and the USA incorporate organically under one command the elements of manœuvre, fire support and administration down to regimental level. For example, in the US infantry regiment are in-

Item	Britain	USA	Russia
ARTILLERY	Preponderance of field artillery. Emphasis on rapid and accurate fire of small projectiles. No rockets. Anti-tank firepower reinforced by tank armaments.	Preponderance of heavy howitzers and heavy mortars on wheeled mountings. Emphasis on weight of projectiles. Mobile rocket launchers All anti-tank fire provided by tank armaments.	Tank armaments used primarily against personnel. All guns can fire in anti-tank role. Weak in LAA, but use 12.7 mm. AA LMG's.
TANKS	One type of capital tank for all purposes. Slower than all US and Russian tanks. Outgunned by all heavy tanks.	Light tanks for reconnaissance. Medium tanks. Heavy tanks. All outgunned by Russian heavy tanks.	Low silhouettes. Small reserve of horsepower.
ENGINEERS	Fully-equipped and highly trained. Assault engineers grouped as Army or GHQ troops.	Assault engineers included in divisions.	Lack of technical training offset by skilful improvisation. No assault engineers as such.
SMALL ARMS	LMG is basis of small-arms firepower. Only 4 MMG's per battalion. Bolt magazine rifle is basic personnel weapon. No problem in SAA supply.	MMG's used at company level. High proportion of automatic firearms carried as personal weapons. Numerous types of small arms liable to complicate ammunition supply.	All soldiers trained to use captured enemy weapons if own ammunition supply fails.
SIGNALS	Large numbers of wireless sets.	Teletypewriters included in divisional equipment.	Reliance on line communications laid in pre-planned arteries.
VEHICLES	Large numbers of vehicles and/or trailers. Limited use of armoured personnel carriers. Most vehicles organic to units.	Extensive use of armoured utility vehicles. No carriers, armed cars, or motorcycles. Use of jeeps for mobile reconnaissance. Extensive use of pool transport.	Some rifle division transport horse-drawn. No equivalent to armoured personnel carriers. Use of motor-cycles for mobile reconnaissance.

Table 2.

cluded a tank company, heavy mortar company and medical company; in British practice, these elements are grouped separately and attached in support of units as and when required. Similarly, there is no tank component organic to the British infantry division, but an independent armoured brigade is normally available on a scale of one to each infantry division. The airborne divisions of the three nations are not here considered in detail, since they are basically infantry divisions employed in a special role. Mention was made during the last war of Russian "artillery division", but these are merely ad hoc formations of Army troops.

Manpower — In total manpower, the British Divisions are the largest and the Russian divisions are the smallest. It was recently disclosed in the RUSI Journal[1] that Russian divisions are roughly equivalent to enlarged British brigades; they therefore show their direct descent from the "toumans" of Jenghis Khan, which were self-contained formations of 10,000 men. On the proportional basis of fighting troops to the total divisional strength, the order of the three nations is directly reversed, though there is no great disparity between the percentages of manpower absorbed in formation headquarters. The essential difference in manpower grouping lies therefore in the size of the administrative tails.

Fighting Units and Equipment — Table 2 summarizes the main differences in the allocation of weapons and equipment to the divisions of the three nations.

It is of interest to note that German commanders on the Eastern Front have testified that Russian tanks, though crudely finished, proved most effective in battle. The famous JS tank has as one of its features three machine guns, one of which fires from the rear of the turret; but it also has a weakness in the slow rate of fire of its main 122-mm. armament, for which it carries only 28 rounds.

Administrative Units — Divisional workshops are proportional to the amount of divisional equipment. In American divisions, maintenance and repair is the responsibility of each service for its own equipment, whereas in British divisions the repair effort is concentrated in REME first-line workshops; this accounts for the main difference in the size of administrative tails. The Russian organization is primarily concerned with recovery in forward areas; field repairs are mainly the replacement of complete assemblies rather than repairs to individual components.

The strength of Russian divisional repair units is 75 per cent. greater

[1]*See article "The Soviet Armed Forces," in RUSI Journal, November, 1949.*

than that of their medical units, whereas the British divisional RAMC strength outnumbers the REME strength. It is not therefore surprising that, of the thirteen ration scales adopted in the Soviet Army from 1941-45, the highest was for soldiers in the front line and the lowest was for those in hospital.

None of the three nations has produced an administrative vehicle for cross-country use, though the American "Armoured Utility Vehicles" come nearest to this category.

THE HANDLING OF THE ARMED FORCES OF ENGLAND, THE USA AND RUSSIA IN RELATION TO THE PRINCIPLES OF WAR

"An Army springs from national life and is not imposed upon it; it therefore has the habits and takes the fashions prevalent among the civil population."—From "The Pattern of War," by Lieut. General Sir Francis Tuker.

Maintenance of the Aim and Co-operation

(a) The authoritarian government of Russia has three advantages over the democracies of Britain and the USA:—

(i) The decision to go to war and the subsequent direction of the war are decided without reference to the people through debates in Parliament or Senate.

(ii) There is virtual integration of political and military policy.

(iii) Russia's aim is not likely to be affected by the 'requirements of Allies. The Satellite States are expected to obey orders from Moscow.

(b) In Britain and the USA it must be expected that:—

(i) Considerable weight will be given to public opinion. During the last war it proved desirable in England, and essential in the USA for higher commanders to "get a good press." As Liddell Hart wrote in "The British way of Warfare": "Only an absolute ruler, firmly in the saddle, can hope to maintain unswervingly the military ideal of the 'armed forces objective.' The strategist who is the servant of a democratic government has less rein. Dependent on the support and confidence of his employers, he has to work within a narrower margin of time and cost."

(ii) There will often be divergencies between military and civil aims.

(iii) Due consideration must be given to allies, despite difficulties in co-operating with them. This was well illustrated by Eisenhower's deal-

ings with Giraud and De Gaulle.

Maintenance of Morale

(a) The following quotations give the attitude of the world's most eminent commanders on the subject of morale and welfare:—

(i) *British* — "Montgomery understood the 'civilian army' as few before him. The rigid old discipline was not enforced. Human weaknesses were fully appreciated and the man's lot made as easy for him as possible. This is why he was so lenient as regards dress, and why a certain amount of 'personal commandeering' — technically I suppose it might be called 'looting' — was winked at." (From "Operation Victory," by Major-General de Guingand.)

(ii) *American* — "Attention to the individual is the key to success, particularly because American manpower is not only our most precious commodity—it will, in any global war, always be in short supply." (From "Crusade in Europe," by General Eisenhower.)

(iii) *Russian* — "Marshal Zhukov showed little interest in measures that I thought . . . should be taken to protect the foot-soldier. The Russians viewed measures to protect the individual against fatigue and wounds as possibly too costly. Great victories, they seemed to think, inevitably require huge casualties." (From "Crusade in Europe," by General Eisenhower.)

(b) in British and American units considerable care is devoted to the welfare of the individual; from this is developed an intelligent and corporate team spirit.

Morale may be impaired by:—

(i) Attacks against the homeland.

(ii) Heavy battle casualties.

(iii) Interruption of the lines of communication, with consequent shortage of supplies and amenities.

(c) The Russians depend for the up-keep of morale upon overall success, regardless of invididual privation or suffering; only obvious and irrevocable failure is likely to impair it.

Offensive Action

(a) Characteristic offensive action by Russian armed forces is:—

(i) Local or general attacks backed by the full weight of supporting arms to breach and eventually encircle enemy dispositions.

(ii) Local counter-attacks by infantry against a successful thrust by the enemy, to make

him commit his reserves.

(iii) Large-scale counter-attacks by armour against the enemy's spearhead, as soon as his lines of communication are stretched and his reserves committed.

(iv) Incessant attacks by guerillas or airborne troops against the enemy's lines of communication to force him to commit fighting formations to garrison and escort duties.

(v) Practical "last-man, last-round" policy if surrounded.

(b) Britain and the USA will presumably start future wars on the strategic defensive, relying initially on their flexibility to conduct tactical offensives wherever local superiority can be achieved. It will at all times be vital to prevent or defeat the enemy's reconnaissance, and so deny him the information required for planning his own offensives. Once their armies have established a firm base from which to operate, they will certainly take and maintain the overall offensive with the same determination as the Russians, though not with the same ruthlessness.

Security

(a) The seas, which have hitherto given Britain and the USA security from invasion, entail long and often insecure lines of communication. Furthermore, Britain's concentrations of industry and population are most vulnerable to air attack. There is consequently a tendency to over-insure against administrative interruptions, which makes base installations ponderous and static. Potential menaces to security are:—

(i) Attacks, especially by submarines, against sea lines of communication.

(ii) Air attacks against base areas and the homeland.

(iii) Propaganda aimed to split Allied nations.

Protection of bases and communications will absorb the greater part of the initial war effort of Britain and the USA.

(b) Russia is more secure, being self-sufficient, but is nevertheless open to:—

(i) Air attacks against base areas and inland communications.

(ii) Propaganda to encourage separatist movements in satellite countries.

Concentration and Economy of Force

(a) The Russians are fully alive to the advantages of concentrating against the enemy a local superiority in armour and manpower. Such concentrations may well achieve some penetration. Defensive techniques must therefore aim at:—

(i) Siting self-contained localities in depth, prepared to fight on if temporarily surrounded.

(ii) Keeping a strong force for deliberate counter-attack.

(iii) Achieving proficiency in hand-

ling small arms, so as to kill the enemy as economically as possible.

(b) If Britain and America are eventually to counter concentrations of manpower by concentrations of material, they must practise true economy of force by suppressing their national tendencies to:—

(i) Squander resources in unprofitable side-shows, as, for example, in the Aegean in 1944.

(ii) Kill an enemy by calling down the impersonal fire of artillery rather than by personally shooting him with a rifle.

Surprise

Russia is likely to achieve surprise by:—

(a) The intensity and direction of attack.

(b) Exploitation of the characteristics of the Russian soldier in:—

(i) Night attacks and infiltration both by tanks and infantry.

(ii) Use of large-scale deception and camouflage.

(iii) Attacks launched over apparently unsuitable ground and under rigorous climatic conditions.

(iv) Continuing to fight on in the face of appalling casualties.

Britain and America can, particularly with the aid of sea-power, achieve surprise in the direction of their attacks and the concentration of their equipment. They can also make use of their higher standards of education to produce sound deception plans and to forestall surprise by the enemy by training all ranks to be "intelligence-minded." Perhaps, too, Russian recklessness may itself be surprised by dogged determination, as happened in Finland in 1939, and, more recently, as the result of the Berlin airlift.

