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The aim 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 Regular Army, the Militia, and Reserve with information designed to keep them abreast of current military trends, and to stimulate interest in military affairs. The views expressed by authors are not necessarily those of the Department of National Defence.

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THE CORPS OF ROYAL CANADIAN ENGINEERS

THE ROYAL CANADIAN ORDNANCE CORPS

THE COVER

A United Empire Loyalist and his wife stand on the site of their homestead in New Brunswick following the American War of Independence, 1775–83. Tracts of land such as this were granted to veterans who remained loyal to the Crown during the war, and it is an interesting fact that a part of the region in which they settled is now occupied by Camp Gagetown where Canadian troops were engaged last summer in Exercise Rising Star. (See page 4).

A MESSAGE FROM THE CHIEF OF THE GENERAL STAFF

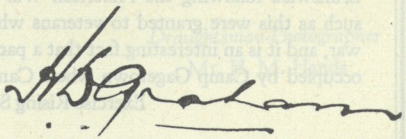
To All Ranks of the Canadian Army:

Upon assuming the appointment of Chief of the General Staff of the Canadian Army I am fully aware of the great responsibility that goes with it; but I am also tremendously proud to be the service head of such a splendid organization which, under the guidance and direction of my predecessors in this office, has reached such a high standard of efficiency.

It must be recognized, however, that such a standard could never have been attained without loyal support and hard work from all members of the team. Every individual soldier, no matter what his rank, no matter where or how employed and no matter how long or how short his service has been, has an important part to play in this army of ours. I want every officer, warrant officer, non-commissioned officer and man to realize that.

It is only by the loyalty, cooperation and conscientious effort of all of us working together as a team, that the Canadian Army can continue to hold its present high place both at home and abroad.

I am most grateful to each one of you for your good service in the past and feel sure that I will have your support in the future.



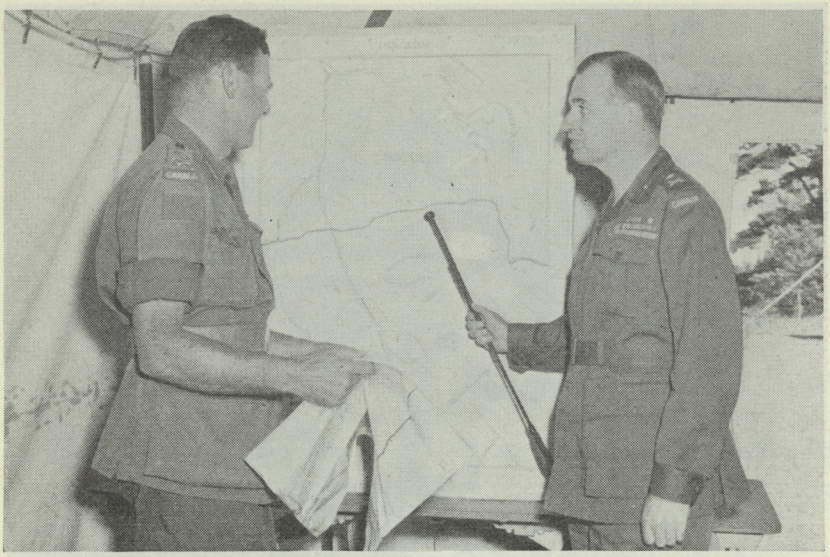
1 September 1955

Lieutenant-General,
Chief of the General Staff.

National Defence Photograph

Lieut.-General H. D. Graham, CBE, DSO, ED, CD

(see biography on page 73)



National Defence Photograph

Director of Exercise Rising Star, Major-General E. C. Plow (*right*), General Officer Commanding Eastern Command, briefs Major-General J. M. Rockingham, Commander of the 1st Canadian Infantry Division, on the large-scale exercise map at his headquarters in Camp Gagetown. (Photograph No. EC-7137).

EXERCISE RISING STAR

by

LIEUT.-COLONEL W. A. MILROY, DSO, GSO 1 AT HEADQUARTERS, EASTERN COMMAND, HALIFAX, NOVA SCOTIA

Exercise Rising Star, which took place in Camp Gagetown, New Brunswick, during the period 7-12 August 1955 marked the conclusion of the first field concentration held by 1 Canadian Infantry Division since it was re-activated in October 1953. During the first five weeks of the concentration, Major-General J. M. Rockingham, CB, CBE, DSO, ED, directed his Division through an intensive series of battalion and brigade exercises. Exercise Rising Star, directed by Major-General E. C. Plow, CBE, DSO, CD, General Officer Commanding Eastern Command, was designed to complete this training by giving the Division an opportunity to operate as a formation under operational conditions.

The exercise was one-sided, with a controlled enemy. Its scope included

a move into a defensive position, a withdrawal to a second defensive position, and an attack across a river.

Setting

To set the stage for the exercise, Camp Gagetown was divided approximately in half, with the northern half representing an aggressive country, Philistia, and the southern half the country of Blueland. Blueland was a member of a NATO-like organization of fourteen countries who had banded together to protect one another against aggression.

In the event of an attack by Philistia against Blueland, Blueland's allies could start landing troops at Saint John fourteen days after the hostilities began. Blueland's main task was, therefore, to prevent Philistine forces from reaching Saint John for at least two weeks after the outbreak of hostilities. To do this, she had an Army of two corps and a marine brigade. 1 Corps, consisting of 1 and 2 Infantry Divisions, and the Marine Brigade were stationed in the Camp Gagetown area. 2 Corps was stationed in the Aldershot area and would require a week after the outbreak of hostilities to move to the area north of Saint John.

In order to avoid incidents, the Blueland Government had not allowed the Army to prepare positions on the border. In fact, the government had not allowed any movement within a few miles of the border for several years, with the result that much of the country in the area had become heavily forested, with few roads.

Philistia had a superiority of two to one in the air over Blueland.

1 Canadian Infantry Division represented 1 Blueland Infantry Division of 1 Blueland Corps. Philistine forces were represented by a controlled enemy force consisting of one infantry battalion and a squadron of tanks. Both Philistine and Blueland Air Forces were represented by planes of the Royal Canadian Navy.

Planning

The Army Headquarters' directive on the exercise was received by Headquarters Eastern Command in November 1954. The directive appointed the Director General of Military Training as Deputy Director of the exercise and the Commandant of the Staff College as the Chief Umpire. It included the General Idea, Opening Narrative, and Outline Forecast of Events.

The following were made available to Headquarters Eastern Command for the exercise:

(a) 2 Battalion, The Black Watch (Royal Highland Regiment) of Canada, and "C" Squadron, The Royal Canadian Dragoons, to act as enemy.

(b) 4 Battalion, The Canadian

Guards, for administrative and umpire duties.

(c) 1 Airborne Signals Squadron.

(d) Staff and students of the 1955 Staff College Course to act as umpires.

(e) Some fifty Royal Canadian Navy aircraft of all types.

(f) 1 Locating Battery and a number of officers and men of 1 Canadian Infantry Division.

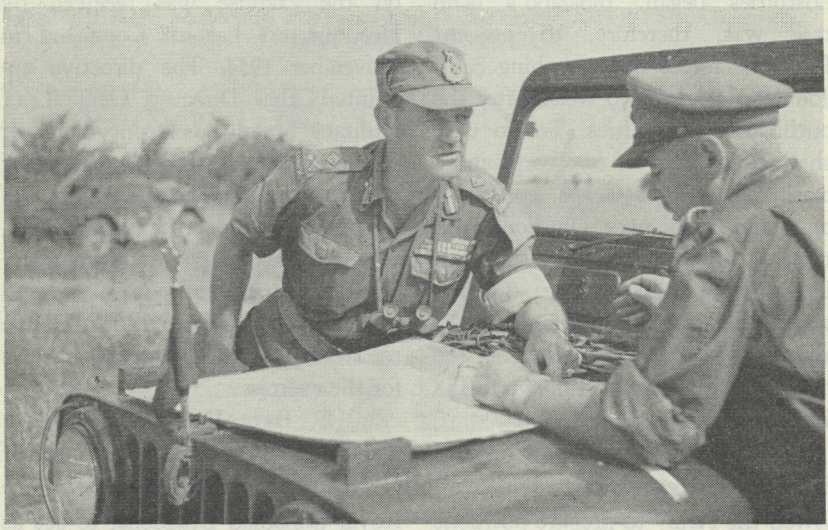
(g) Some seventy officers and fifteen men from Army Headquarters.

These were in addition to the resources of Eastern Command, which included Militia and Cadets as well as members of the Regular Army.

Planning for the exercise was carried out by a Planning Team consisting of the GSO 1, GSO 2 (Plans), and DAQMG of Headquarters Eastern Command, Lieut.-Colonel F. Waugh, AA & QMG (Camp Gagetown), Lieut.-Colonel F. Klenavic of the Staff College and Major R. C. Paris of the Directorate of Military Training, Army Headquarters, Ottawa. The actual detailed work of producing the exercise was done by Major T. H. Burdett, GSO 2 (Plans), assisted part time by Major Paris.

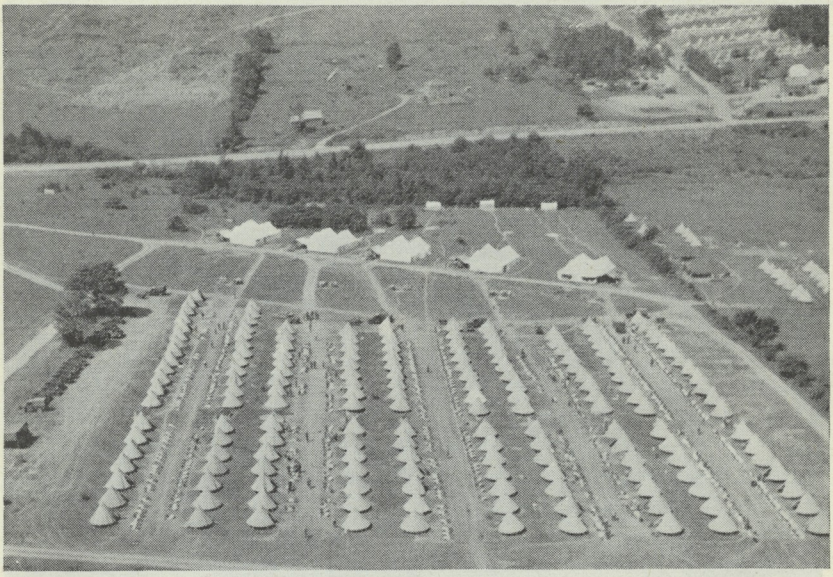
An organization designated as Rising Star Group was set up to organize and conduct the exercise. The group consisted of:

(a) *Headquarters*—responsible for co-ordinating the activities of the group.



National Defence Photograph

Major-General J. M. Rockingham (*left*), Commander of the 1st Canadian Infantry Division, briefs Brigadier D. C. Cameron, Commander of the 4th Brigade, before the start of Exercise Rising Star. (Photograph No. EC-7128).



National Defence Photograph

Aerial view of the tent lines of The Black Watch (Royal Highland Regiment) of Canada. (Photograph No. EC-1902).

(b) *Control Group*—responsible for representing Headquarters 1 Blueland Corps and flanking formations, and for controlling the enemy and the air.

(c) *Administrative Battalion* — responsible for accommodating and equipping the personnel of Rising Star Group, including visitors and representatives of the Press.

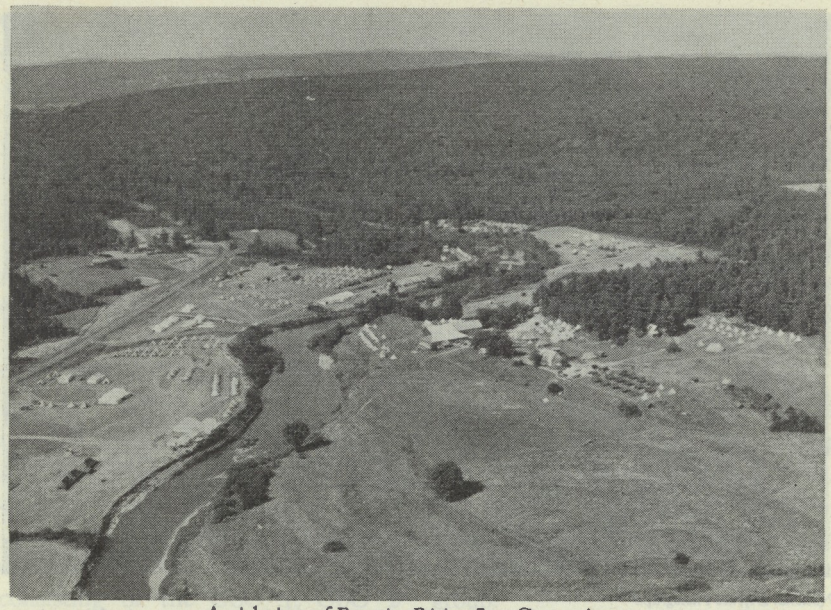
(d) *Umpire Organization*

(e) *Philistine Force*

(f) *Visitors and Press Group*—responsible for briefing and conducting up to fifty visitors and thirty representatives of the Press.

This organization called for 211 officers, 351 men, and 156 vehicles, in addition to the enemy force and the administrative battalion.

Two separate communication systems were provided, umpire and control. The umpire communications were based on 1 Airborne Signal Squadron. The control communications used equipment supplied by Militia units in Eastern Command, while personnel were a mixture of Regulars and Militia. Communication with the Naval Air Base at Shearwater, N.S., was by commercial line.



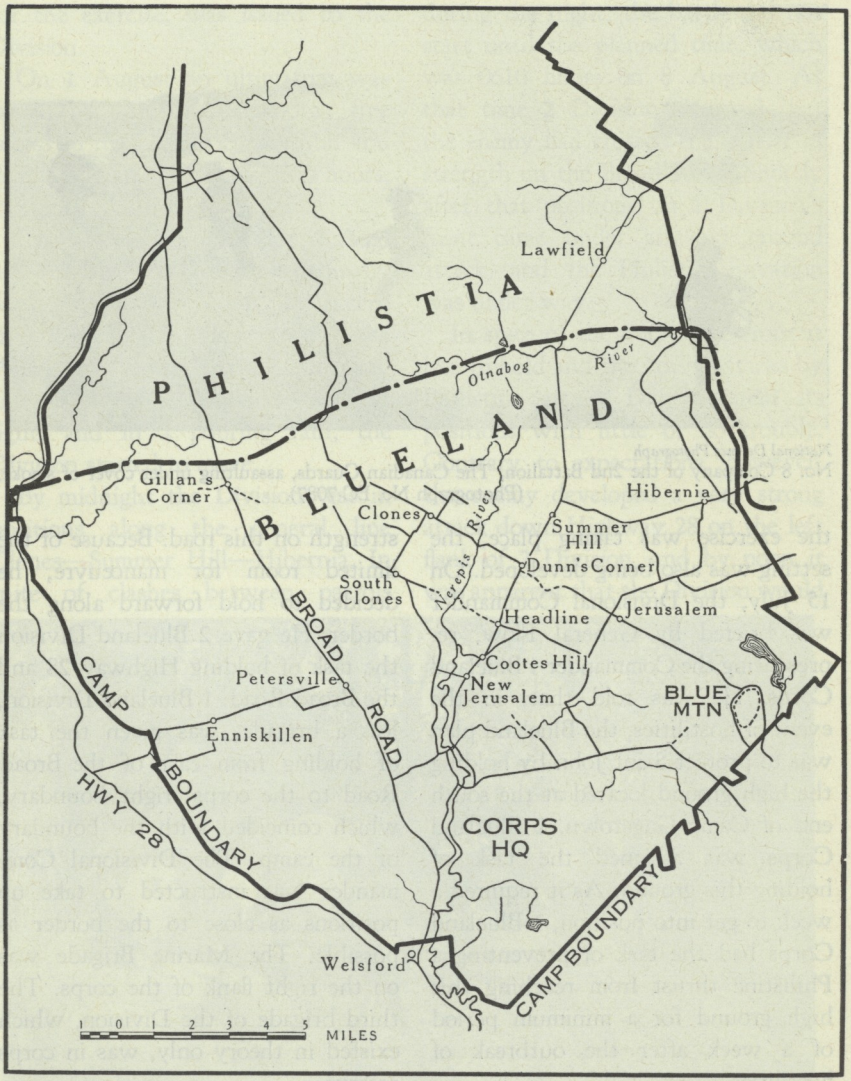
Aerial view of Exercise Rising Star Group Area.

Build-up

The physical build-up for the exercise commenced in Camp Gagetown in the second week of July when the Headquarters of Rising Star Group moved to the camp. Starting the 20th of July, 4 Canadian Guards moved into the control area and commenced setting up tents and drawing the necessary stores. This was a large task as indicated by the fact that, among other things, the battalion had to organize and operate four messes—"A" and "B" Messes, Press Mess, and a Men's Mess—in addition to its own.

On 1 August the units comprising the enemy force moved into position in the area of Lawfield. Under the direction of Lieut.-Colonel R. M. Ross, who represented General Goliath of the XXV Philistine Corps, they commenced guarding the border, reconnoitering routes into Blueland, and producing propaganda.

On 2 August, the officers and men who were to comprise the control and umpire staffs began arriving. During this week courses were conducted for signals operators, and officers and men were briefed and reconnoitered the country over which the exercise was to take place. On Saturday, 6 August, the staff and students of the Staff College arrived; and by that evening all the umpires



had been briefed, outfitted, and dispatched to their units.

By 1200 hours, 7 August, the Division was concentrated in the area south of Headline—New Jerusalem.

Exercise

While the physical build-up for

National Defence Photograph
No. 8 Company of the 2nd Battalion, The Canadian Guards, assaulting under cover of smoke. (Photograph No. EC-7087).

the exercise was taking place, the setting was also being developed. On 15 July, the Divisional Commander was briefed by General Plow, representing the Commander 1 Blueland Corps. He was told that, in the event of hostilities, the Blueland plan was to protect Saint John by holding the high ground located at the south end of Camp Gagetown. 2 Blueland Corps was assigned the task of holding this ground. As it required a week to get into position, 1 Blueland Corps had the task of preventing a Philistine thrust from reaching this high ground for a minimum period of a week after the outbreak of hostilities.

Commander I Blueland Corps appreciated that the main enemy thrust would come down the Broad Road and that he must hold with his main strength on this road. Because of the limited room for manœuvre, he decided to hold forward along the border. He gave 2 Blueland Division the task of holding Highway 28 and the Broad Road. 1 Blueland Division, less a brigade, was given the task of holding from east of the Broad Road to the corps' right boundary, which coincided with the boundary of the camp. The Divisional Commander was instructed to take up positions as close to the border as possible. The Marine Brigade was on the right flank of the corps. The third brigade of the Division, which existed in theory only, was in corps reserve.

On 25 July, the exercise was placed on general distribution, and at the same time a newspaper, *Blueland Star*, which gave the setting

for the exercise, was issued to the Division.

On 1 August an ultimatum was issued by Philistia demanding free access to the port of Saint John and demanding an answer by 2359 hours, 7 August.

On the evening of Sunday, 7 August, the Blueland Government finally decided that it would not accept the demands of Philistia, and the Army was ordered to take up positions to repel an invasion. At last light, and in a pouring rain, the Division started to move.

By midnight the Division was in positions along the general line Clones—Summer Hill—Hibernia. In spite of clashes between patrols during the night, the battle did not start until the planned time, which was 0610 hours on 8 August. At that time 2 Division reported that the enemy had crossed the border in strength on the Broad Road. Shortly after that positions on 1 Division's front came under air and ground attack, and the Philistine invasion was under way.

In spite of the very wide front it had to hold and the heavy attacks by Philistine air, 1 Division held its positions with little or no trouble. Contrary to expectations, however, the enemy developed a very strong attack down Highway 28 on the left flank of 2 Division, and by noon it was apparent that the Division would

National Defence Photograph

Standing to in the company outpost and keeping a watchful eye for the "enemy" are these members of the 1st Battalion, The Royal Canadian Regiment. (Photograph No. EC-7183).

National Defence Photograph
A Universal Carrier passing men of the 3rd Battalion, The Royal 22e Régiment, on a dusty road. (Photograph No. EC-7003).

have to fall back to the area Enniskillen—Petersville. It did so, and 1 Division and the Marine Brigade were ordered to conform commencing at last light.

1 Division carried out its withdrawal with little trouble in spite of flares that were dropped by aircraft during the night. The demolition plan prevented the enemy from following too closely, and by first light, 9 August, the Division was in position on its new defensive line: Nerepis River — Headline — New Jerusalem —Blue Mountain.

The camouflage of the division in these positions was very good. The Navy aircraft, which were flying over one hundred missions a day, mostly as Philistine aircraft, had great difficulty in locating positions or vehicles. However, the same care was not being shown about driving down roads or walking in the open, and the umpires had to hand out a number of casualties before the amount of movement during daylight was reduced.

Mention must be made at this time of the weather reporting organization operating at Control Headquarters under Mr. Hugh Cameron of the Directorate of Weapons and Development, Army Headquarters, Ottawa. With the equipment available the organization was able to give accurate weather forecasts, and it was about this time that Mr. Cameron brought the antics of Hurricane Connie to the attention of the Director. As it appeared almost certain, at that time, that the hurri-

cane would arrive in the Gagetown area on Saturday, 13 August, the Director decided that the exercise, which was planned to end on Saturday, would finish Friday, 12 August.

Tuesday was spent consolidating positions and fighting off attacks by the enemy. During Tuesday night two simulated airborne raids, each of a platoon size, were made. Aircraft flew over the areas to be attacked about midnight, and at the same time two squads of Black Watch were dropped from trucks together with control and umpire officers. One group attacked a workshop in the administrative area while the other attacked a bridge on the main supply route. Both attacks were beaten off, but the attack on the bridge, in particular, evidently caused a certain amount of confusion in the divisional units in the area.

On the morning of 10 August, the Corps Commander ordered the Divisional Commander to make an attack, commencing at 1200 hours, 11 August, toward the Broad Road in an effort to lessen the pressure on the front of 2 Division. The Marine Brigade was to relieve the Division of responsibility for a portion of its front. The Divisional Commander was assured that local air superiority would be maintained during the period of the attack, and air support would be available.

The relief of one of two battalions of the Division by a unit of the Marine Brigade was carried out during the night of the 10th, while the relief of another was completed on the 11th.

The divisional plan of attack was to capture Dunn's Corner by last

National Defence Photograph

Members of the 3rd Battalion, The Canadian Guards, crossing a footbridge. (Photograph No. EC-1964).

National Defence Photograph

Ammunition being loaded on a Royal Canadian Navy helicopter during Exercise Rising Star. (Photograph No. EC-7207).

light, using 3 Brigade, and then have 4 Brigade force a crossing of the Nerepis River during the night and launch an attack on the area Clones—South Clones at first light.