Flexibility

(a) Inflexibility is the main Russian failing in battle. It is due to:—

(i) A rigid battle plan, leaving no initiative to subordinates.

(ii) Lack of efficient wireless communications.

(iii) The consequent need for higher commanders to control the battle well forward, which may lead them to be swayed unduly by events in their immediate vicinity.

(iv) Fear of the consequences of failure, leading to persistence in forlorn attacks and to encirclement in defence.

On their lines of communication, however, the single organization controlling the rear services avoids duplication and affords a greater flexibility in the use of equipment and supplies.

(b) In contrast, the British and Americans achieve considerable flexibility in battle, due to their more developed staff work and better

wireless communications; but their rear services are far less flexible because of the multiplicity of their equipment. In quest of mobility they have allocated thousands of road-bound vehicles to their divisions, together with the complementary repair and supply organizations to keep them running. To achieve tactical mobility on roadless steppes in winter weather, it may well be quicker to march.

Administration

(a) The dependence of British and American armies on their bases and lines of communication is due to their:

(i) High degree of mechanization, requiring guaranteed supplies of fuel.

(ii) Generous ration scales, including luxury items such as cigarettes.

(iii) Emphasis on saving life at the overall expense of man-power (by putting, for example, three extra men in the administrative area to maintain a machine which replaces one man in the fighting line).

(iv) Administration and documentation of each man as an individual.

(b) The Russians are less dependent on their supply system because they:

(i) Are less mechanized.

(ii) Exploit the frugality of their soldiers, accustomed to low standards of living, by making them live off the land.

(iii) Fight on their own continent (though their shortage of motor transport makes them correspondingly dependent on more vulnerable railways and waterways).

(iv) Rely on the capture of enemy dumps and equipment, which their soldiers are trained to use.

(v) Have no system of personal documentation for soldiers below the rank of major.

Like all modern armies, Russia is becoming increasingly dependent on her lines of communication, for though their soldiers can fight for days without food, their vehicles become useless without fuel; unlike horses, vehicles cannot themselves be eaten as food. The Russians may thus become sensitive to attacks against their administrative areas and may also find considerable difficulty in advancing over territory where a "scorched earth" policy has been systematically applied.

Conclusions

Britain and the USA are devoted to a social and political order based upon individual liberty and human dignity; Russia is a totalitarian State under the absolute direction of a few men. The Russians, by their past traditions and present way of life show the main characteristics of natural fighters; during the course

of a war they are likely to develop quickly into excellent soldiers. England and the USA are unmilitary nations. Their cadres of regular servicemen come to war with a good background of peace-time regimental soldiering and a sound knowledge of staff procedure; it requires many months of war to make them into fighters. The Russians can surmount setbacks in war with their enormous reserves of manpower and the Americans can survive loss of equipment thanks to their immense industrial potential. The British cannot afford any rash expenditure either of men or material, and for this reason their staff work may often seem over-elaborate and their safeguards cumbersome.

The field armies of Britain, the USA and Russia are basically similar, and their divisions are hard-hitting and mobile. None has superiority or weakness in any arm or weapon, which is, in itself, likely to prove decisive. Each is equipped in accordance with available industrial resources, and adapted to the national, political and moral character.

Each nation handles its armed forces according to national characteristics.

(a) Russia's strength comes from:—

(i) The inherent advantages of dictatorship for rapid initial deployment in war, and maintenance of the aim unencumbered by allies.

(ii) Potentialities for achieving surprise.

(iii) Opportunities, as an aggressor, for immediate offensive action.

(iv) Facilities for concentration from interior lines.

(v) Willingness to accept administrative interruption and manpower casualties.

Her weaknesses are:—

(vi) Inflexibility in battle.

(vii) Shortage of technicians to operate and maintain the more complex forms of war equipment.

Her predominant characteristics are boldness, toughness and ruthlessness in all phases of war.

(b) The strength of Britain and America lies in:—

(i) The reserves of American industry and consequent acceptance of losses of equipment in the interests of speed.

(ii) Flexibility in battle.

Their weaknesses are:—

(iii) Slow deployment for war, and the limitations imposed by the need to ship war equipment to theatres overseas.

(iv) Difficulties in co-operation with Allies.

(v) Tendency to be tied to inflexible lines of communication, aggravated by over-insurance against administrative

MARCH OF THE LONE BAPTIST

From the time when the unit [The Royal Canadian Regiment] assumed garrison duties in Halifax in 1905, it had been the custom for the band to march in the church parades of the Church of England, Presbyterian, and Roman Catholic detachments in rotation, leaving the detachments of the smaller denominations to proceed without musical accompaniment. On the complaint of certain ministers in Halifax against what they considered unfair discrimination, the Honourable the Minister of Militia and Defence ruled that all denominations must be treated alike and that the band must accompany each detachment in turn. In accordance with these orders, Sunday, April 27, was allotted to the Baptist denomination. There were three Baptists serving in the Regiment in Halifax at the time, two of whom were on detached duty, but the orders were explicit. Accordingly, the lone Baptist was paraded, Lieut. H. T. Cock assumed command of the parade, the Regimental Sergeant-Major took his appointed post, two police joined the detachment as usual, the band of approximately 40 pieces struck up an appropriate air, and off the Baptist was marched to his place of worship more than a mile away.—"*The Royal Canadian Regiment*", *a history by R. C. Fetherstonhaugh.*

RUSSIAN-AMERICAN-BRITISH FIELD ARMIES

(*Continued from preceding page*)

interruption.

(vi) Emphasis on saving lives at the overall expense of manpower.

Their predominant characteristics are the USA's spectacular and often volatile enterprise—especially in attack; and Britain's level and often unspectacular determination—especially in defence.

Fundamentally, Britain and the USA assess the cost of war in terms of human lives; Russia in terms of the overall drain on the nation over a period of years.

THE KING'S ENGLISH

Reprinted from the Australian Army Journal

Scarcely a minute passes but some officer, somewhere or other, curses the system that keeps him tied to his desk struggling with piles of correspondence. Every minute some harassed soldier sighs for the "good old days" when armies managed to function without any paper at all.

Perhaps it is not the system that is at fault so much as the people who are trying to operate it. Perhaps those who complain loudest are the very ones whose misuse of the English language does most to impair the efficiency of a perfectly good system.

It is no use harbouring hard feelings against the person who invented paper. Paper work is here to stay. Armies cannot function without it. The sensible thing to do is to become really efficient at it, and thereby make time to engage in more agreeable pursuits.

Why do we write? We use the written word for the same purpose as we use the spoken word—to transmit ideas from our own minds to the minds of others. If what we have written fails to transmit these ideas accurately, if the reader is able to place on it more than one interpretation or has to ask himself, "What does it mean," we have failed in what is after all a perfectly simple operation. And let us be quite clear about one thing. With rare exceptions the failure occurs at the transmitting end; it is the writer who fails not the reader.

Failure to transmit ideas accurately through the medium of the written word is not peculiar to military writing. Reflection, however, suggests that it is much more common in official writing than it is in private and commercial writing. Business letters are usually brief, clear and to the point. Few of us have any doubt about what the Taxation Commissioner means when we get a letter from him, or what the bank manager intends to convey when he writes that our account is overdrawn. And, despite the fact that many of us affect a fine contempt for what we are pleased to call the "journalese" of the daily press, we rarely have any trouble in reading the morning paper.

Observation shows that most educated people express themselves clearly and simply—until they become mesmerized by the ponderous, and very often meaningless, words and phrases commonly used in official correspondence. With these useless expressions they bemuse themselves and their readers, make the simple obscure, waste everybody's time, and create a

general atmosphere of exasperation and frustration.

Despite all our training, all our insistence that the soldier must express himself in simple, straightforward language, our official correspondence teems with slovenly, circumlocutary words and phrases. We don't use them in conversation or in our private letters, but the moment we start to produce an official document we become scared by our simplicity. We may even feel ashamed of it. And we straightaway proceed to clothe our thoughts in elaborate and unbecoming garments. Very often, from a desire to be unambiguous we become unintelligible.

Because this "officialese" form of expression has eaten into our souls and become a bad habit, a real effort is required to break the vicious circle. It is no earthly use preaching simplicity to young officers and at the same time setting them a bad example by practising something quite different.

Three Rules

Examination of the works of the best English writers discloses a marked preference for concrete expressions rather than abstract ones, and ample evidence of the care taken to select the right word to express exactly the shade of meaning the writer has in mind. It shows, too, that these writers studiously refrain from using several words where one would do. That is why their writing is so forceful, so exact and so graceful. From this examination we can formulate three rules for all good writing:

(a) Use no more words than are necessary to express your meaning and make sure they are the right words. Do not use superfluous adjectives and adverbs, and do not use roundabout phrases where single words would serve.

(b) Use familiar words rather than uncommon ones, for the familiar are more likely to be readily understood.

(c) Use words with precise meaning rather than those that are vague. In particular prefer concrete words to abstract, for they are more likely to have a precise meaning.

Superfluous Words

If we study the writings and speeches of that great master of modern English, Mr. Winston Churchill, we become aware that he almost invariably uses simple, direct words and phrases. For example, he did not begin his famous broadcast of 17 June, 1940, by saying, "The position with regard to France is extremely serious." Nor did he end it with a ponderous, "We have absolute confidence that eventually the situation will be restored." He said, "The news from France is very bad . . . we are sure that in the end all will come right."

In a memorandum issued on 9 August, 1940, Mr. Churchill wrote: "Let us have an end of such phrases as

these: 'It is also of importance to bear in mind the following considerations . . . ' or 'consideration should be given to the possibility of carrying into effect . . . ' Most of those woolly phrases are mere padding, which can be left out altogether, or replaced by a single word. Let us not shrink from using the short expressive phrase even if it is conversational."

Perhaps if Mr. Churchill had been referring to Australian official correspondence he would have chosen his examples from phrases based on *appreciate. It is appreciated that* (anticipating an objection that is to be met), *and it will be appreciated that* (introducing a reason for a decision that is to be given), are very prevalent. They can nearly always be omitted without harm to the sense and with benefit to the style.

Undue and *unduly* seem to be words that have the property of taking the reason prisoner. "There is no cause for undue alarm" really means, "There is no cause for alarm for which there is no cause," and that hardly makes sense at all.

Many writers seem to imagine that no noun can stand alone, but must have an adjective to support it or give it emphasis. This erroneous supposition often leads the writer to say something he did not intend. For instance, how often do we come across the expression . . . "There is *real danger* . . . " The expression *real danger* makes sense only when it is used in comparison with an imaginary danger. If you must emphasize danger find the adjective that expresses what you want to say, don't use one that says something you did not have in mind at all.

Strong words like *urgent, danger, crisis, disaster, fatal, grave, paramount* and *essential*, lose their force if used too often. Reserve them for strong occasions.

Every time a soldier finds himself writing a vague adjective like *considerable, appreciable, substantial*, he should pause and ask himself: Do I need an adjective at all? If so, would not a more specific adjective suit better? If not, which of these, with their different shades of meaning, serves my purpose best? And *comparatively* should not be used unless you are actually making a comparison between two or more things.

One of our commonest errors is the use of such phrases as *with regard to, in the case of, in relation to, in connection with* and *as to*. More often than not they are clumsy substitutes for single prepositions and convey a meaning less precise. In the following examples the preposition that ought to have been used is added in brackets:

"The attitude of the Army *in relation to* the Press." (*towards*).

"More progress has been made *in the case of* the 2nd Battalion than *in . . . the case of* the 1st Battalion." (*by*).

"The rates of pay vary *in relation to* the rank of the soldier." (*with*).

"There may be difficulties *with regard to* the provision of ammunition." (*in*).

Another common fault is the addition of unnecessary preambles to plain statements.

"*It should be noted that* the particulars of expenditure relate to gross stocks."

"*It is appreciated that* owing to staffing difficulties Commands may find it impossible to . . . "

"*It will be noted that* in the schedule no provision is made for . . . "

"Table 1 is intended to provide a broad picture . . . "

The words italicized in the first three examples are mere padding. They are no more needed than in Example 4, where the writer has wisely done without them. Perhaps he ran out of stock.

Perhaps the most common, and certainly the most distracting, of misused phrases is *in this connection.* A tally has been kept of the number of times this expression has occurred in correspondence passing over the desk on which this paper is being written. In only five of 97 cases was the phrase used correctly. In seven if was barely passable; in the remainder it was just bad English. Obviously this expression has become a bad habit, like ill temper at the breakfast table.

"*Vogue*" *Words*

Since the war there has grown up a regrettable tendency to use vague, high sounding and "smart" expressions rather than commonplace words with a precise meaning. Most of them are culled from the radio, and they are apparently used from a determination to be fashionable, even at the cost of good sense and good taste.

Feel—This should not be used as a synonym for *think*. Thinking is a rational process, feeling an intuitive one. Official decisions should not be described as the products of intuition, however they may actually have been arrived at.

The new favourites, *global* and *overall*, are often given jobs better performed by well-established words like *comprehensive*, *total*, *universal*, *worldwide*, *general* and others. Actually, *global* signifies treating a group of units not individually, but as an entity, while *overall* denotes the measurement of an object between its extreme points.

Liquidate—The word *terminate*, having superseded the familiar *end*, is itself being superseded by *liquidate*. This irritating word is now used, nearly always erroneously, for denoting the ending of anything from massacring a nation to giving the milkman notice.

Bottleneck—This is a useful metaphor to indicate the point of constriction. But you must let it go at

that. You cannot, as some writers of official correspondence seem to imagine, have a *drastic bottleneck*, a *big bottleneck* or a *far-reaching bottleneck*.

Target—Since this word means something at which missiles are aimed you can hit it or you can miss it, but you cannot reach it or attain it. *Overall target* is merely silly.

Directive—This high-sounding word is obviously often used in the mistaken belief that it is synonymous with *order* or *instruction*.

The use of *prior to* and *following* as stilted substitutes for *before* and *after* seldom adds force to discussion and nearly always impairs the style.

Every time you are tempted to use *it would appear* or *it would seem* remember that you are in danger of informing your readers that you lack the knowledge or the courage to make a definite statement.

The use of the word *blue-print* as a florid substitute for simple and more exact *plan* is coming into fashion with writers of "officialese," while the original article is going out of fashion with architects and engineers. A *blue-print* is a copy of a drawing made on transparent material.

Clarity is often sacrificed by the use of words so general in meaning that the sense has to be deduced by a careful analysis of the context. For example, the word *indicate* is frequently used as a shoddy, and often misleading substitute for *show*, *state*, *report*, *instruct*, *demonstrate*, etc. *Indicate* is a vague, indefinite word which suggests a man waving his arm through three quarters of a circle and saying, "The house is in that direction."

The tendency to convert nouns into verbs and thus attempt to make them do work for which they were never intended, probably arises from a desire to be impressive. Recently a speaker on the ABC national network complained bitterly about a journalist who wrote that Mrs. So and So had *hostessed* a party. The speaker said that after his talk he was going down the street to be *barmaided* a beer and, if his luck held good, to be *waitressed* a dinner. These expressions are no more absurd than the war-time instructions which frequently directed commanders to *obligate* the proper procurement authorities.

The Right Word

Military writing has one or more of the three following purposes:

(a) To give orders or instructions.
(b) To teach.
(c) To provide information.

Any one of these purposes is thwarted if the reader does not receive the idea exactly as the writer intended. Therefore the writer must always be careful to express the idea exactly as he wants it to be received. This is, of course, important in all writing. It is particularly important

for the soldier because in time of war he is called upon to write many things from operation orders to signal messages, on the correct interpretation of which may well depend the issues of victory or defeat, of life or death for many thousands of his fellows. It behooves him, then, to attain perfection in the art by diligent practise in time of peace.

Sir Ernest Gowers, in his invaluable little book, "Plain Words", gives this advice:

"The golden rule is not a rule of grammer or syntax. It concerns not the arrangement of words, but the choice of them. Only the right words, convey the right meaning. The golden rule is to pick those words and to use them and them only. Arrangement is, of course, important, but if the right words alone are used they generally have a happy knack of arranging themselves."

Sir Ernest gives as a good example of clear, simple English, the paper handed in by a child of ten in response to an invitation to write an essay about a bird and a beast.

"The bird I am going to write about is the owl. The owl cannot see at all by day and at night is as blind as a bat.

"I do not know much about the owl so I will go on to the beast which I am going to choose. It is the cow. The cow is a mammal. It has four sides—right, left, an upper and below. At the back it has a tail on which hangs a brush. With this it sends the flies away so that they do not fall into the milk. The head is for the purpose of growing horns and so that the mouth can be put somewhere. The horns are to butt with and the mouth is to moo with.

"Under the cow hangs the milk. It is arranged for milking. When people milk, the milk comes and there is never an end to the supply. How the cow does it I have not yet found out. The cow has a fine sense of smell; one can smell it far away. That is the reason for the fresh air in the country.

"The man cow is called an ox. It is not a mammal. The cow does not eat much, but what it eats it eats twice so that it gets enough. When it is hungry it moos, and when it says nothing it is because its inside is all full up with grass."

When you have finished chuckling take pencil and paper and, with all your superior knowledge, see if you can describe a cow as simply and clearly as that.

Atomic Disintegration

By
Lt. Col. J. A. Stairs, MBE,
Directorate of Armament Development, Army Headquarters,
Ottawa

Since 1945 readers will have gained some familiarity with atoms. The fission process of uranium or plutonium is common knowledge, the creation of the hydrogen bomb is assumed possible. Radioactivity and radiation sickness are among the after-effects which are known to all.

In spite of what has been written it is probable that most of us still find it difficult to form a mental picture of the atom. If so, it may be of interest to carry out the following simple experimcnt.

Two pieces of equipment are needed, first, a watch or clock with a luminous dial and second, a low power magnifying lens. This latter should magnify between 5 and 15 times—10 is excellent. If you do not have a pocket magnifier you might try taking the eyepiece off your next door neighbour's binoculars or any other optical instrument that he may have. Be sure that the luminous paint is not too old and can still be seen in the dark under normal conditions.

The experiment is easy. Let the clock or watch rest in a dark room for a few minutes (the reason for this will be explained later), then go in yourself and let your eyes become accustomed to the dark — then look at the luminous paint under the magnifier.

When you have done all this what you should see are thousands of continuously flashing points of light. It is the sum of all these pin points that makes the faint glow seen by the unaided eye.

These scintillating points of light are caused by the breakdown of atomic nuclei. They may be radium nuclei or possibly mesothorium or

radiothorium. As they breakdown they shoot out particles that cause the luminescent material in which they are embedded to give off the brief flashes of light that are seen.

Assuming the activating material to be radium and the luminescent material to be zinc sulphide, what happens is as follows:

Radium is a radioactive substance. Radioactivity is the name given to a spontaneous disintegration which takes place in certain of the heavier elements. This disintegration happens in one of two ways: either the atomic nucleus throws off an electron which in this connection is called a beta particle or it throws off a helium nucleus better known as an alpha particle. The helium nucleus consists of two protons and two neutrons. Protons are positively charged particles and neutrons are the neutral particles made famous by uranium fission.

A third type of ray is often emitted along with the alpha and beta particles. This is gamma radiation, a sort of super x-ray, 100,000 times shorter than sunlight and the cause of much death in the atom bomb explosions.

Everytime a radioactive element emits an alpha or beta particle (plus gamma rays) it changes its nature, i.e. it becomes another substance in the table of elements. This other substance will also be radioactive and will in time change by further emission. And so the process continues step by step until at last the atom changes into lead. Lead is a stable non-radioactive element and once this bottom step is reached no further change will occur.

The steps by which this disintegration takes place are well known and (pardon the appalling metaphor) can be arranged into three staircases with the ground floor as lead. These three are named the uranium-radium series, the actinium series and the thorium series.

What is taking place in the luminous paint is one of the steps in the middle of the uranium-radium series. Radium is breaking down into a substance called radon or radium emanation. It does so by emitting an alpha particle, i.e. a helium nucleus. It is the interaction of this helium nucleus with the zinc sulphide phosphor that makes the paint luminous.

In passing, I would mention that the secret of the so-called hydrogen bomb is the building up of these self-same helium nuclei from the even more elementary hydrogen. It is this same process which keeps the sun and stars burning for thousands of millions of years.

The alpha particles fly out from the radium at several thousand miles a second. As they smash into the zinc sulphide molecules they impart energy to the latter. Part

of this energy is used to rearrange the electrons within the molecule itself. A short time later these electrons return to their normal state within the molecule and as they do so they give up the energy they have received. This energy appears as a tiny flash of light and this is what one sees in the above experiment.