By 1200 hours, the 11th, the situation was very realistic in that it was pouring rain, and, as a result, the naval air units were grounded. The attack was carried out as planned, although the umpires had a very difficult job preventing the troops from going ahead against the rather weak (and by this time very tired) enemy at too fast a pace. Two bridges were built during the night: a foot-bridge and a Bailey; and the next morning 4 Brigade was across the Nerepis and about to attack the Clones area when the Exercise Director gave the order "Cease Fire", —time: 0945 hours.

A final conference was held two hours later at which the Director commented on the course of the exercise. Immediately afterwards, the concentration began to break up. By Sunday morning, 14 August, most of the members of the Rising Star Group had left the camp; and units of the Division were on the move to their home stations.

Summary

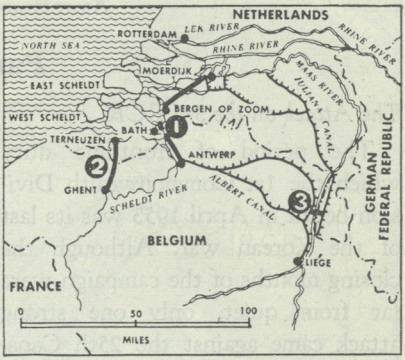
Rising Star was designed to test and exercise the Division under operational conditions. This it did, and the efficient and effective manner

Canal Construction

Plans calling for the construction of major waterways projects costing more than 101 million dollars have been announced by the Governments of the Netherlands and Belgium, with the major share of the expenses being paid by Belgium.

The projects call for a canal joining Antwerp and the Scheldt River to the Rhine; the enlargement and partial re-routing of a canal that links the Belgian port of Ghent to Western Scheldt to permit large sea-going vessels to reach Ghent; and the construction of a canal, designed for ships up to 2000 tons' capacity, to be built north of Liége, joining the Albert and Juliana Canals and providing a shorter route from the Ruhr in Western Germany to the Liége industrial area.

The proposed Scheldt-Rhine Canal will be 37 miles long, and will begin at the docks of Antwerp. From there, it will run northwest to Eastern Scheldt and continue in this sea arm behind a dam to be constructed.



Proposed projects to improve waterways.

Then, from a point north-west of Bergen op Zoom, it will curve through Dutch territory to Moerdijk on the Holland-schdiep. A canal across the narrow neck of South Beveland, near Bath, would join the new waterway in the Eastern Scheldt.—*News Release.*

Exercise Rising Star

(Continued from preceding page)

in which the Division functioned, and the enthusiasm and high morale shown by all ranks were the subject of favourable comment by all those who observed the exercise.

The organization set up to conduct and umpire the exercise operated effectively due, in a great measure, to the enthusiasm and desire to co-operate shown by the many units and individuals brought together with very little time for preparation.

As the first of many divisional exercises that will be held in Camp Gagetown, Rising Star will be a most useful guide for those that follow.

CANADA'S ARMY IN KOREA

A Short History written especially for the Journal by the Historical Section, Army Headquarters, Ottawa

Part IV

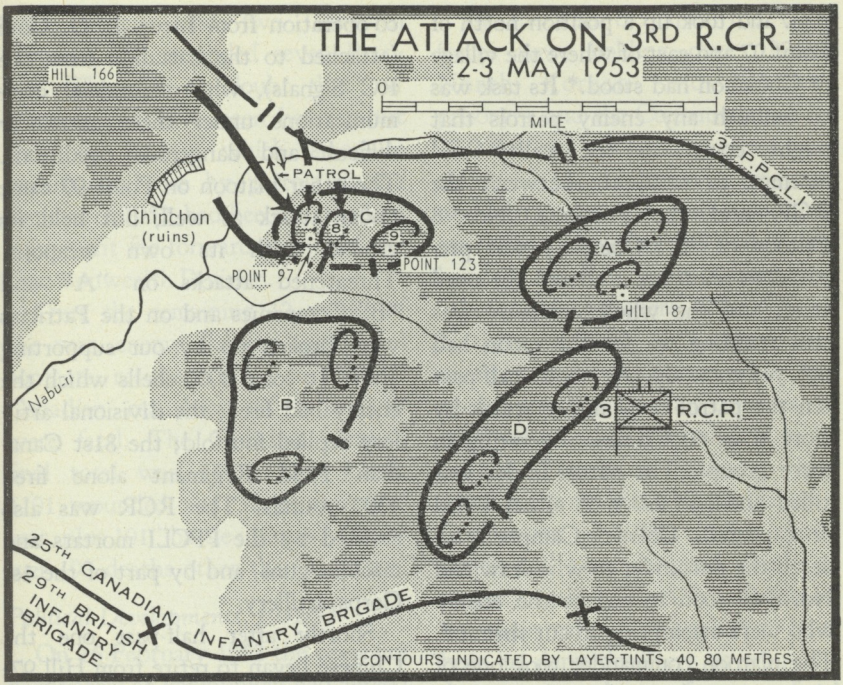
The Attack on the 3rd RCR

The period of front-line duty which the 1st Commonwealth Division began in April 1953 was its last of the Korean war. Although the closing months of the campaign were far from quiet, only one strong attack came against the 25th Canadian Brigade.

On the night of 19–20 April the 3rd Royal Canadian Regiment, entering the line for the first time, relieved the homeward-bound 1st Royal 22e Régiment on the more southerly of the two Hills 187. To the left of this position, guarding the Yongdong feature and the Hook, was the 29th British Brigade. On the right was the 3rd Princess Patricia's Canadian Light Infantry, and to its right the 28th Commonwealth Brigade. The boundary between the 25th and the 28th Brigade lay opposite the right flank of the Chinese First Army and the left of the 46th Army.

The RCR position resembled the palm of a great, gnarled hand. Hill 187 itself represented the base of the thumb, from which three finger-like ridges ran westward, pointing towards the lower reaches of the Nabu-ri stream. The CO, Lieut.-Colonel K. L. Campbell, assigned "A" Company to 187 and "C" to the first "finger"; he placed "B" Company on the second and third fingers and "D" as at the base of a fourth. "C", his right forward company, had two platoons on Point 97 and its headquarters and the other platoon on Point 123. The battalion's defences had not suffered as badly either from enemy shelling or from the weather as had those of Hill 355 in the autumn of 1952, nor were they as well developed as the Hook position; they were representative of the divisional front in general.

In accordance with divisional policy, Colonel Campbell ordered that the wire be thickened, the trenches deepened and gaps in the system removed, and the fire bays and bunkers reinforced—especially in the case of "C" Company, whose position was a favourite target of the Chinese artillery and mortars. Enemy patrols, meanwhile, were treating No Man's



Historical Section, G.S.

Land almost as though it were their property, an impression which Commonwealth commanders resolved to correct by increasing the number of their own patrols. A patrol of "A" Company of the RCR, in fact, was out when the enemy struck. That was on the evening of 2 May.

The amount of hostile shelling and probing pointed to an attack in the near future. There was little indication, however, that the Chinese had chosen this particular time for it —no sharp increase in his patrol activity, no change in his shelling habits. For the RCR as a whole, 2 May was a quiet day; for "C" Company, as usual, it was one of fairly heavy shelling and mortaring. One man was killed in the afternoon when a platoon OP on Hill 97 received a direct hit, and three others were wounded early in the evening. The fighting strength of the company at this time was about 130, including 22 Katcom soldiers. Attached were some 60 members of the Korean Service Corps, of whom two-thirds were employed at digging and the remainder as porters.

The "A" Company patrol, 16 strong, passed through "C" at 8:30

p.m. and took up a position north of Point 97 and east of where the village of Chinchon had stood.* Its task was to ambush any enemy patrols that might come up the valley and attempt to penetrate between the RCR and the Patricias. No. 8 Platoon of "C" Company was prepared to reinforce it should the need arise; and the whole company was still standing to, for the moon had not yet come up. At about half-past ten the patrol came under attack by more than 60 Chinese, operating in three groups. The patrol leader was killed and half his men either killed or captured. Colonel Campbell ordered the remainder to withdraw and No. 8 Platoon to engage the enemy who were attempting to cut them off. The platoon commander took one of his sections forward, and soon this group also found itself in a losing fight.

At midnight, hours before the last remnants of these two parties had made their way back, the Chinese artillery put down a heavy concentration on Point 97. Then the enemy infantry assaulted. No. 7 Platoon's commander, 2nd Lieut. E. H. Hollyer, called for artillery fire right on his own position, catching not only the first wave of the attackers but a follow-up force as well. Throughout the action he received the closest co-operation from Lieut. L. G. Coté (attached to the battalion from the RC Signals), who maintained communications under these extremely difficult and dangerous conditions. The other platoon on Point 97 came under attack as well, but held its ground with its own weapons. Threatened attacks on "A" and "B" Companies and on the Patricias were broken up by our supporting arms. To some 2000 shells which the enemy had fired, the divisional artillery replied fourfold; the 81st Canadian Field Regiment alone fired 4300 rounds. The RCR was also assisted by the PPCLI mortars and machine-guns, and by part of the 1st Corps artillery.

Shortly after half-past one the Chinese began to retire from Hill 97; and the Commonwealth artillery, at Lieut. Hollyer's request, lifted its fire so as to harass the withdrawal. A few hours afterwards Colonel Campbell took "C" Company out of the battalion area for a period of rest and refitting. Its relief was "D" Company, whose former position was now occupied by a company of the recently-arrived 3rd Royal 22e. The night's action, a raid in battalion strength, had cost the enemy more than 80 fatal casualties. The RCR's losses were 25 killed, 28 wounded and seven taken prisoner, exclusive of 35 Katcom and KSC casualties. Chinese artillery fire had also killed

*A patrol of the 1st RCR had completely destroyed this village in May 1952.

two Patricias and two Canadian gunners, and wounded seven Patricias. There is no doubt that our losses would have been heavier but for body armour, which, since its experimental use by patrols in the summer of 1952, had become standard equipment for forward troops of the Commonwealth Division.

Over the remaining 12 weeks of the war, enemy shelling and patrol contacts resulted in a further 97 Canadian casualties, of which 17 were fatal. The Canadian Army's final total was 1543 — 309 killed, 1101 wounded and 32 prisoners of war, plus 101 "battle injuries". There were 90 deaths other than in battle.

Political Developments, 1952-53

On 16 February 1952 the cease-fire negotiators at Panmunjom had agreed that:

> . . . within three (3) months after the armistice agreement is signed and becomes effective, a political conference . . . of a higher level of both sides be held by representatives appointed respectively to settle through negotiation the questions of the withdrawal of all foreign forces from Korea, the peaceful settlement of the Korean question, etc.*

But the delegates were again in deadlock with respect to concrete arrangements for a cease-fire and for the supervision of an armistice, while sub-delegates were wrestling vainly with the question of the post-war disposal of war prisoners.

By the end of April the U.N. forces were holding over 120,000 North Korean and Chinese prisoners, and the Communists about 12,000 of our troops; only about two-thirds of the Communist prisoners wished to return to their homelands on release, as against all but a few hundred of the South Korean and other U.N. prisoners. The United Nations objected to a compulsory repatriation of prisoners, while the enemy insisted that all captives be returned whether they wished to be or not. The Reds, claiming their stand to be in line with the Geneva Convention of 1949, cited a clause which had been designed simply to ensure against forcible retention; but their real motive appears to have been to deny deserters or would-be deserters any hope of escape from Communism.