Earlier in this article I mentioned leaving the watch or clock in a dark room for a few minutes before beginning the experiment. The reason is that electric light or sun light can also energize the molecules of zinc sulphide. Hold the clock up to the light and then look at it in the dark and it will glow very brightly for a few seconds, then the phosphorescence gradually dies away as the electrons rearrange themselves and their packets of energy are radiated in diminishing quantity. This effect will completely mask that of the radioactive disintegration for several minutes after exposure.

How long will the flashing caused by the radium go on? Due to the deterioration of the zinc sulphide the luminescence will gradually fade, but the radium which is the source of the energy will go on shooting out helium nuclei for thousands of years. There is no known way of speeding up or slowing down the radioactive process. The breakdown of the nuclei is spontaneous and occurs at random. Because of this the number of disintegrations per second occurring in any sample of a radioactive element is proportional to the number of atoms present in the sample.

The cause of breakdown is not yet known. Consider the size of an atomic nucleus. If a drop of water were magnified to the size of the earth, an atomic nucleus within the drop would be barely visible. Yet within this tiny nucleus the radium atom packs 88 protons and 138 neutrons. Each proton has a positive charge and since similar electric charges repel one another it is interesting to note that the force of repulsion between two protons at such close quarters is no less than 40 pounds. Considering the size of the proton this is quite a force! But in spite of this there appears to be some other force at work which is even more powerful for if it were not so the nucleus would obviously explode. This second force is a very short range one and does not act far outside the nuclear radius. Beyond its range the nucleus has the electric characteristics of its combined protons and repels any other positive particle.

Perhaps we can visualize the nucleus of the atom as a mad dance of elementary particles in the grip of immense forces of attraction and repulsion. Energy is exchanged at random and occasionally one particle obtains enough to escape the sphere of attraction and is then violently

ejected from the atom. This is pure guesswork. No one knows what goes on in the centre of the atom and as yet no complete theory exists to cover the facts.

If the nucleus of the atom were only a question of intellectual curiosity, the discovery of such a theory would take a long time because research would be hampered by lack of funds. Since 1945, however, the money situation has become easier and as million follows million it appears certain that science in the service of government will soon find an answer.

In the millenia that lie ahead our descendants will no doubt marvel at the furious energy and genius which drove western civilization toward such vast intellectual and material accomplishments. Perhaps when they add up our final account and strike a balance between these achievements and the spiritual coin in which we have paid they may find that for us it was a bad buy. For them, however, it will be a great inheritance and if they also gain from the lesson of our extravagance then surely on the masterplan of the universe we shall have shown a profit.

EARLY TANK HUNTERS

When invasion threatened Southern England in the summer of 1940, steps were taken to give all troops an operational role, irrespective of their normal duties. Thus certain Canadian reinforcement units were given the task of providing mobile columns to track down would-be enemy parachutists landing nearby and manning the perimeter defences established by the Bordon and Longmoor Sub-Area in Hampshire. Both weapons and vehicles were in short supply but everyone was determined to do his utmost should the Germans land in England. One Canadian Infantry Holding Unit, expected to form a special tank hunting platoon, was not too sure exactly what was wanted but a somewhat glowing report was made as follows:

". . . the personnel probably will be chosen entirely from Red Indians, of whom there are splendid specimens in the Unit. These people have the necessary hunting instinct more highly developed than white men, they can hear better and they can see better in the dark. The officer in charge is not a Red Indian, but is a thoroughly capable man."—*Historical Section, Army Headquarters, Ottawa.*

RADIOLOGICAL WARFARE

Reprinted from Officers' Call (U.S. Dept. of the Army)

Part 2

Problems of Production and Delivery

To determine what characteristics an RW agent ought to have is comparatively easy; to produce such an agent and devise means of delivering it on a target involves some knotty problems. The irradiation method described earlier permits the production of RW agents having the specific characteristics desired for RW purposes, but the irradiation process cuts down the output of plutonium needed for atomic bombs. The alternative method (making RW agents with the by-products of the atomic pile operation) does not interfere with the plutonium output, but involves a very costly process of separating certain desired fission by-products from the unwanted by-products. Moreover, even after the separation has been accomplished, the RW agents from this source are not as suitable as the "tailor-made" agents that can be produced by the irradiation method.

One suggested solution of this problem is to omit the costly separation process—to use the fission products as RW agents without separating the most suitable from the less suitable material. Favoring this idea is the fact that we already have a stockpile of these unseparated by-products which thus far have been regarded as waste material from the plutonium production. This atomic waste is a mixture of more than a hundred kinds of fission products, and might be employed as an RW agent without additional processing except to remove its unused uranium content. This suggestion, which answers a production problem, leaves unsolved some other vital problems.

The mixture of fission by-products includes materials with very long, and others with very short, half-lives. In an area contaminated by such a mixture, the total radiation would at first be very intense on account of the high radiation rate of the shorter-lived elements. As these elements decayed, the total radiation would drop rapidly because only the less active elements with the longer half-lives would continue to radiate. Some of these would continue their

activity, although at low intensity, for many years or even centuries.

Several factors, military, technical, and political, argue against our using an RW agent that includes these extremely long-lived materials. On the tactical side they would deny, or make unnecessarily hazardous and difficult, our subsequent entry into the contaminated area. They would also create grave post-war problems by making portions of the enemy homeland uninhabitable for long periods. Another objection concerns the problem of delivering the agent on the target. To achieve a given amount of radioactivity, the volume of mixed fission products must be much larger than is necessary when the agent consists of a separate, specially selected, highly active material. The compactness possible in an RW weapon is one of its principal advantages, and to employ an agent of greater volume than necessary would not fully exploit this advantage.

Another aspect of the delivery problem makes compactness of the agent especially important. This is the necessity for shielding the agent so that it will not injure persons handling it from the time of production until its delivery on a target. Most other weapons of war are comparatively safe for handling when fairly simple precautions are observed. The explosive material in an artillery shell, for example, remains inert until its potential force is readied for use by setting and arming the fuse mechanism. An RW agent, on the other hand, is in an active state from the moment it is produced. Its handlers must be protected at all times from the radiations. Since the agent is likely to consist of gamma emitters, whose penetrating power is very high, a shield of considerable weight and thickness is required. The heavier this shielding must be, the more important it is that the agent itself have maximum compactness. The necessary shielding weight would vary according to the agent being used. After studying this problem at length, one scientist suggested laconically that the shielding, instead of the RW agent, be dropped on the enemy! The problem of shielding is likely to continue as one of the limiting factors of RW. The development of lighter materials for this purpose is being studied.

A related shielding and delivery problem is that of heat. The energy of radiating particles or rays changes into heat energy, making the container of the agent very hot. A container holding enough radioactive materials to contaminate an area of moderate size might generate as much heat as the average home furnace. Obviously some provision must be made to prevent this heat from melting the weapon or container.

Difficulties of Stockpiling RW Agents

Most kinds of military equipment can be stored indefinitely against some future need. A machine gun, properly stored, will function effectively many years later even though in the meantime it may have become an obsolete type. Moreover, when 1000 machine guns are stored, the firepower they represent remains available indefinitely.

This is not true of radioactive materials. A stockpile of RW agents is constantly depleting itself. Only by continually adding more materials to the stockpile can it be maintained at a given level once a certain volume has been assembled. To add to the difficulty, the materials most suitable for RW (those with short half-lives) present the greatest stockpiling problem because of the faster rate at which they lose their radioactivity.

Because of this decay factor, large RW stockpiles cannot be efficiently maintained for some indefinite but probable future need. Even in wartime, sizable amounts of RW agents would probably not be manufactured until specific RW operations had been planned. The projected date and size of a particular operation would control, and be controlled by, the production factor — how soon can a sufficient amount of a certain agent be ready for use?

The necessity for closely integrating the production, stockpiling, and tactical use of RW agents can probably be seen more clearly by observing the interdependence of these factors in a hypothetical RW problem.

A Hypothetical RW Operation

For tactical and other reasons, the proposed operation will require an RW agent whose half-life is 30 days. The activity of this agent is such that 1 pound of it, spread uniformly over 1 square mile, will produce an initial radiation of 50 R per day everywhere in that area.

Contamination of the greatest possible area is desired. The daily production capacity of the specified RW agent is 10 pounds.

Problem: What is the maximum area that can be contaminated and how long will it take to produce the necessary amount of material?

In theory, the greatest amount that can be accumulated in the stockpile is about 430 pounds — beyond that point the stockpile would be decaying as fast as we could replenish it at 10 pounds per day. Furthermore, the *theoretical* maximum of 430 pounds, would take many years to reach. However, in 70 days we can assemble 80 per cent, and in 140 days 96 per cent of the theoretical maximum. (For easier figuring we will assume that the theoretical maximum of 430 pounds can be

reached in 140 days).

After 140 days, therefore, we will have enough material to spread 1 pound per square mile over an area of 430 square miles. But this is still short of the whole answer; it must be remembered that the initial radiation of 50 R per day will dwindle to 25 R per day on the 30th day. Persons who stayed in the area for 30 days would receive a total dosage of about 1070 R, whereas an exposure of at least 1500 R over that length of time is required for lethal effects.

If a 30-day total dosage of 1500 R is desired, we will need a heavier concentration than 1 pound per square mile. We will not be able, therefore, to plan on the contamination of 430 square miles. By mathematical calculations, it is found that in order to achieve a 30-day total of 1500 R, the initial radiation will have to be about 71 R per day, which will fall to about 35 R per day after 30 days. To achieve this dosage, the concentration must be stepped up to about 1.4 pounds per square mile.

Thus the answer to our problem is: The largest area that can be covered with a lethal concentration is, in round figures, 310 square miles (430 pounds of material divided by 1.4 pounds per square mile); to produce the required amount of material will require 140 days, after which time the rate of decay in the stockpile would equal or exceed the daily production capacity.

Following this hypothetical operation, the stockpile could be built up again for use in contaminating another area or to recontaminate the original target area. If no recontamination is involved, conditions in the target area (without considering protective measures taken by the inhabitants) would be somewhat as follows: During the first 30 days a lethal dose of 1500 R would be accumulated by anyone remaining there. Those entering on the 30th day and remaining until the 60th day would accumulate 750 R, a dangerous dosage but not lethal when obtained over that long a period. From the 60th to the 90th day after the attack, another 375 R would be absorbed, and people who had already accumulated 750 R would probably show signs of radiation sickness. The 375 R of the last 30-day period might cause illness in some people.

RW as a Humane Weapon

No form of warfare is humane in the fullest sense. But there is a relative sense in which RW can be said to have humane possibilities greater than those of most other weapons of modern war.

In the hypothetical operation just considered, the selected RW agent was one of considerable potency, yet we saw that it would not have caused

immediate death to people in the target area. They could choose to avoid the accumulation of lethal or harmful doses by leaving the area within a day or so following the attack. The user of RW might conceivably achieve such vital military objectives as enemy evacuation of cities, bases, and airfields, *without killing people.*

A further element of humaneness, and one of great importance regarding the victor's responsibilities toward the vanquished, arises from the fact that RW agents temporarily deny the enemy the use of buildings and other objects in the contaminated area without damaging or destroying those objects. When the fighting has ended, the enemy's people would not face the task of rebuilding blasted cities and homes. They would merely have to decontaminate them—and time itself does part of this job.

Defence Against RW

Thus far we have been looking at RW from the offensive viewpoint. Now we look at it from the receiving end to consider some aspects of defence against radiological attack. In such an attack, the main defensive efforts would consist of detecting the radioactivity, keeping people away from dangerous amounts of it, and removing the radioactive materials from the area.

Detecting the Radioactivity

Radioactivity does not reveal its presence through the physical senses. Even while he is being subjected to a heavy dosage, a person cannot see, hear, smell, or feel the agent that is attacking him. Nevertheless, radioactivity is easily detected—if this were not the case, arguments concerning its humane possibilities might have doubtful validity. The presence of radiation is detected by instruments that are quite simple in design. They could be produced in sufficient quantity for both military and civil defence purposes.

Many types of detecting instruments are being developed. All of them are based either on photographic or electrical principles. The most widely used of the photographic type is the "film badge", which is worn by technicians whose work brings them into regular contact with radioactive materials. The badge is simply a small piece of film covered by a wrapping that excludes ordinary light but is easily penetrated by gamma rays. When the film is developed, its degree of blackness indicates how much radiation its wearer has been exposed to in a given period of time. Electrical detecting instruments can measure not only the amount of radiation over a period of time but also the rate at which it is taking place. These two functions are somewhat comparable to those of the

mileage indicator and speedometer on an automobile—the first shows how far the car has traveled during its running life, while the second indicates the car's speed at the present moment.

Avoiding the Radioactivity

With the large numbers of simple detection devices that would be available, troops in combat zones or civilians on the home front would have little difficulty recognizing an RW attack. In most cases, their next action would probably be to move from areas sufficiently contaminated to be dangerous.

It's important to remember that such movements could be made with comparative leisure in accordance with co-ordinated plans. As we've emphasized, *brief exposure to RW agents is usually not harmful.* There would be no cause for undue haste or hysteria. In fact, this would make things worse. For example, a panicky unit which moved without plan or previous reconnaissance might leave one contaminated area only to move into another more heavily contaminated.

The problem of coping with an RW attack would be somewhat different for front-line than rear-area troops. In the Communications Zone, for instance, units have more "elbow room". Here they could, with relative ease, move laterally, forward or rearward, to get out of contaminated areas. Fighting troops in the lines would be more restricted in their movements. On many occasions, they might find that the best direction to move would be forward. We have a precedent for this reasoning. In World War II, our assault troops frequently moved forward through hostile artillery barrages to close with an enemy. They had learned the simple lesson that the enemy was forced to lift his artillery fire when our troops got close to, or inside, enemy defences. Similarly, our soldiers could rest assured that ground held by an enemy would not be contaminated by an RW attack he had initiated.

In both military or civilian defence against RW, prior planning would be important. This would include the establishment of warning systems, evacuation plans, and the training of personnel for monitoring of radioactivity. Warning systems and evacuation plans for military forces would be somewhat different in scope (and generally easier to put into effect), than those applicable to a civilian community. The monitoring requirements would be essentially the same for both groups. The central control organization, whether it be a division headquarters or a city mayor's office, would be responsible for charting the radioactivity throughout the affected area, and for insuring that people, including rescue workers, are not exposed unnecessarily to lethal or

dangerous doses.

Decontaminating Affected Areas

As a military term, decontamination has been in use since the advent of gas warfare in World War I. To employ it accurately in connection with radioactive materials, an important difference of meaning must be clearly understood. An area affected by chemical agents is decontaminated by neutralizing those agents with other chemicals. The toxic elements in the poison gas or liquid are actually destroyed by the reaction created by the decontaminating agent.

Radioactivity, on the other hand, cannot be neutralized or destroyed. Once a substance has been made radioactive, it cannot be made stable again—except by putting it back into the atomic pile. Burning, freezing, subjecting it to acid—none of these alter the radioactivity of the substance. Only the natural rate of decay can be relied on eventually to exhaust the activity.

The various decontamination operations resemble those which neutralize toxic agents, but their purpose is to make possible the removal of the radioactive substance from the area. There are several ways of doing this. One is to scrape off the surface of the contaminated object. The sandblasting of ships' hulls following the Bikini tests was an example of this method. Another method is to dissolve the contaminant with liquid, perhaps an acid, so that it can be washed away without changing the surface of the contaminated object. Dissolving the emitting agent does not change its activity but merely permits easier removal from the surface. The liquid used in this process becomes highly radioactive itself and, if collected in tanks, may radiate with much greater intensity than when it was dispersed thinly over a surface.

A third method of decontamination is dependent on whether certain protective measures can be taken before the area has been subjected to RW attack. Assuming sufficient advance warning, objects in the expected target area could be covered with a layer of plastic film. After the attack this could be peeled off and removed from the area.

An artillery howitzer, for instance, could be so protected. After an RW attack, the piece could be towed out of the contaminated area, the plastic film removed, and the howitzer would be ready for further action. Even a water film, formed by thoroughly drenching the structure or other objects before and during the attack, would be partially effective in preventing the RW agent from attaching itself permanently to surfaces.

One alternative to removing the contaminant from an area would be to cover contaminated surfaces with something that serves as a shield.

A contaminated road, for example, might be covered over with a thick layer of earth. This would serve to insulate the radioactive materials on the road's surface and permit people to use the road without undue hazard.

All of those methods are costly and laborious, and none is fully effective under all conditions. The kind of RW agent employed, as well as the characteristics of the target, would determine the best decontamination method in each case. If the RW agent is delivered in the form of coarse dust or pellets, decontamination would be easier than if the attacker has chosen a liquid spray. It would also be easier to remove the agent from smooth hard surfaces than from rough concrete or porous material such as brick and unpainted wood. Because of these variable factors the search for better decontamination methods is a vital subject of radiological research.

Some Tactical and Strategic Considerations

RW appears to have characteristics that could conceivably affect present-day concepts of tactics and strategy. The German invasion of Crete in World War II will serve to illustrate one way a defender could use RW.

For several days after German airborne and air-transported units attacked Crete, the British and Greek defenders restricted the Germans to one usable airhead. Eventually, however, the invaders were able to build up sufficient strength to break out of the airhead and overrun the island.

Now, suppose the Allies on Crete had been prepared to employ RW. By contaminating the German airhead they could have forced the enemy to withdraw those troops who had been exposed to radioactive rays for dangerously long periods. Thus, by preventing the enemy from building up his forces, the Allies might have forced him to suspend his attack.

Another tactical possibility is the use of RW when an army wishes to break through a strong enemy line. By contaminating a selected enemy position, its defenders might be forced to evacuate. The attackers could then exploit the road immediately, since they would be passing through the affected area too rapidly to be harmed by the radioactivity. For this same reason, of course, a defending force cannot rely upon RW to protect its front — the attacking force can pass rapidly through a radioactive "belt" without undue risk of harmful exposure.

In the strategic sense, RW might be effectively directed against the enemy's war production and transportation centres. Without demolishing his factories, railroad yards,

ports, and their adjacent living areas, the enemy could be made to evacuate these centres — with military results comparable to the strategic bombing accomplishments of World War II.

Both tactically and strategically, RW would probably be most effective when used in conjunction with other forms of military action common to modern war. Like other weapons we now regard as "conventional", RW would contribute to the total military effort. It would *not* (even when all the technical difficulties have been mastered) dominate the battlefield or make obsolete present conceptions of tactics and strategy. Radiological warfare is not the "absolute weapon" or the "perfect weapon" because these terms have no real meaning outside the pages of science-fiction of the more fantastic type.

Unreasonable fear of, or unreasonable confidence in, any particular weapon, is never a reliable basis for military policy. The first can result in panic; the second encourages complacency. This discussion of an important new field of military research and development should help officers avoid both of these extremes in their contemplation of the future.

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NORTH POLE FLIGHTS

A new record in Arctic flying was made 14 Nov. when a B-29 Superfortress of the 375th Strategic Reconnaissance Squadron completed the 375th Air Force Weather Flight over the North Pole. The big bomber and its 13-man crew made the nearly 4,000-mile, 15-hour and 55-minute flight as part of a routine weather observation service which has been operating since 1947.

The North Pole round-trips operated from the base 26 miles southeast of Fairbanks, have been flown every other day for the past three years. They serve primarily as weather observer flights to record atmosphere conditions between the base just out of Fairbanks and the North Pole.—*Army-Navy-Air Force Journal (U.S.).*

EFFICIENCY REPORTS—VINTAGE 1813

AN EXTRACT FROM THE ADJUTANT GENERAL'S SCHOOL BULLETIN.
REPRINTED FROM THE ARMY INFORMATION DIGEST (U.S.)

Reprinted below are excerpts from an efficiency report which has been gathering dust these many years. Names of the officers have been changed and any similarity to persons living or dead is coincidental.

"Lower Seneca Town, August 15th, 1813.

Sir:

I forward a list of the officers of the —th Regt. of Infty. arranged agreeable to rank. Annexed thereto you will find all the observations I deem necessary to make.

Respectfully, I am, Sir,
Yo Obt. Svt.,
Lewis Cass"

—th Regt. Infantry

Alexander Brown—Lt. Col. Comdg.—A good natured man.

Clark Crowell—first Major—A good man, but no officer.

Jess B. Wordsworth—2nd Major—An excellent officer.

Captain Shaw—A man of whom all unite in speaking ill—A knave despised by all.

Captain Thomas Lord—Indifferent, but promises well.