Between December 1951 and October 1952 the fate of war prisoners was the subject of bitter and fruitless debate, and on 8 October the U.N. Command called an indefinite recess in all armistice negotiations. But only two weeks later, the question was raised again in the seventh session of the U.N. General Assembly. Several resolutions, counter-resolutions and amendments were introduced and discussed before the end of November; but the only significant development was a proposal which the Indian delegation

**Admiral Joy's team stressed that "foreign" forces meant non-Korean, and that "etc." did not include matters outside Korea.*

National Defence Photograph

Brigadier J. V. Allard, who was soon to command the 25th Brigade, visits Lance-Corporal Paul Dugal, the first Canadian war prisoner to be returned, 20 April 1953. Corporal Dugal had been captured in June 1952 while serving with the 1st Royal 22e Régiment.
(Photograph No. SF-6287).

advanced, and which the Assembly adopted on 3 December over the objections of the Soviet bloc. It provided for a neutral commission to which all prisoners would be turned over. The commission would repatriate all willing prisoners, but would not use force either to carry out or to prevent such return; the disposal of unwilling prisoners would be referred to a political conference; and if after a certain time this conference had failed to solve the problem, "the responsibility for their care and maintenance and for their subsequent disposition shall be transferred to the United Nations, which in all matters relating to them shall act strictly in accordance with international law". Communist China and North Korea, whose foreign ministers received the text of the resolution, rejected these proposals; consequently no immediate settlement resulted. This resolution had, however, demonstrated the solidarity of the non-Communist members, and was to serve as the basis of the agreement that eventually was reached.

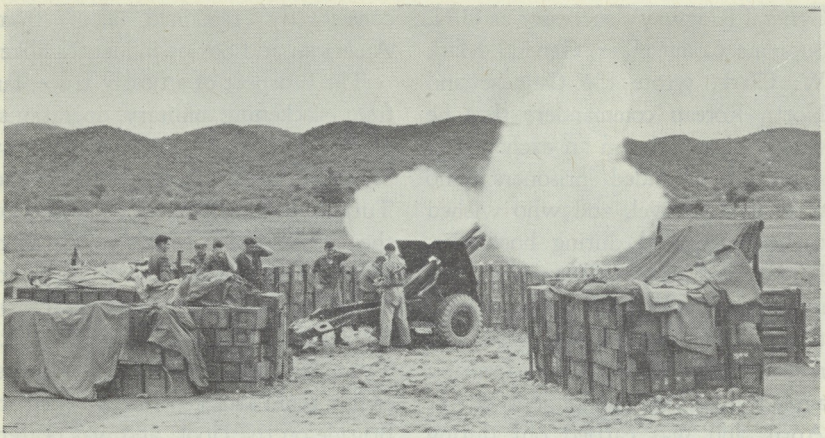
Towards the end of February 1953

General Ridgway's successor as U.N. Supreme Commander, General Mark W. Clark, wrote the Chinese and North Korean commanders that he was willing to begin an exchange of sick and wounded prisoners who were fit to travel, and who wished to be repatriated during hostilities. He received a favourable reply within a month, and with it the suggestion that full armistice discussions be resumed. The exchange was formally agreed upon at Panmunjom on 11 April, and was carried out during the next three weeks. (Among the prisoners returned were two Canadians.) Meanwhile the Foreign Minister of Communist China, Mr. Chou En-lai, had proposed that "both parties to the negotiations should undertake to repatriate immediately after the cessation of hostilities all those prisoners of war in their custody who insist upon repatriation and to hand over the remaining prisoners of war to a neutral state . . ." and that while in neutral custody prisoners should be visited by explanation teams of their own nationality. This amounted to a qualified acceptance of the General Assembly's resolution of December 1952.

That member which had introduced the resolution became the "neutral" state in question. It is true that India had contributed a medical unit to the U.N. forces, but she was an Asiatic power which had consistently remained aloof from American and Soviet influences alike.

The prospect of an early truce, far from slackening military operations, seemed to provoke some of the most bitter fighting of the war. In May the Turkish Brigade, under command of the 25th U.S. Infantry Division (which had relieved the Marines to the left of the Commonwealth sector), repulsed a strong Chinese thrust. Towards the end of the month the enemy again attacked the 29th British Brigade on the Hook, and was beaten off with losses estimated at over a thousand. In mid-July he mounted a series of attacks against the 1st ROK Division, to the right of Hill 355; these were broken up with the assistance of the 81st Field Regiment RCA. Among the heaviest and the very last actions of the campaign were two involving the Marine Division, which had returned to the area south-west of the Hook. Aided by the 2nd Royal Australian Regiment and Commonwealth artillery and tanks, the Americans held their ground. More effective attacks had come in the Eighth Army's central sector, principally against South Korean formations, reducing the Kumsong salient. Apparently the main reason behind the enemy's efforts here was that the Republic of Korea still opposed an armistice which would leave the peninsula divided.

On 18 June, without consulting



National Defence Photograph
The 81st Canadian Field Regiment's last round of the Korean war, fired shortly after 1700 hours on 27 July 1953. (Photograph No. SF-7161).

the U.N. authorities, President Rhee had ordered the release of over 25,000 North Korean prisoners who did not wish to be repatriated. In reply to a Communist protest against this dramatic but untimely move, General Clark pointed out that the proposed armistice was a military matter, and that while the U.N. Command was in control of the ROK Army it had no authority over the Korean Government. At the same time a personal representative of the President of the United States persuaded Mr. Rhee to refrain from further acts which might upset the truce talks, and the U.N. Commander was then able to give appropriate assurances to the Communist negotiators. These assurances were accepted on 19 July, and the Korean Armistice Agreement was signed at Panmunjom eight days later.

The signing preceded by twelve hours the actual cease-fire, which took effect at 10:00 p.m. on the 27th; thus ended three years and one month of fighting. Millions of Korean civilians had been made homeless and many thousands of others killed or injured. The Communist Chinese forces had suffered an estimated 967,000 battle casualties, the North Korean 624,000. U.N. (including South Korean) battle casualties numbered almost 439,000.

In Washington, on the day following the cease-fire, representatives of those U.N. countries whose armed forces had fought in Korea signed the following declaration:

> We . . . support the decision of the Commander-in-Chief of the United Nations Command to conclude an armistice agreement. We hereby affirm our determination fully and

faithfully to carry out the terms of that armistice. We expect that the other parties to the agreement will likewise scrupulously observe its terms.

. . . We shall support the efforts of the United Nations to bring about an equitable settlement in Korea . . . and which call for a united, independent and democratic Korea. We will support the United Nations in its efforts to assist the people of Korea in repairing the ravages of war.

. . . We affirm, in the interests of world peace, that if there is a renewal of the armed attack, challenging again the principles of the United Nations, we should again be united and prompt to resist. . .

Finally, we are of the opinion that the armistice must not result in jeopardizing the restoration or the safeguarding of peace in any other part of Asia.

Administration Behind the Canadian Brigade, June 1951–July 1953

The Canadian administrative organization in the Far East served three special purposes: it equipped and supplied this country's troops mainly from Canadian and American sources; it enabled all elements to keep their Canadian identity; and it represented an appropriate contribution by Canada to the Commonwealth administrative effort.

The 2nd PPCLI's Administrative Increment, whose role was to continue while that battalion was the only Canadian unit in Korea, consisted of some 80 all ranks, including RCASC, RCOC, pay and records. Its headquarters was set up in Pusan, with the Commonwealth advanced base. Detachments were located in the main base (Kure, Japan), the forward maintenance area (later permanently located in Seoul) and the

National Defence Photograph

Members of the 3rd Royal 22e Régiment greet the announcement of the armistice, 27 July 1953. (Photograph No. SF-8001).

Commonwealth Brigade's area. When, early in June 1951, the Patricia's rejoined their recently-arrived parent formation, the Administrative Increment ceased to exist as such; its personnel were further absorbed into the Commonwealth organization.

During its first three months in the theatre, the 25th Canadian Brigade was maintained as well as employed as a brigade group. Brigadier Rockingham exercised command over the administrative units through his staff, which then included deputy assistant directors of the various services. The two major Canadian units in Japan—No. 2 Administrative Unit and No. 25 Reinforcement Group—were equally responsible to Brigade Headquarters. But on the formation of the 1st Commonwealth Division at the end of July, almost all other Canadian administrative units either were reallocated to the divisional services or to the Commonwealth line of communication and base organization. At the same time the establishment of Brigade Headquarters was modified so as to resemble more closely that of a standard brigade. How did the brigade commander, who was still responsible to the Canadian Government for the administrative troops, continue to exercise control over them? An early measure to this end was to organize those serving in integrated units into all-Canadian accounting units whose commanders were responsible to Brigade Headquarters. One example was "Canadian Army Ordnance Elements 1st Commonwealth Division", under the Canadian commander of the integrated Ordnance Field Park. Another was "Canadian Section L of C and Base Troops BCFK", commanded by Lieut.-Colonel L. R. Crue, an original member of the Canadian Military Mission Far East.

At this point it must be mentioned that BCFK (British Commonwealth Forces Korea), though the term was commonly applied just to the base, properly embraced the Commonwealth component of the U.N. military, naval and air forces in Korea and Japan and also, until the Japanese Peace Treaty of April 1952 took effect, the Commonwealth occupation forces in Japan. The office of Commander-in-Chief, an Australian appointment, was held first by Lieut.-General Sir Horace Robertson. Liaison between the Commonwealth C-in-C and the U.N. Supreme Commander was provided by a subordinate headquarters in Tokyo. Here, as elsewhere throughout the base and L of C, were soon to be found elements of Colonel Crue's command.

We have seen that Canadian administrative units now fell into two categories: those which functioned as such, and accounting units whose

members served in a number of integrated units. Thus in Japan there were four lieutenant-colonels' commands* and in the divisional area several majors' commands, all independently responsible in national respects to Brigade Headquarters. Distance alone, without the brigade commander's operational duties, would have made personal control impossible; this imposed many extra demands on individual commanders whom he detailed as coordinating officers, and on his own DAA&QMG. In July 1952, to assist the commander and his staff in such matters, a Colonel in Charge of Administration (Colonel W. J. Moogk) was assigned to Brigade Headquarters. This appointment was changed to "Commander Canadian Base Units Far East" in February 1953. Colonel Moogk thus represented Brigadier Bogert and later Brigadier Allard as commander of Canadian troops between Seoul and Tokyo; and his headquarters, in Korea was the main administrative link between Brigade Headquarters, Headquarters BCFK, the base itself and Army Headquarters in Ottawa.

Let us turn now to the divisional services, the major units of which were as follows:

No. 54 Canadian Transport Company (to April 1952)
No. 23 Canadian Transport Company (April 1952 to March 1953)
No. 56 Canadian Transport Company (from March 1953)
No. 57 Company RASC
No. 78 Company RASC-RNZASC (to October 1951)
No. 10 Company RNZASC (from October 1951)
No. 25 Canadian Field Ambulance (to April 1952)
No. 37 Canadian Field Ambulance (April 1952 to April 1953)
No. 38 Canadian Field Ambulance (from May 1953)
No. 26 Field Ambulance RAMC
No. 60 Indian Field Ambulance
No. 25 Canadian Field Dressing Station
No. 20 Canadian Field Dental Detachment (in January 1952, redesignated No. 25 Canadian Field Dental Unit)
1st Commonwealth Division Ordnance Field Park
No. 10 Infantry Workshop REME
No. 16 Infantry Workshop REME
No. 191 Canadian Infantry Workshop (to April 1953)
No. 23 Canadian Infantry Workshop (from April 1953)
1st Commonwealth Division Provost Company

Headquarters Royal Army Service Corps was integrated, the commander being British and his second-in-command a Canadian. The RCASC transport company normally handled ammunition for the Division, and No. 57 Company RASC gasoline and lubricants. The New Zealand unit served as supply company for all but Canadian troops. American rations for Canadian units were delivered by the Canadian transport company; and courses in their preparation were later run at the 25th Brigade Cooking School (next to the Brigade NCOs School, near Uijongbu).

No. 2 Administrative Unit, No. 25 Reinforcement Group, Canadian Section L of C and Base Troops and Canadian Section British Commonwealth General Hospital.

Since May 1952 the office of Assistant Director of Medical Services had been a Canadian appointment; the deputy assistant director was British. The three field ambulances generally worked with the brigades to which they had formerly been attached. No. 25 Field Dressing Station eventually grew into a 200-bed hospital, with Canadian nursing sisters on its staff; here and in a similar installation in Seoul (integrated, under the control of BCFK) were treated many Commonwealth "minor sick and wounded" who otherwise would have had to be evacuated to Japan. Surgery was carried out by American and Norwegian mobile units and by No. 25 Canadian Field Surgical Team. As in past wars, the chief means of casualty evacuation were hand-carry and road transport; though whenever possible helicopters of the 1st Corps would pick up urgent cases. No. 38 Motor Ambulance Company RCASC provided transport between field ambulances and more rearward medical installations.

No. 25 Canadian Field Dental Unit was not of course the only dental element in the Division, but it was the largest; and detachments of it were located both at major Canadian units in the field and at the Reinforcement Group in Japan. These detachments provided comprehensive dental treatment for all Canadian personnel and also took care of emergency cases of other nationalities. The unit's headquarters assisted the 25th Brigade, administratively, by sharing its camp site with the Canadian field postal detachment and later with certain elements of Brigade Headquarters. (In April 1953 "Rear Brigade" joined "Main", and those sub-units which could not conveniently be absorbed into the one headquarters were assigned to other locations.)

Headquarters Royal Army Ordnance Corps was British. The Ordnance Field Park, as we have seen, was an integrated unit under a Canadian commander, and consisted of an integrated headquarters, an integrated general stores platoon, a British platoon and a Canadian platoon. Other ordnance elements included two British shower sections, two Canadian shower sections, a British laundry and a Canadian laundry. Despite difficulties arising from the cosmopolitan nature of the force, the lack of Commonwealth corps or army ordnance troops in the theatre and the length of the L of C, the divisional ordnance services maintained a laudable standard of efficiency.

Both before and after the division was formed, the repair of weapons and vehicles was carried out largely on a brigade-group basis. All three major repair units, however, con-

National Defence Photograph
A hockey game between the 2nd Regiment RCHA and the Royal 22e Régiment, 2 March 1952. The infantry won by a score of 4–2. (Photograph No. SF-4369).

tributed men and resources to two units not normally found in a division: a telecommunications workshop and a recovery company. The Second-in-Command of the Electrical and Mechanical Engineer Services was specifically responsible for recovery and also, being a Canadian, acted as adviser to the Canadian brigade headquarters on the employment of RCEME personnel in the Division.

The 1st Commonwealth Division Provost Company was made up of sections from the United Kingdom, Canada and Australia, and was commanded by a Canadian officer. Its heaviest responsibility was traffic control—speeding alone accounted for over half the charges laid by the divisional police. Directly under the authority of the commander of the 25th Brigade, although located well behind the divisional area, was a Canadian detention barracks. Australia, Britain and New Zealand also were represented at this institution, both on the staff and among the "guests".

Commonwealth welfare officers, located at the various headquarters in Korea and Japan, co-operated with one another and with their American counterparts to bring films, concerts, canteen supplies and reading material to the troops, and to provide sporting goods. Nevertheless, in the last analysis, the success of the welfare

programme depended on the energy with which the units themselves set up recreational facilities and used them. Every "B" Echelon included a unit theatre, canteen and shower-bath; and so many men would be taken out of the line each day in order that they might enjoy these amenities. There was also a divisional rest centre near Inchon. But the "feature attraction" of the recreational programme was a period of leave in Tokyo, which in the case of British and Canadian troops amounted to five full days.

In this short, general history it would not be practicable to treat more fully the services just described, or to cover such other administrative subjects as the pay, postal and chaplain services. The burden of all was greatly increased by the very wide dispersion of units, the absence of paved roads and the scarcity of roads of any kind, and by frequent rains and extremes of temperature. Yet every administrative problem was met and overcome with determination and resourcefulness, and where necessary through co-operation among the forces of a number of nations.

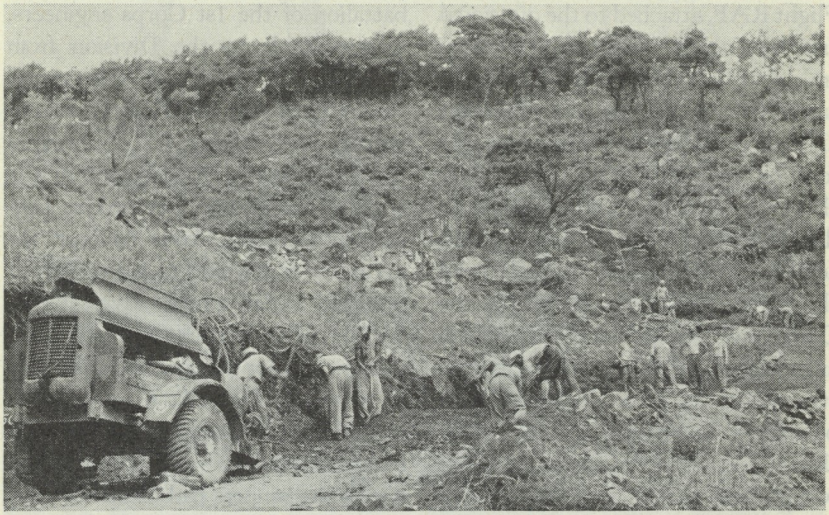
Supporting Arms

The following British and Canadian armoured units fought in Korea:

8th Royal Irish Hussars (to December 1951)
5th Royal Inniskilling Dragoon Guards (December 1951 to December 1952)
1st Royal Tank Regiment (from December 1952)
"C" Squadron 7th Royal Tank Regiment (to October 1951)
"C" Squadron Lord Strathcona's Horse (to June 1952)
"B" Squadron Lord Strathcona's Horse (June 1952—May 1953)
"A" Squadron Lord Strathcona's Horse (from May 1953)

The Korean terrain, with its rugged hills and boggy flats, did not favour the extensive or most advantageous use of tanks. The only exception which "C" Squadron of the Strathconas found was the Chorwon plain. Here it gave highly effective support to patrols, using an artillery technique for indirect firing: an observation officer with forward infantry elements. The same technique was employed in the limited advances beyond the Imjin in September and October 1951. During the static phase of the war, the tanks, sited unconventionally on the hilltops, sniped at enemy positions and covered the movements of our patrols. Attached to each Canadian battalion was a tank liaison officer who was empowered to order fire at his own discretion; thus the armour was in a position to engage targets with direct fire ahead of other supporting arms. When the Chinese attacked Hill 355 in October 1952, tanks of the Strathconas' "B" Squadron were the first support elements to fire in retaliation. Ten of that squadron's tanks assisted in repulsing the attack on the 3rd RCR in May 1953.

The Korean campaign has been aptly described as a "gunner's war".



National Defence Photograph
Members of the 23rd Field Squadron RCE, assisted by the Korean Service Corps, carve a road through the heights overlooking the Imjin River, 14 July 1952. (Photograph No. SF-5134).

Between the inception of the Commonwealth Division and the end of the fighting in 1953, the divisional artillery included the following field regiments:

2nd Regiment RCHA (to May 1952)
1st Regiment RCHA (May 1952 to April 1953)
81st Field Regiment RCA* (from April 1953)
16th N.Z. Field Regiment
45th Field Regiment RA (to November 1951)
14th Field Regiment RA (November 1951 to December 1952)
20th Field Regiment RA (from December 1952)

None of these units contained a mortar element; instead, the divisional artillery at first had a number of independent mortar batteries and troops. The winter of 1951–52 saw these and a small light anti-aircraft element succeeded by the 61st Light Regiment RA, of which the 42nd Light Battery (mortars) was allotted to the Canadian Brigade. In March 1953 the Division acquired a British medium battery from Hong Kong. Successive Canadian field regiments normally served in direct support of the 25th Brigade, the New Zealand gunners being associated with the 28th Brigade and the British with the 29th. From the end of January 1953 to the first week of April, while the Division as a whole was in reserve, the 1st Regiment RCHA supported the 38th U.S. Infantry Regiment of the 2nd Division. No. 1903 Air OP

**This unit was redesignated 4th Regiment RCHA, with effect from 16 October 1953.*

Flight RAF, attached to the divisional artillery, included Canadian and Australian army pilots. Throughout the campaign, air and ground observers alike directed artillery fire on enemy forming-up places with such effect that many a Chinese attack failed to develop; and those few which achieved some initial success owed their final failure largely to the Commonwealth gunners. In the Hook engagement of May 1953—his last strong attack on a Commonwealth position—the enemy fired some 11,000 shells. The divisional artillery replied with over 32,000 and the heavy artillery of the 1st U.S. Corps with a further 6000.

Engineer units of the Commonwealth Division were as follows:

28th Field Engineer Regiment:
- 12th Field Squadron RE
- 55th Field Squadron RE
- 57th Independent Field Squadron RCE (to May 1952)
- 23rd Field Squadron RCE (May 1952 to March 1953)
- 59th Independent Field Squadron RCE (from March 1953)

64th Field Park Squadron RE

The 12th Field Squadron included a section of New Zealanders and an Australian officer. In the Field Park Squadron were some 30 all ranks of the RCE—the field park element of an independent field squadron initially designed to support a brigade group. The allotment of Korean labour to the divisional engineers varied between 1000 and 2000 men; and further assistance, including the support of a battalion of the 1st Corps engineers, was available to the Division from American sources. Of the many, varied tasks that faced the Commonwealth sappers, by far the largest was road work—70 per cent of the engineer effort was devoted to constructing enough roads to bear the necessary traffic, and to keeping them passable under every adverse condition of weather and ground. Another major engineering task was mine laying. Tunnelling, such as was carried out on the Hook, was but one of many extraordinary requirements which the sappers had to meet.

The 1st Commonwealth Division Signal Regiment was all British except for the Canadian and New Zealand artillery signals and the signal component of the Canadian Brigade. (The 25th Brigade Signal Squadron had become "J" Troop of the divisional signals.) The abnormal distances between units and the nature of the intervening ground, with their limiting effect on wireless communications, greatly increased the amount of line to be laid and maintained. Road conditions and danger from guerillas dictated that dispatch riders should use jeeps rather than motorcycles, and should travel in pairs. In short, the signals organization faced much the same problems as did all arms and services of the Division, and on its efficient functioning depended the success of the overall effort.

National Defence Photograph

A Canadian signalman and a Korean lineman check the 25th Brigade's telephone communications, December 1951. (Photograph No. SF-3459).

Courtesy Captain W. Davis (PPCLI)
An air strike against Hill 156, opposite the 1st PPCLI, 5 May 1952. Two U.N. aircraft were shot down here by Chinese anti-aircraft fire.