Captain Rockwell—An officer of capacity, but imprudent and a man of violent passions.

Captain Dan I. Ware
Captain Parker
} Strangers but little known in the regiment.

1st Lt. Jas. Kearns
1st Lt. Thomas Dearfoot
} Merely good—nothing promising.

1st Lt. Wm. Herring
1st Lt. Danl. Land
1st Lt. Jas. I. Bryan
1st Lt. Robert McKewell
} Low, vulgar men, with the exception of Herring. From the meanest walks of life—possessing nothing of the character of officers and gentlemen.

1st Lt. Robert Cross—Willing enough—has much to learn—with small capacity.

2nd Lt. Nicholas Farmer—A good officer, but drinks hard and disgraces himself and the Service.

2nd Lt. Stewart Berry—An ignorant unoffending fellow.

2nd Lt. Darrow—Just joined the Regiment—of fine appearance.

2nd Lt. Pierce
2nd Lt. Thos. G. Slicer
2nd Lt. Oliver Warren
} Raised from the ranks, but all behave well and promise to make excellent officers.

(Continued on opposite page)

PILOTLESS PLANE

Radar eyes are taking over where human vision leaves off in remote control of the Air Force's pilotless OQ-19 target plane. Using an effective combination of radio control and radar tracking, the midget aircraft has already been remote-control tested by a ground pilot twisting dials on a tiny box 10 miles away. Before, guidance of the OQ-19 was restricted to the area of the operator's visual sight.

The key to this important advance in remote flight control techniques lies in a new automatic pilot, a device which holds the target plane on any course desired by the operator. Designed to simulate operations of a fighter plane for anti-aircraft and flexible gunnery practice, the OQ-19 is capable of remotely-manoeuvred high speed dives and steep turns and can hit a top speed of 220 miles per hour.

Another innovation for the target plane is a new and economical method of ground launching conceived by engineers of the Air Materiel Command's Aircraft and Guided Missiles Section. Formerly, the OQ-19 was launched by a rocket which boosted it along a 60-foot ramp to take-off speed. Now, the tiny target travels around a circular pavement on a detachable wheeled carriage under its own power and gets up to flying speed (80 miles per hour) in less than five round trips. A 150-foot long cable extending from a centre post to the carriage holds the plane on the ground until it is remotely released by the operator.—*Army-Navy-Air Force Journal* (U.S.).

2nd Lt. Royal Gore
2nd Lt. Means
2nd Lt. Clew
2nd Lt. McLear
} All promoted from the ranks, low, vulgar men, without one qualification to recommend them — more fit to carry the hod than the epaulette.

2nd Lt. John G. Sheaffer
2nd Lt. Francis T. Whelan
} Promoted from the ranks. Behave well and will make good officers.

Ensign Behan—The very dregs of the earth. Unfit for anything under heaven, God only knows how the poor thing got an appointment.

Ensign John Breen
Ensign Byor
} Promoted from the ranks—men of no manner and no promise.

Ensign North—From the ranks. A good young man who does well.

GOLD MEDAL PRIZE ESSAY

1948–49

Lt. Col. C. W. T. Kyngdon, Branch of the Master-General of the Ordnance, Australian, Army Headquarters*

"No armed service can have a high degree of morale unless, amongst other things, it is nourished by the goodwill of the community from which it is drawn. Discuss this statement, indicating the positive steps which can be taken by the Australian Army to ensure that it has the support of the Australian people as a whole."

Part 3 (Conclusion)

During the War a Directorate of Research and Civil Affairs was set up under the Commander-in-Chief. Its main task was to study the civil implications of military proposals as an assistance in planning. The Director of Research, Colonel (now Judge) F. B. Gamble, several times put forward to me in conversation the view that such an organization was essential in peace if the Australian Army, and in particular the Regular Officer, was to be successful in securing the co-operation and goodwill of the public. He considered that publicity would be but one of the responsibilities of such a Directorate, which would investigate many subjects in the planning stage, as for instance:

Release of voluntary citizen soldiers for training camps.

Implications of conscription.

Trade classification and admission of discharged soldiers to Trades Unions, etc, etc.

Francis Williams apparently had analogous thoughts on the importance of considering in the planning stage the likely public reactions to proposals when he wrote:

"If information services are to be properly run . . . the Directors of these information services should be of sufficient status and authority to have some voice in the making of departmental policy."[13]

From the United States Army publication *A Handbook for Public Relations Officers* it would appear that the office of Public Relations in the US Army is much on the lines envisaged by Judge Gamble, whilst from the American Army Regulations it is also apparent that great importance is attached to public relations, the fostering of them being defined as a "responsibility of command, extending through all echelons and ranks."[14]

* *Reprinted from the Australian Army Journal.*

[13] *Press, Parliament and People, p 132.*

[14] *US Army Regulations No 600-700, para. 3, p 1.*

The extent to which the United States War Department investigates the civilian implications of military proposals in planning is illustrated by the Universal Military Training Experimental Unit which was organized and trained for one year along the lines of the War Department's proposed plan for Universal Military Training "to serve as a pilot model so that in the event of Congress passing legislation authorizing Universal Military Training, plans and the proposed 'Code of Conduct' will have been tested." At this centre "800 newly-enlisted Regular Army Recruits of the 18-19 years age group selected to conform to Army Intelligence quotient averages were trained to the proposed Universal Military Training Programme. A committee composed of leading civilians of neighbouring towns assisted by specially approved Army Chaplains and medical officers (was) set up to advise and consult with the Army and the collaborating civilian educationalists on all non-military phases of the programme." Such a study could not fail to help the authorities in instituting and conducting Universal Military Training and in addition would assure citizens that their point of view was being considered in a matter so vitally affecting either themselves or their sons. It is difficult to think of a step more likely to evoke the respect and goodwill of the community.

Yet another American example is the manner in which the Army designers took into account the views of civilians on the design of the ceremonial uniform for the Army. On this occasion the Army arranged for the Public Opinion Research Organization of a University to test the reaction of civilians throughout the main centres of the Union to each of eight alternative designs. Few things are more pleasing to a man than to have his opinion or advice sought, and particularly is this so when, in these days of extensive government control, a government organization seeks the opinion of the ordinary citizen.

Yet, despite the fact that the U.S. Army already appears to attach great importance to public relations and to make considerable efforts to secure the active co-operation of civilians, the U.S. War Department is taking still further steps to ensure that every officer is given special training in subjects that will make him more familiar with civilian organizations, methods and attitudes. A recent Liaison Letter from the Australian Military Mission at Washington reports that the American Army Education system, in addition to training officers in the military sense, is "also designed to educate officers . . . in the responsibilities of an Army in a democracy, and in the leadership of a citizen soldier." It describes, too,

how the Army "has established an 'Officers Information Programme' with the object of ensuring that every officer in the Regular Army will be thoroughly familiar with national and international affairs."

An earlier Liaison Letter reported that "in view of the effect of scientific management and understanding of human relations on the overall efficiency of the Army, the U.S. War Department has instituted a long-range programme of indoctrination in personnel management which will extend throughout the Army school system and will also utilize civilian educational institutions and the practical knowledge of business and industry . . . The programme will be supplemented by the studies in manpower and personnel problems carried out at the Industrial College and the National War College and gives a good idea of the importance which the War Department places in the most efficient possible use of its personnel in the future."

Although this training is directed primarily to improving the internal working of the Army, it must have a valuable secondary effect upon the relationship of the Army with the community. It should give the Army officer a common language with business, industry and civilian government and an understanding of the civilian outlook. Officers attending the Industrial College and the National War College, both of which are also attended by leaders in civilian occupations, would in addition make contacts in industry, business and government that are certain to be of value to the Army.

In the United Kingdom the need for integrating the Army with the nation has long been recognized. The raising and financial administration of Territorial Army Units is partly under the control of Territorial Associations, which are composed of prominent local citizens in each county. In the Regular Army, as in America, special emphasis is being placed on personnel management and the study of administration, and as part of this training British Army officers of the ranks of Lieutenant-Colonel to Brigadier are being sent to the recently established "Administrative Staff College". This College is conducted as a public company under the direction of a Court of Governors, and, in the words of its prospectus, its aim is "to bring together men and women of ability and promise from industry, commerce, the trades unions and all forms of the public services . . . It is an organization without political, social or economic bias. It provides a course of studies which investigates the principles and techniques of organizations and administration in contemporary civil life and seeks to secure better understanding between those with responsibilities in different

spheres through the opportunity to interchange ideas and experience at an age when their views have been formed but not fixed."

As in these other countries, so in Australia the Army should set out to make itself familiar with civilian life and to foster personal contacts between soldiers and civilians. The main effort will of course be with officers whose duty it will then be to train and guide the soldier in his dealings with the community. This first step having been accomplished, means can be devised for bringing the soldier and civilian organizations into closer contact in spheres additional to the present ones of sport and social activities.

The Australian Army admittedly is not without contact with civilian organizations already, for a number of officers attend the universities and some have done courses at the Institute of Industrial Management. I suggest, however, that the value of these courses as a means of gaining civilian contact could be appreciated and exploited more. For instance, two officers who have attended courses at the Institute of Industrial Management have expressed to me the opinion that these were a waste of time as they had found that the Army had "nothing to learn from civilian management, which was very much behind the Army." I feel that these officers have missed the main value of such courses which lies in learning what civilian management is actually like and thereby being in a better position to co-operate with civilians in peace and war. For not only does the regular soldier have to lead men who were formerly "managed" by the civilian method, but he has to work with Citizen Force Officers who are accustomed to these civilian methods. With a knowledge of both worlds the Regular Officer would not only be in a far better position to explain the principles and procedures of military administration to his non-regular colleague and to train and help him, but also to learn from him.

Perhaps the most pressing social problem of today is the integration of the wage earner with the other groups of the community. Universal education and trade union organization have done their work, and, from being on the defensive, the wage earner is now in a position of great power and well able to wage an offensive against those things which he regards with disfavour. The trade union officials are staff officers of no mean calibre in the only civilian organizations that are numerically comparable with an Army. As I have endeavoured to show earlier, wage earners tend to be suspicious of the Army, and I consider it vital to the Army that the understanding and goodwill of the trades unions should be gained. An officer who has been trained on the

lines being followed in the United States and United Kingdom should be able to acquire a proper understanding of the trade union movement and be in a position to discuss with trade union officials problems of mutual concern when these arise. I suggest that at least one staff officer in every Command should have attended the Administrative staff College in the United Kingdom, where, in addition to his studies of trade unions' organizations and administration, he will have met and lived with trade union officials—doubtless including some Australian ones, for Australian civilians are already beginning to attend this College. Such knowledge and personal contacts should materially assist Commanders and staffs in developing relations with trades union representatives here. The fact that some trades union officials may be adherents to a disruptionist creed must not be allowed to obscure the main goal, which is to secure for the Army the trust, support and affection of all loyal wage earners no less than of other groups in the community.