Air Support and Supply

Early in the war, following the destruction of the North Korean air force, the U.N. forces enjoyed complete supremacy in the air. Even after the entry of Red China, which had a formidable air force, we operated with a wide margin of air superiority; for the Chinese seldom used aircraft except defensively. While our heavy bombers struck as far north as the Yalu River, the fighters continually hammered at the enemy's forward positions, forcing him to dig deeply and to move troops and supplies only at night. At the same time, we were able to move about freely on the ground and to reconnoitre from the air; we could fly out casualties and, where necessary, fly in supplies.

Twenty-two RCAF fighter pilots served with the Fifth U.S. Air Force. With the loss of one prisoner of war (Squadron-Leader A. R. MacKenzie) in December 1952, the Canadians destroyed or damaged some 20 hostile jet fighters and accounted for several enemy trains and trucks. Also attached to the Fifth Air Force were army officers on loan from various formations in the theatre, including the Canadian Brigade; from the back seats of unarmed, slow-flying aircraft, these officers directed our fighter-bombers against enemy ground targets.

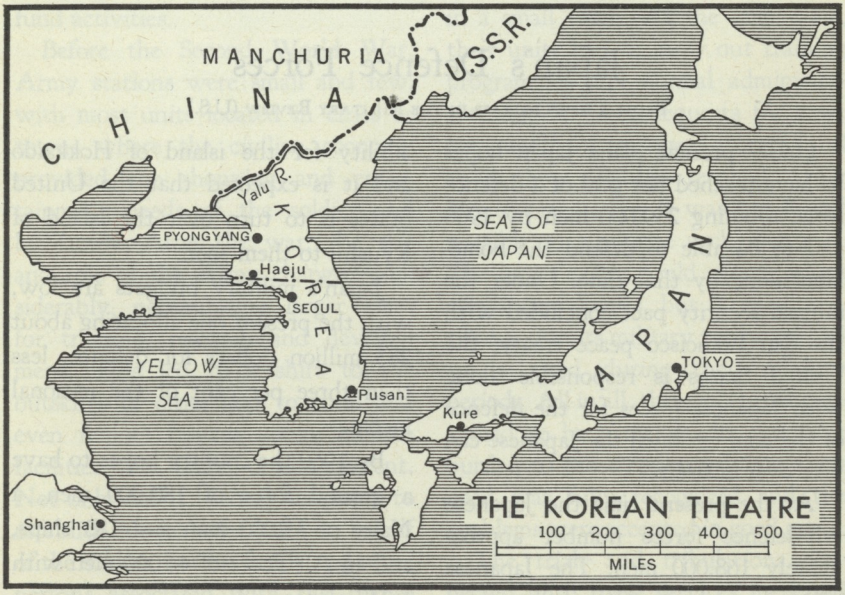
No. 426 Transport Squadron, which had been attached from the RCAF to the U.S. Military air Transport Service in July 1950, operated between the State of Washington and Japan for eleven months. It then returned to its home base, at

Dorval, from which it continued in the same role. (The move was occasioned in part by a decrease in the requirements of the Pacific airlift.) By 9 June 1954, when this assignment ended, Canadian transport aircraft had flown 600 round trips over the Pacific, carrying over 13,000 passengers and 7,000,000 pounds of freight and mail without loss.

The RCN in Korean Waters, May 1951 - July 1953

May 1951 saw the end of a long period in which Canadian destroyers were engaged in the monotonous but essential task of screening U.N. aircraft carriers in Korean waters. HMCS *Sioux*, one of the three "originals", re-entered the theatre in time for a return to more exciting duties. On the east coast, where the rugged terrain forced the railroads to skirt the shore in many places, enemy trains were a favourite target of naval guns. The Yellow Sea, with its many offshore islands, was the scene of much patrolling and a series of commando-type raids by ROK Marines and other U.N. forces.

HMC Ships *Nootka* and *Huron* departed for Canada in July and August, and the *Cayuga* and the *Athabaskan* arrived for a second tour of operations in the Far East. In February 1952 the *Nootka* again relieved the *Sioux*. The other two originals were replaced in May and



Historical Section, G.S.

June by the Canadian destroyers *Crusader* and *Iroquois*.

For the *Nootka*, operating in the approaches to Haeju, the latter half of July and the first five days of August were probably the busiest period of the war. Intelligence parties were landed and picked up daily, and on seven occasions the destroyer came under enemy shell fire. Nevertheless the RCN had not yet suffered any casualties in the Korean war. Its first losses occurred two months later, when the *Iroquois* received a direct hit from a shore battery on the east coast. Three were killed and seven wounded, out of a final total of 13 battle casualties.

In November 1952 the *Nootka* and the *Iroquois* left for Canada; *Athabaskan* returned to the theatre for a third tour, and HMCS *Haida* arrived for her first. The *Haida* was the eighth Canadian destroyer to fight in Korean waters. By the end of hostilities, more than 3500 officers and men of the RCN had taken part in operations; they had put in some 725,000 miles and fired 130,000 shells.

(To be concluded)

Japan's Defence Forces

FROM A NEWS RELEASE IN THE MILITARY REVIEW (U.S.)

Under present plans Japan hopes to have reached her goal of a defence force totalling 259,000 men by 1960 and to be able to defend the homeland alone by that time. Under the mutual security pact concluded with the San Francisco peace treaty, the United States is responsible along with Japanese forces for the defence of the country until the Japanese can take over entirely.

At the present time the Japanese self-defence forces number approximately 168,000 men. The Japanese forces have been given full responsibility for the island of Hokkaido and it is expected that the United States is to turn over the island of Kyushu to them soon.

Japan's military budgets are low, with the present one allocating about 283 million dollars for defence, less than three per cent of the national income.

By 1960 the country hopes to have a ground force of 180,000 men, a Navy of 35,000 men and 183 ships, and an Air Force of 44,000 men with 1,248 planes.

MAPLE LEAF SERVICES

By
LIEUT.-COLONEL R. H. WEBB, DEPUTY DIRECTOR OF ADMINISTRATION,
ARMY HEADQUARTERS, OTTAWA

Maple Leaf Services, or more simply "MLS", is a name that soon will be as familiar to the Canadian Army as "NAAFI" (Navy-Army-Air Force Institute) and "Post Exchange" or "PX" are to the British and United States Armies. However, unlike these two organizations that serve the Navy, Army and Air Force, MLS is to serve only the Army which, with its regimental and corps system, has the greatest need for a central purchasing and distribution organization for the non-public fund activities.

Before the Second World War, Army stations were small and few, with most units located in cities or towns where the civilian economy provided the shopping and entertainment needs of the soldier and his family. After the war, the size and role of the Army changed considerably, necessitating larger areas for training, research and development. This led to a shift to the outskirts of cities and to rural and even remote centres where civilian facilities were limited or non-existent. Not only did it become necessary to establish adequate facilities on behalf of the soldier, but his family and other persons associated with the Forces had to be taken into account. Their provision could not be postponed to some indefinite time in the future: they were urgent and essential to the morale of all the inhabitants living and working on a station.

Accommodation was available in the war-time buildings at most camps and stations and with the well-known ingenuity of the soldier, commanding officers soon found themselves organizing and operating grocery stores, theatres, bowling alleys, snack-bars and other amenities normally found in a small town. At the same time, their units had to carry out training programmes and normal administrative duties. Soon, requests for more personnel to manage, operate and audit these facilities reached Army Headquarters; but it was not found possible to authorize such increases. The larger camps could afford to hire civilian employees, but in small stations and units military personnel had to be used during their off-duty periods. All in all, these amenities continued to be a major administrative burden to those concerned; yet their need was fully recognized and the problems were accepted in good grace.

The trials and tribulations connected with these services increased

as the Army expanded and married quarters were constructed for dependents. On the other hand, the profits from them went toward the purchase of sports equipment, establishment of hobby shops, libraries and the financing of a host of other projects of benefit to both the soldier and the members of his family. The Korean conflict and NATO brought Canadian troops once more into close contact with both the British and American Forces and the use of NAAFI or PX for their canteen and mess supplies. The desire for Canadian goods and a Canadian counterpart to these two organizations supported the frequent requests of commanding officers at home for relief from their administrative problems. These combined views led to a survey being undertaken to determine the means by which these requirements could best be met.

From the start, it was obvious the regimental system of institutes made heavy demands on personnel and that many advantages could accrue from the introduction of some form of central agency. The NAAFI and Post Exchange systems were fully studied in the light of the needs of the Army under all conditions of war and peace, and a decision was made to form a private corporation. In due course, Maple Leaf Services was incorporated under Part II of the Companies Act (non-profit).

MLS incorporates the best features of NAAFI and Post Exchange adapted to our Canadian way of life. For instance, MLS will have the self-selection and the self-service method so familiar to all Canadians. In overseas installations, a Canadian atmosphere will be presented in the stock-in-trade, decorations and other aspects even though, for economic reasons, local products and labour must be used.

The formation of MLS and the commencement of operations could not be achieved without capital. This could have been obtained in a variety of ways, but in each case the provider would have insisted on some control over MLS policies. To avoid this undesirable aspect and retain within the Army the control of policy, it has been arranged to transfer some of the non-public funds of regimental institutes to MLS. The affairs of the corporation are managed by a Board of Directors consisting of five individuals, elected annually from the following voting members:

The Chief of General Staff
The Adjutant-General
The Quartermaster-General
The Vice Chief of General Staff
The Vice Adjutant-General
The Vice Quartermaster-General
The President and Managing Director of MLS

During the transitional period of the transfer of responsibility from the regimental institutes to MLS, a hand-over board, comprising repre-

National Defence Photograph
The grocery section in a Maple Leaf Services store. (Photograph No. EF-4613).

sentatives of the Adjutant-General, Quartermaster-General, the commanding officer concerned and MLS will supervise and record the changeover. In this way, the requirements of both parties will be given full consideration before arriving at an equitable distribution of the assets.

MLS will operate the traditional men's canteens, or junior ranks' clubs as they are now being called, the major recreational facilities such as theatres and bowling alleys, the shops for dependents and other amenities as the Board of Directors may decide at home or abroad, in peace and in war. The profits will be used for "the welfare, convenience and benefit of the members of the Canadian Army and persons associated therewith" through contributions to regimental funds, the Canadian Army Welfare Fund and the acquisition of fixed assets and improved services. In the past, as is well known, the institutes and amenities of small units suffered in comparison with those of the larger units and stations. MLS will help to remove this inequality.

As in any new venture of the magnitude of MLS, there will be

growing pains, but the advantages will surely outweigh the difficulties. Commanding officers will heave a sigh of relief when the heavy responsibility that goes with supervision of these amenities is removed. Regimental officers and other ranks no longer will have to spend long hours at nights and on week-ends taking stock in a grocery store or canteen or preparing or auditing financial statements. The housewife at Churchill, Camp Borden or in Germany will purchase the products with which she is familiar and in the manner to which she is accustomed. As for the local merchants, MLS operations won't stop the soldier or the civilian from going to town to look and to buy as they have always done in the past. When the regular receipt of a monthly contribution to the regimental fund, to be used as the unit sees fit in sports, entertainment and other traditional customs of the Army, is added to the foregoing advantages, who will say MLS should not be welcomed into the fold of the Army? The place for complaints, suggestions and recommendations concerning MLS is

National Defence Photograph

Looking over a display of magazines in a store operated by the Maple Leaf Services. (Photograph No. EF-4615).

a unit or station committee representing all sections of the community. The committee is charged with the responsibility for liaison with the local MLS manager to achieve improved service where necessary.

Entitlement to use MLS facilities is confined to members of the Regular Armed Forces and their dependents. Privileges may be extended to members of the Militia and Supplementary Reserve Forces whilst in camp during summer training, British and foreign forces serving in conjunction with the Canadian Forces, civilians employed by or on behalf of the Department of National Defence or MLS and their dependents when resident in quarters within a camp or station. A system of identification cards has been established to prevent use of MLS facilities by unauthorized persons and entitlement may be withdrawn where abuse of the rules has been discovered.

The change to MLS operations will not happen overnight, and sometime will elapse before the transfer of all Army institutes is completed. The start was made in Germany in January of this year and it has commenced at Camp Borden in Canada. From this central point it will spread outwards in order that full advantage of central purchasing and other economic factors may be taken. During the transitional period, MLS must use existing facilities; however, the corporation intends to improve methods and purchase equipment in keeping with modern business practices.

As the name implies, the object of MLS is to serve. The officials and staff of the corporation are fully aware of this fact and that, in the end, the measure of their success will depend largely on the impression their initial operations have on the Army. On the other hand, as the beneficiaries of the services rendered by MLS are the members of the Army and their dependents, the co operation of all is essential to achieve this success.

Tank Helmet

The development of a new tank helmet designed to afford maximum protection and still allow unobstructed use of tank fire control equipment is nearing completion [in the United States]. The prototype helmet consists of a helmet shell with internal communications equipment. The shell, of one-piece laminated nylon construction, is equipped with padded earphones, a microphone on a swivel boom, and a toggle-type selector switch at the point of juncture of the boom and left earflap, thus eliminating the chest set. In addition, goggles are being developed for use with the helmet. The goggles weigh less than three pounds and will afford adequate bump and ballistic protection.—*News Release.*

EAST AFRICA FORCE OPERATIONS

January to July 1941

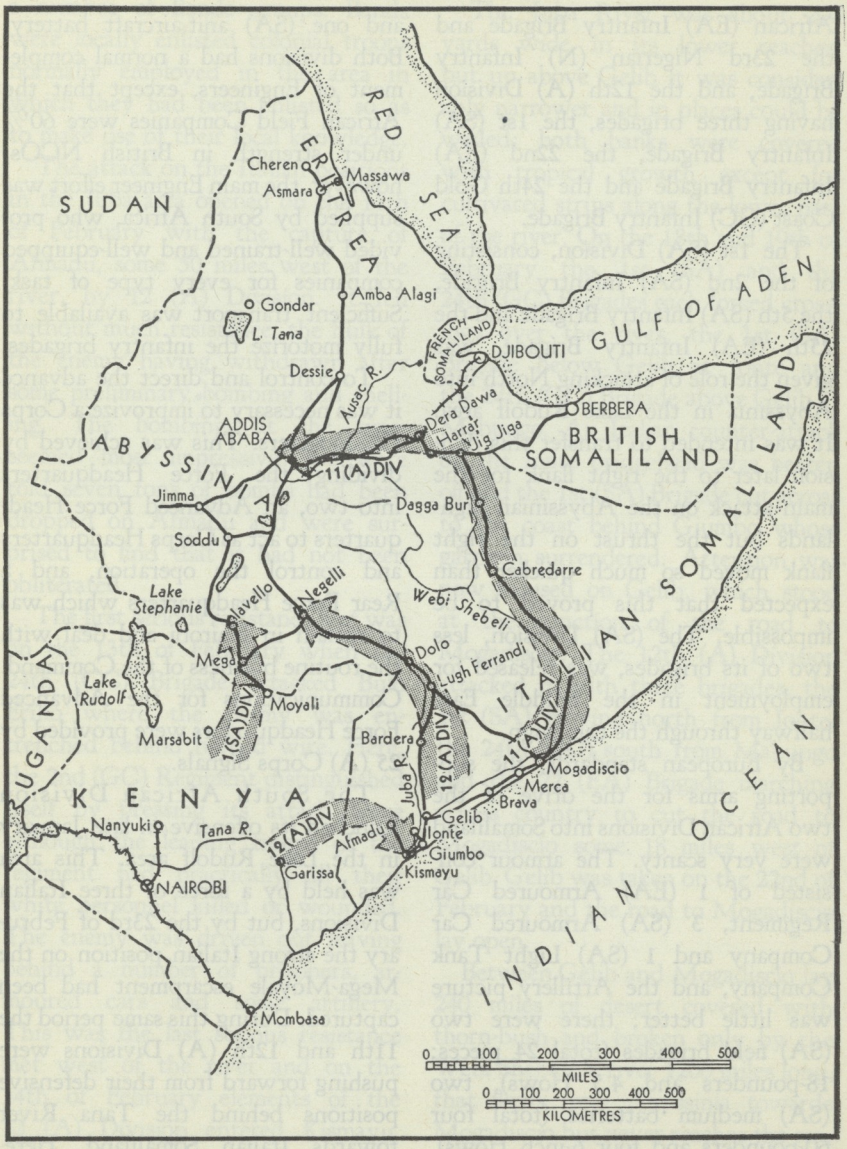
By
Lieut.-Colonel H. W. C. Stethem, OBE, CD, Royal Canadian Corps of Signals*

The conquest of Italian East Africa in 1941 was our first success on land in the Second World War that was not later reversed. A decisive victory, it made South and East Africa secure and released their forces to fight elsewhere. Little has been written about this campaign and later events have dimmed its memory, but when the official history of the war is written I am sure that it will be recognized as one of the most masterly of Britain's campaigns. No part of this campaign was more skilfully conducted than that of General Sir Alan Cunningham's East Africa Force, which overran Italian Somaliland, British Somaliland and most of Abyssinia, and met General Platt's forces advancing from the Sudan at Amba Alagi.

Lieut.-Colonel Stetham graduated from the Royal Military College of Canada, Kingston, in 1937 and was commissioned in the British Army in the Royal Signals. In the war he served with the British Army in France, Italy and most countries in the Middle East and East Africa, and during this period he took part in the East African Campaign. After the war he served in Palestine, Egypt and the United Kingdom, remaining in the British Army until he retired in July 1948 to join the Canadian Army. He is now a member of the Directing Staff at the Canadian Army Staff College.

The Italians had 220,000 regular troops in East Africa of which about half were native or colonial troops. General Cunningham's force, consisting of three under-strength divisions, accounted for the destruction of about 170,000 of these or a force several times its own size.

At the start of the campaign, East Africa Force consisted of the 1st South African (SA) Division, the 11th African (A) Division and the 12th African (A) Division. These divisions had together a total of eight infantry brigades but were short in supporting arms. The only tanks were 12 light tanks whose heaviest armament was a .5 machine-gun. Artillery support was extremely short as neither of the African Divisions had anything like their normal complement; there were only 36 field pieces (18-pounders or 4.5 Hows) in the Force and all these belonged to the 1st (SA) Division. To balance his force General Cunningham reallotted the supporting arms and brigades between the divisions, and as a result the divisions were a mixture of South African, East African, and West African troops.



The thrust into Italian Somaliland was made by the 11th and 12th (A) Divisions, the 11th (A) Division having two brigades, the 21st East

African (EA) Infantry Brigade and the 23rd Nigerian (N) Infantry Brigade, and the 12th (A) Division having three brigades, the 1st (SA) Infantry Brigade, the 22nd (EA) Infantry Brigade and the 24th Gold Coast (GC) Infantry Brigade.

The 1st (SA) Division, consisting of the 2nd (SA) Infantry Brigade, the 5th (SA) Infantry Brigade and the 25th (EA) Infantry Brigade, was given the role of attacking North into Abyssinia in the Lake Rudolf area. It was intended to transfer this division later to the right flank for the main attack on the Abyssinian highlands but the thrust on the right flank moved so much quicker than expected that this proved to be impossible. The (SA) Division, less two of its brigades, was released for employment in the Middle East halfway through the campaign.

By European standards, the supporting arms for the drive of the two African Divisions into Somaliland were very scanty. The armour consisted of 1 (EA) Armoured Car Regiment, 3 (SA) Armoured Car Company and 1 (SA) Light Tank Company, and the Artillery picture was little better; there were two (SA) field brigades (total 24 pieces; 18-pounders and 4.5 Hows), two (SA) medium batteries (total four 60-pounders and four 6-inch Hows), four mountain and light batteries (3.7 Hows), three anti-tank batteries and one (SA) anit-aircraft battery. Both divisions had a normal complement of Engineers, except that the African Field Companies were 60% under strength in British NCOs; however, the main Engineer effort was supplied by South Africa, who provided well-trained and well-equipped companies for every type of task. Sufficient transport was available to fully motorize the infantry brigades.

To control and direct the advance it was necessary to improvize a Corps Headquarters. This was achieved by dividing the Force Headquarters into two, an Advanced Force Headquarters to act as Corps Headquarters and control the operation, and a Rear Force Headquarters which was to remain in Nairobi and deal with the routine business of the Command. Communications for the Advanced Force Headquarters were provided by 25 (A) Corps Signals.

The South African Division launched its offensive in late January in the Lake Rudolf area. This area was held by a force of three Italian Divisions, but by the 23rd of February the strong Italian position on the Mega-Moyale escarpment had been captured. During this same period the 11th and 12th (A) Divisions were pushing forward from their defensive positions behind the Tana River towards Italian Somaliland. Here, the line of the Juba River was held by two Italian Divisions reinforced by

a number of Banda groups. Banda were locally enlisted colonial troops normally employed in the area in which they had been enlisted so as to make use of their local knowledge.

The attack on the Italian positions in the Juba area opened on the 11th of February with the capture of Afmadu, some 50 miles west of the river, by 12 (A) Division. It fell without much resistance, the bulk of the enemy having withdrawn after some preliminary bombing and shelling. The bombing, at the time, seemed most impressive; we were told seven tons of bombs had been dropped on Afmadu and were surprised to find that it had not been obliterated.

The first serious resistance met was on the 13th of February when the 24th (GC) Brigade attacked Bulo Erillo where the enemy was entrenched behind barbed wire. Here, the 2nd (GC) Regiment distinguished itself by pressing its attack home although the leading troops of the regiment had practically all their white personnel killed or wounded. The enemy was driven out leaving behind a number of prisoners, armoured cars and some artillery. This was the last serious resistance met west of the river and on the 14th of February elements of the 12 (A) Division entered Kismayu, the second most important city in Somaliland.

The Juba River was about 200 yards wide in its lower reaches, but up above Gelib it was considerably narrower and in places could be waded; both banks were covered with tropical growth except for cultivated strips along the lower part of the river. On the 18th and 19th of February the 1st (SA) and the 24th (GC) Brigades each forced crossings over the river, the 1st (SA) Brigade below Gelib at Ionte and the 24th (GC) Brigade above Gelib at Mabungo. An Italian counter-attack on the Ionte bridgehead was beaten off and the 1st (SA) Brigade cut across to the coast behind Giumbo whose garrison surrendered. Attention was now focused on Gelib, which stood at the junction of the road to Mogadiscio. The 12th (A) Division attacked it with three brigades, the 1st (SA) moving north from Ionte, the 24th (GC) south from Mabungo and the 22 (EA) Brigade marching across country to cut the road to Mogadiscio some 18 miles west of Gelib. Gelib was taken on the 22nd of February and the road to Mogadiscio lay open.