When sufficient Australian Army officers and civilians have attended the United Kingdom College it should be possible to conduct at least periodical courses or "Summer Schools" of a similar nature here, where a "meeting of the minds" could take place between the soldier and the civilian. Naturally such a plan demands that officers selected to attend the United Kingdom courses shall be men of more than usually high calibre, with well-developed and positive personalities, and possessing breadth of vision and an open and enquiring mind.

Besides acquainting responsible men in civil life in a number of walks of life with the real nature of military organization, outlook and procedure, the course of action I have just outlined should do much towards breaking down antipathies and false ideas of the "gilt-spurred rooster" kind. The reactions of the civilians attending the courses would soon be transmitted to their associates and subordinates, establishing in a widening circle of minds the knowledge that the soldier really did have a purpose in life, that he really was doing work comparable in skill and arduousness with other work in civil life, that he was contributing to the defence of the country by means other than mere drill. In turn, the soldier in the ranks, seeing that men of standing in civil life were conceiving a regard for the Army officer, would have increased confidence in his leaders.

Another way of improving the status of the soldier in the community and of awakening goodwill towards him would be to encourage and enable him to become known for his abilities

as a thinker and writer in his own and other subjects.

One of the most extraordinary features of the period between the Wars was that the Australian Army virtually had no literature. So far as I can recall there were no military correspondents to the newspapers writing under their own names, there were no Army Journals on the lines of those in the United Kingdom, scarcely even a pamphlet on a military subject, and again, so far as I can ascertain, practically no general literature. I believe this to be largely due to the stringency of our regulations concerning the disclosure of military information and the virtual ban on writing for publication. Since the war the position has been clarified and eased so that a soldier may now write for publication, provided that he does not deal with military subjects or disclose his rank or unit. This concession, though it does encourage writing, makes no contribution towards securing the goodwill of the community. In this respect it is interesting to compare the provisions on the same subject in King's Regulations and in the Orders of the United States War Department.

King's Regulations, after a comprehensive series of prohibition and warnings, say:

"The foregoing rules do not apply to communications to the Press of the nature referred to in the next paragraph, or to broadcast 'interviews' with officers and other ranks, which may be permitted provided that they are directed by and at the discretion of Commanding Officers.

"As an exception to the general rule, since it is desirable that the public should be acquainted with conditions of life in the Army and local interest encouraged, COs of units and depots at home are authorized at their discretion to invite representatives of the local Press to visit their units and to furnish them with such information in the nature of regimental news as they may consider suitable for the purpose."[15]

Nothing is said about writing as a soldier on non-military matters and in this connection I have seen articles in the British Press on a variety of matters in which the writer's rank was disclosed. The United States War Department starts by saying:

"Popular support and understanding of the Army is advanced when the public is well-informed of its activities," and proceeds to lay down both in principle and in some detail what may be said and by whom.

Inter alia it says:

"Within the bounds of security, propriety and War Department policy, the writing of articles, books and related material intended for publication and engaging in public and

[15] *King's Regulations, para 547 (d) and 548.*

private discussion on appropriate occasions by officers and enlisted personnel, on topics of military or professional interest, or general interest concerning the Army, or in support of military policy of the United States, or in the interest of the national defence, is authorized and desirable."

It then says:

"Material not relating directly to the Army, such as novels, plays, etc, is governed only by the dictates of propriety and good taste. Review of such material is not required."

Were the Australian officer and soldier given the same freedom and charged with the same responsibility, I feel that talent now latent might be awakened and a literature established. I feel sure that in this way goodwill could be won and much done towards establishing that soldiers are thinking men with a variety of interests: there would be a meeting of the civilian and the military mind in divers spheres. Again, many soldiers are competent speakers and could well be heard by the ordinary citizen on military and other subjects both from the rostrum and over the air. This freeing of creative talent could eventually result in the production of material for films and plays so that we might then see the dramas, comedies and tragedies of the Australian Army properly depicted on screen and stage. For instance, what could do more to win respect and affection for the Army than a film based on the life of a soldier such as the late Major-General Vasey?

Provided the Army is properly trained in its responsibilities in such matters and provided instructions are clear, there should be no great danger of information being improperly disclosed, or of a military writer bringing derision or discredit upon himself or the Army. The civilian, becoming gradually accustomed to the expression of views by soldiers, should lose the resentment that has been apparent in the past and exhibit instead a desire to hear the military man's viewpoint. The soldier would in turn feel that he had freedom for constructive criticism both in appropriate aspects of his own profession, and in other matters, which is one of the component factors of morale. He would feel he had freedom to express himself and establish himself as a fully developed citizen.

The press is a vital element in public relations. The Australian Press today gives very reasonable coverage to the Army's activities and I understand that the relations between our Public Relations Officers and the Press are good. The Public Relations Officers, however, must be given the material by the ordinary officer and soldier, and here again training in the responsibilities of all ranks towards public relations is required. I have heard it stated that a lecture by a

public Relation Officer has never been included in the annual series of special lectures to the Royal Military College, which, if correct, is a serious omission.

It must be remembered of course that the Press is the main mouthpiece for criticism of a government, and as the Army is a government organization, it is to be expected that the Press will print criticism of it. Provided this criticism is fair and accurate, however, it is both necessary and good and it can undoubtedly act as a spur. The Press, too, cannot be expected to be a medium of free advertisement of the Army, and its other limitations must be recognized. For instance, some newspapers are designed for studious readers and others for those who prefer a large amount of entertainment with a barest sketch of the news. Some of the best publicity for the Army I have seen was in an illustrated weekly where the work of the Royal Military College, Duntroon, and of the Staff College, Queenscliff, was admirably portrayed. It is altogether desirable therefore that the Press be given the fullest possible assistance in obtaining Army news and especially in seeing Army Activities for itself.

This discussion of Public Relations is not complete without reference to recruiting publicity. We are concerned in this essay with morale and not with numbers. In the short view it may be possible to get numbers and not have morale, but in the long view numbers without morale will not be sustained—the best recruiting advertisement is a smart soldier with a high morale. Psychologists maintain that men will strive to join an organization that is exclusive and has high standards, whereas they will ignore something which clamors for numbers and offers materialistic inducements. For this reason I fell that some of our recruiting propaganda may tend to lower the soldier in civilian eyes, and as the proud soldier must be aware of this, the reaction on morale is bad. Even though research may have revealed that a large proportion of men desires security of employment above many other things today, I submit that security should occupy a secondary place in recruiting publicity, since the main ground of the Army's claim for respect is that, though its daily work may not directly contribute to the national well-being, it is preparing itself to undertake very arduous and dangerous tasks in the nation's interest should the need arise. Once again the Americans seem to do better, for in all the recruiting advertisements that I have seen in American papers information about pay and amenities is introduced last, the main appeal being related to just those component factors of morale which I have referred to at the beginning of this essay. Such advertisements

have a double value, for they appeal to the right sort of potential recruit, and at the same time, they foster in the civilian mind the conception of the soldier as a man to be respected, liked and admired.

Summarizing then these constructive measures for influencing the community in its attitude to the soldier, I suggest that:

(a) The Public Relations Organization of the AMF be re-designed on the lines of that in the United States Army, extending its responsibilities to include research into the civilian implications of Army proposals, and that its status be raised so that its officers may be consulted as a matter of normal staff procedure in planning and administration.

(b) All regular officers be given special training in subjects that will make them more familiar with civilian organizations, methods and viewpoints.

(c) All ranks be taught their proper responsibilities towards the civilian community and the means by which they can foster its goodwill.

(d) Carefully selected officers be sent to the Administrative Staff College in the United Kingdom, and to equivalent establishments in the United States if possible.

(e) In collaboration with other interested authorities, moves be initiated for eventually conducting Summer Schools or short courses at which service officers, and officials and executives from government, industry, commerce and the trades unions can study administrative and national problems of common interest.

(f) Pending the establishment of the courses in (e) above, the attendance of officers at courses run by the Institute of Industrial Management be increased.

(g) Pending (a) above, there be set up a Committee, with authority to invite the assistance of representatives of Employers' organizations, Educationalists and Trades Unions, etc., to study the problems associated with military training, such as leave for camps, making up pay, effect on studies, and apprenticeships, etc.

(h) The regulations concerning public discussion or publication of works by members of the Army be revised on the lines of those in the United States Army to give soldiers greater freedom of expression and enable the public to get to know them as intelligent men with a variety of interests.

(i) Recruiting publicity be reviewed and related to the component factors of morale set out at the beginning of this essay and that the "security" theme be dropped altogether.

Conclusion

Although under modern conditions, the goodwill of the community, particularly through its effect on

BY TWO BRIGADIERS

Book Reviews by Lieut. D. J. Goodspeed,
Royal Canadian Ordnance Corps School, Montreal

Rommel, Brigadier Desmond Young, Collins Clear-Type Press, London, 1950. Price $3.00.
Eastern Approaches, Brigadier Fitzroy McLean, Jonathon Cape, London, 1949. Price $3.25.

Two of the most readable books to have been produced as a result of the recent war are Brigadier Fitzroy McLean's *Eastern Approaches* and Brigadier Desmond Young's *Rommel*. The first is autobiography; the second biography. Both are substantial additions to our ever-increasing knowledge of the war, for, while neither of these volumes is concerned directly with military history or military criticism, they are nevertheless, both books which every professional soldier should read, no less for his enjoyment than for his instructions.

Eastern Approaches is an account of guerrilla operations with Tito's forces in Yugoslavia, and certainly no Britisher is better able to tell this story than Brigadier McLean, who was Churchill's personal envoy to the Communist leader. *Eastern Approaches* reveals much of the political and strategical considerations which influenced Allied policy towards Yugoslavia, and a good insight is gained into the supply problems of the resistance movement which are seen to affect irregular operations no less than those of normal warfare. For those who are interested in the actual tactics of guerrilla fighting the book may prove something of a disappointment, however, since Brigadier McLean tells the story only as it was seen from Tito's Headquarters.

Yet far and away the best feature of the book is the style in which it

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GOLD MEDAL PRIZE ESSAY

(Continued from previous page)

certain component factors of morale, is essential to high morale in an Army, the Australian Army has not yet gained the unreserved goodwill of the Australian people as a whole. A number of positive steps can be taken to foster it, but these require imagination, energy, perseverance, patience and breadth of vision. Whilst some will cost money, others will mean an increase in administrative overhead, and some need first the approval of the government. Every soldier, however, should take such of these steps as he can, and take them now, for the opportunity offering today will not, in the light of history, necessarily last.

is written. Brigadier McLean reveals an undoubted talent for swift-moving narrative, for sustained interest, and for successful climax. The story in its entirety is as exciting as any novel of John Buchan's or of Sapper's, and, indeed, the real adventures of the author are every bit as improbable, as hair-raising, and as romantic as are the imagined perils of Dick Hanney or of Bulldog Drummond.

Before the war Brigadier McLean, as a young diplomat attached to the British Embassy in Moscow, made several illegal journeys far into the forbidden Russian hinterland and paid a visit to the legendary country of Samarkand. He was present at the fantastic Communist treason trials of 1938 which purged the Russian General Staff for its alleged correspondence with Hitler; he was shadowed by the NKVD; and he was one of the very few non-Russians ever to cross from the Soviet border into Afghanistan.

When war came he decided that diplomacy was not so interesting a career as soldiering, but before the diplomatic service would release him he was forced to get himself elected to parliament. His election, however, was not allowed to interfere with his adventures. He began his military career as a private in the Cameron Highlanders, but before the war was over he was destined to discuss strategy with kings and their first ministers. He was also to kidnap a Persian General, to attempt the destruction of enemy shipping in Italian-held North African ports, to parachute by moonlight into the forests of Yugoslavia, and to assist in the eventual liberation of Belgrade.

It would be a mistake nonetheless to consider *Eastern Approaches* only as a good adventure story of the war, such as Roy Farron's *Winged Dagger* or Eric Williams' *The Wooden Horse*. There is much food for reflection in it, much painless instruction in geography, and some interesting thoughts on the art of handling guerrilla forces. Any soldier will be the better for reading it.

Brigadier Young's biography of Rommel, on the other hand, is an adventure story of a different kind. For while the exploits of Fitzroy McLean have about them a gay and swashbuckling character, the role of the German Field Marshal, although no less exciting, is played to its tragic climax amidst darker surroundings. The change of atmosphere is, perhaps, symptomatic of the difference between twentieth century England and Germany.

This biography of the famous leader of the Afrika Korps does not concern itself with the details of the great battles which were fought out on the Western Desert. Still less does it relate the events of the campaign in North-West Europe.

Yet battle is the background of the book, and we are never far from the sound of the guns; the foreground is completely taken up with the picture which the author gives us of Rommel as a man, and the picture is one of absorbing interest. Much pseudo-psychological nonsense has been written in recent years about German Generals, making them out on the one hand to be cold-blooded, repellant monsters and on the other to be possessed of a superhuman genius for the art of war. In refreshing contrast, Brigadier Young's picture of Rommel is above all the portrait of a human-being who quite fortuitously happened to to be a great armoured Commander. He is not portrayed as being without military weaknesses, but is revealed as a soldier who, in spite of certain faults of impetuosity, proved himself a most formidable opponent in desert warfare.

Of Rommel's greatness as a tactician there can be no doubt. He possessed exactly those qualities of boldness, endurance, cunning, and reckless personal bravery which ensured success in the swift-moving tank battle.

Not the least interesting portion of the book is an appendix which presents in translation some of Rommel's reflections upon war. From these it can be seen that the dashing Field Marshal, besides being a soldier comparable to Marshal Ney or to "Stonewall" Jackson in boldness, had, in addition, a capacity for deep thought. This combination of qualities is certainly rare enough to deserve notice. The great captains all had it, but many of even the best generals of the second class—Saxe, Wellington, or Ludendorff, for example—did not possess both characteristics; while the great majority of commanders in all ages can lay claim to neither the one nor the other.

It is pleasant, too, to find that, in a world where chivalry is no longer much regarded, an entire campaign can be fought according to the rules of war. Rommel would never tolerate any of those savage and obscene cruelties which disgraced the German S. S. formations, and—what is more—he had the courage to protest to Hitler about them.

This in part contributed to his downfall. More important, however, was the discovery of his complicity in the plot to overthrow Hitler once the war was clearly lost. Once that was revealed, Rommel was marked for death, and not all his victories, or his courage, or his military skill could avail him anything. Yet it is a significant commentary upon modern totalitarianism that such a man as Field Marshal Rommel should come to his end leaning over the side of a car, doubled-up and sobbing with pain from a self-administered poison.

LETTERS TO THE EDITOR

He's Horrified

Editor, the Journal:

It is with some relief that I read the letter to the Editor from Major H. W. F. Appleton in the October 1950 issue of your esteemed publication. I looked forward to much more severe criticism of the appreciation. With his experience in the Armoured Corps I expected Major Appleton to take me to task for not using the old cavalry dash to meet the unknown enemy further east where there is much more room for manoeuvre and counter-manoeuvre. Instead I am horrified to read that Major Appleton's only comment is to excuse the brigadier's "scanty information and orders" under the guise of placing wide initiative on the battalion commander.

The battalion commander will have more than ample opportunity to exercise initiative once the brigadier has given clear cut instructions, and later, too, when the actual defensive battle begins.

Anyway, now that there is some dispute as to what the brigadier should tell this battalion commander allow me, sir, to give you some idea of what I would wish to know from my brigadier if I were in the battalion commander's shoes.

First of all, I want information concerning the enemy. Goodness knows, commanders of forward units have always suffered from a scarcity of information concerning the enemy in front of them, and the brigadier's extreme reticence on this matter is deplorable. All we get from the brigadier is that the divisional reconnaissance regiment is in contact off to the east, that the enemy is not likely to appear at our part of the river in less than 48 hours, that the reconnaissance unit is withdrawing through Barriefield and that we will be notified when it withdraws. Not much to go on, is it? Just where is this divisional reconnaissance regiment? How do I get information from it? What is the reason for the brigadier saying the enemy is not likely to appear on my part of the river in less than 48 hours? Is the enemy marching on foot? In trucks? In armoured personnel carriers? As a battalion commander, responsible for the defence of this river line I want a lot more information concerning the enemy than the airy-fairy waffle the brigadier has given me.

Next I want some information concerning our own troops. Just what is the situation on my flanks? Are there any friendly forces on either side of me, and if so, where? In my appreciation I said my flanks are comparatively secure on the river line but I still would say something in

my orders about protecting those flanks. Major Appleton says the flanks are secure. Does he mean absolutely and positively? If so, he is following the same line of tactical thinking which declared that tanks could not be used to advantage in Korea. I would expect my brigadier to say whether or not he is going to make provision for covering my flanks.

I want to know something too about any brigade counter-attack plan—even just an outline. For a defence so important as this, there would certainly be one, and my battalion would be very involved in it. My brigadier has not said a word about any of form possible counter-attack action.

Nor has he said anything about demolitions. Demolitions in the defence are always a tricky business. A demolition plan has to be co-ordinated on the highest level possible. My brigadier should be in the picture on this, and he should put me into it too.

Major Appleton has declared that there is a theory that the divisional commander tells the battalion commander where to place companies. Frankly, I have never heard of this theory before. On the contrary, I have heard of the principle (and an excellent one too, confirmed by experience) that a commander, when allotting a task to troops under his command, thinks in terms of two levels down so that he may better appreciate just what is involved in the accomplishment of that task. But he never tells any of his subordinate commanders where to place their troops or how to lead them in action. This is done only in a training period before moving into operations. I would strongly object to any brigadier telling me just where to place my companies, but at the same time I would like to feel that my brigadier appreciates the ground which my companies have to cover and tasks to accomplish.

In conclusion, while I think Major Appleton has a point in calling for a demonstration of initiative and skill by the battalion commander, he has taken a very poor example to illustrate it.—*Major A. L. Brady, Directorate of Military Training, Army Headquarters, Ottawa.*

He Was There

Your summer publication of the Canadian Army Journal contains a letter received from Col. C. P. Stacey, who comments on "CAEN-FALAISE." This commentary is based on the publication of articles written by Capt. Bernard Georg Meitzel entitled "Caen-Falaise." Col. Stacey refers to the fact that Capt. Meitzel was captured by the 28th Canadian Armoured Regt. (BCR).

As a participant in the engagement

this story is of a great deal of interest. I remember participating in the capture of Captain Meitzel when he drove his scout car into our position. You may be interested in knowing that Capt. Meitzel had a bolt of white sheeting material in his car. This became extremely useful to us in affording some protection to our badly wounded men. The day was extremely hot and although we were able to evacuate some wounded—there were a number who could not be moved. This sheeting was placed over an armoured infantry transport vehicle and certainly kept off heat and flies.

Our casualties were heavy in men and machines and as the day wore on, less and less concern was felt about the prisoners. In fact we were the prisoners as the Germans completely surrounded the area and all attempts by our forces to break through were defeated.

I was most fortunate that day in being one of the few surviving officers. At the close of the day I gathered together the remaining men and evacuated. We fortunately were able to slip through the German lines without being captured and finally made our way to the Polish Division. This battle was a most eventful one in the BCR history and many of our best officers and men were killed. The losses of Sherman Tanks were high (47) but the regiment reformed a small group and were in action again a few days later.

Would you please do me a favour by sending me copies of the Canadian Army Journal that contain the story written by Captain Meitzel. This would be greatly appreciated.—*Lieut. K. C. Clarke, formerly of "C" Sqd. 28th Can. Arm. Regt. (BCR).*

NEW DEFENCE SHIP

Twenty-knot cargo ships now being designed for mass production will be capable of quick modification into 3,000 passenger troop ships, Vice Adm. Edward L. Cochrane, Federal Maritime administrator, told the Society of Naval Architects and Marine Engineers in New York city recently.

He said the 12,500-ton vessels would be "vastly superior" to the Liberty and Victory ships of World War II and reported that plans for the new type ship are being drawn up by the Bethlehem Steel Company's shipbuilding division. It is reported that between 29 and 50 of the 20 knot ships will be ordered. Admiral Cochrane said he would like to see 500 built to replace slower ships, which would be much easier prey for submarines.—*Army-Navy-Air Force Journal (U.S.).*

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