Between Gelib and Mogadiscio lay 240 miles of desert covered with thorn-bush and broken only by the Webi Shebeli, a river 1200 miles long, that flows from Abyssinia towards Mogadiscio but never reaches the sea, disappearing in a swamp in the middle of an arid desert. At 0600 hours on

The main street in Mogadiscio.

the 23rd of February the 11 (A) Division was launched down the road across the desert and the 22nd (EA) Brigade came under its command. On the morning of the 24th the 22nd (EA) Brigade occupied Brava and the 23rd (N) Brigade took the lead and entered Mogadiscio at 1700 hours on the 25th of February. This brigade in 59 hours had covered 275 miles.

Meanwhile, back at Gelib, the 1st (SA) Brigade was placed in Force reserve and directed to Brava, and the 21st (EA) Brigade passed from under command of 11 (A) Division to 12 (A) Division. The latter Division had been directed north towards Bardera, Lugh Ferrandi and Dolo, but because of the need to supply 11 (A) Division it was only possible for it to operate with light forces. In spite of this, Dolo was entered by the Division on the 5th of March.

The fighting in Italian Somaliland had already accounted for 31,000 Italian troops, including the whole of one division and half of another. Great quantities of war material were also taken including 350,000 gallons of motor gasoline and 80,000 gallons of aviation spirit. This was invaluable as it enabled the advance to be continued before the port of Mogadiscio was opened.

On the 1st of March, the 11th (A) Division resumed its advance towards Harrar, the second most important centre in Abyssinia which lay 804 miles away. Initially, the country

across which we had to move was flat and bushy becoming hilly and rising in height as we approached Jigjiga. The Italians had no serious forces between Mogadiscio and Jigjiga, the only forces in this area being the remnants of the Italian forces withdrawing from the Juba. Beyond Jigjiga the route ran through mountainous country which offered positions of great strength to a resolute enemy. Between Jigjiga and Harrar there were three fresh brigade groups, and there was a further brigade group in British Somaliland. However, enemy morale was by now low and the speed of our advance seemed to have confused him and caused extreme disorganization.

The advance was led by a mobile column from the 23 (N) Brigade which reached Dagga Bur on the 10th of March and on the 17th of March captured the important road centre of Jigjiga. This mobile column, which when they captured Dagga Bur, consisted of a couple of companies of infantry and some armoured cars, had varied in strength with the ability to supply it and sometimes was more than 100 miles in front of the leading battalion. Consequently, when the column was held up at Jigjiga by the enemy holding the Marda Pass, it was not until the 19th of March that the supply position enabled the remainder of the Nigerian Brigade to move forward of Dagga Bur. The remaining two brigades, (1st (SA) Brigade which had now been placed under command of 11 (A) Division and 22nd (EA) Brigade), were not able to move forward of Dagga Bur until the 21st and 26th of March, respectively.

The Marda Pass was a formidable position which overlooked Jigjiga and the surrounding plain from a distance of about 9000 yards. It is the gateway to the Abyssinian highlands and appeared to be strongly held. It looked at first as if an attack would have to wait until two brigades were available for the assault, but on the 20th of March there were indications that the enemy was planning a further withdrawal. The 1st Nigerian Regiment were immediately ordered to attack and on the 21st of March after a stiff fight they seized a piece of ground dominating the pass and the Italians withdrew during the night.

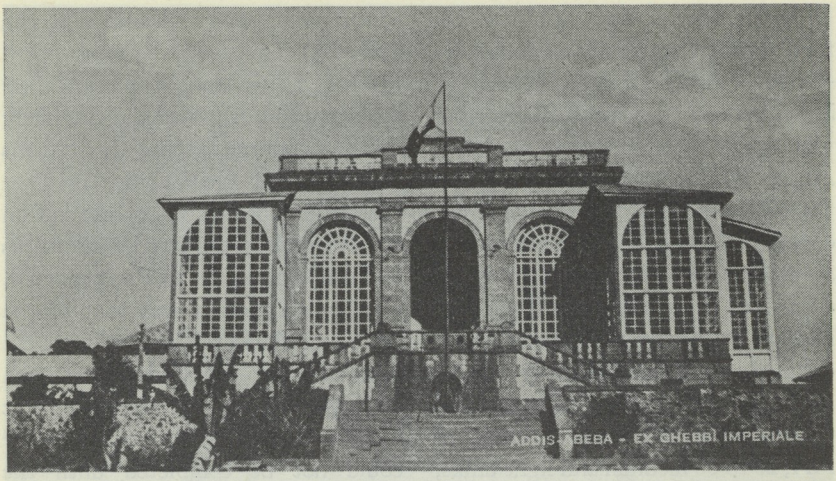
Only two more prepared Italian positions were met before the 23rd (N) Brigade entered Harrar, which was declared an open city. One of these, the Babile Pass, a most formidable position where the road ran between high hills with steep granite cliffs that seemed impregnable, was the only occasion between the crossing of the Juba and the fall of Addis Ababa that two brigades had to be employed at the same time. Here the Royal Natal Carabineers of the 1st (SA) Brigade turned the Italian left flank

by use of an old disused road which presented very difficult going and which the Italians had not expected to be used. With the fall of Harrar the 23rd (N) Brigade which had led the advance of the 11th (A) Division all the way except for a short distance after crossing the Juba, had covered 1054 miles in 30 days or an average of 35 miles a day. A further 19,000 Italians had been accounted for, bringing the total to date to 50,000.

On the 27th of March 1 (SA) Brigade took over the lead and pushed towards the important rail centre of Dera Dawa. The enemy carried out extensive demolitions on the mountain roads to delay our forces but seldom if ever covered them with fire. The demolitions were extensive, the road being blown away where it wound around the mountain-side; one demolition alone was 70 yards in length. However, the South African and East African field companies assisted by infantry from the Nigerian Brigade performed wonders and opened the road in 36 hours, and the 1st (SA) Brigade occupied Dera Dawa on the 29th of March. As a result the Italians who had expected to have more time to prepare their next position were taken by surprise and withdrew behind the Ausac River.

The route from Dera Dawa to the Ausac River (pronounced Awash) is crossed by numerous torrential streams and small rivers. These are

Bush desert near the border of Abyssinia and Somaliland.



Palace of the Emperor in Addis Ababa.

fordable at most times but when it rains, rise suddenly, sometimes many feet above normal, the water rushing down in a giant wave rather like a tidal bore. Sticks are placed in the streams to mark the height of the water at fords and by listening before crossing it is possible to ensure that you are not caught in a sudden rush af water.

The Ausac River runs through a gorge with steep sides several hundreds of feet deep. It is truly a formidable obstacle and the Italians had destroyed all bridges over the river. Beyond the Ausac River the country is easier going although quite rough in places and easily capable of defence by a determined enemy, particularly as movement off the road with vehicles was practically impossible in many places. The first portion of the route was through an area of extinct volcanoes where the country was relatively open affording good fields of fire and, particularly in the case of one large crater filled with hardened lava blocks, providing excellent obstacles.

The Italians had only two fresh brigades between Dera Dawa and Addis Ababa and the enemy morale was low. The only line they held was that of the Ausac River. Here the 22nd (EA) Brigade managed to outflank the position and were able to continue the advance on the 2nd of April. They reached Addis Ababa on the evening of the 5th of April and a formal entry was made by a mixed force on the following morning. The advance from Harrar to Addis Ababa had covered some 290 miles and rendered a further 15,000 of the enemy non-effective.

The enemy now withdrew his forces into three mountain fortresses —Dessie, Amba Alagi and Gondar— and into the province of Gallo-Sidamo, which lay south and west of Addis Ababa. The strongest forces were in the Gallo-Sidamo area where the enemy order of battle consisted of seven divisions. However, many of these had been heavily engaged and had had no reinforcements and consequently were considerably under strength. They did, however, still possess some 200 guns exclusive of AA, 20 to 30 medium and light tanks, and some armoured cars.

The 1st (SA) Brigade was directed north to join up with the forces advancing South from Eritrea. After heavy fighting and overcoming some extensive enemy demolitions they captured the mountain fortress of Dessie. This was accomplished on the 30th of April and they then pushed on to Amba Alagi where they came under command of the forces advancing from the Sudan. Amba Alagi fell on the 15th of May opening up the road from Addis Ababa to Asmara, capital city of Eritrea.

Meantime the remaining four brigade groups of the 11th and 12th (A) Divisions were engaged in mopping up operations south and west of Addis Ababa. Fighting was heavy and the advent of the rainy season added greatly to the difficulties. Both divisions, the 11th (A) Division operating south from Addis Ababa and the 12th (A) Division operating north from the Kenya frontier, pressed their attacks vigorously over the extremely difficult country, giving the Italians no respite or chance to reorganize their still considerable forces, and on the 3rd of July the last Italian forces in the Gallo Sidamo area surrendered. One typical action was that of the 1/6 Kings African Rifles, who on the 19th of May managed to establish a bridgehead over the river Billate at Collito. From this, although a bridge could not be completed until the 21st of May, the battalion immediately attacked and seized the enemy main position. They were counter-attacked by enemy infantry supported by M.II medium and light tanks, and armoured cars, but, in spite of having no anti-tank guns, and only anti-tank rifles on a reduced scale, the native troops defeated the counter-attack at great loss to the enemy. As a result of a most gallant and reckless charge they captured a number of enemy prisoners and tanks. One British NCO climbed to the back of a medium enemy tank, pried the lid open and with his pistol, killed the crew. He was apparently lucky enough to have killed the commander of the tank unit, and the others, confused and possibly panic-stricken, withdrew.

After the capture of Addis Ababa, 105,000 more Italian troops were rendered non-effective by the East

Typical Abyssinians.

Africa Force, bringing the total accounted for during the campaign to 170,000. The campaign up to the capture of Addis Ababa probably determined the fate of the Italian troops in East Africa. Yet our casual-

Houses in the native quarter of Addis Ababa.

ties due to enemy action up to that point had been relatively small. They were:

Killed	135
Wounded	310
Prisoners	4
Missing	52
Total	501

One of the main reasons for the small number of battle casualties during this period of the campaign was the speed of operations. In spite of difficult country, administrative difficulties and enemy opposition, the 11th (A) Division moved 1334 miles in the 42 days after they crossed the Juba, an average of about 34 miles per day. This rate of movement kept the Italian forces off balance and never gave them the time to collect themselves or recover their equilibrium.

This speed of operations, the nature of the country over which the campaign was fought and the tremendous distances involved posed major problems in as far as control, movement and resupply of the force were concerned.

To illustrate the difficulty of control it is worth noting that prior to the capture of Addis Ababa, Advance Force Headquarters moved six times:
10th February—Nairobi to Garissa
18th February—Garissa to Kismayu

27th February—Kismayu to Mogadiscio
20th March—Mogadiscio to Gabredarre
27th March—Gabredarre to Jigjiga
1st April—Jigjiga to Harrar

The shortest distance of any of these moves, except for the move from Jigjiga to Harrar, was 200 miles in a straight line and the longest over 300. Also, the roads were very bad in many places and almost non-existent in others. The headquarters was set up in tents at locations such as Garissa where no other suitable accommodation was available and in buildings at locations such as Mogadiscio and Harrar. The headquarters was not capable of working on the move. For purposes of movement it was divided into three echelons, the advance party consisting of sufficient Signals to establish a Signal centre and essential communications in the new area plus a portion of the headquarters, the main operational group, and the rear echelon. The main operational group normally moved by air and the other two by road. The advance party usually moved several days in advance of the main operational group in order to establish communications. As soon as the main operational group left by air the rear echelon followed by road. This system worked quite successfully and only once nearly brought disaster; this was at Jigjiga where an Italian pilot shot up the transport aircraft carrying the main operations group just after it landed. Fortunately, however, the staff, who were just getting out of the aircraft, suffered only bruises and scratches.

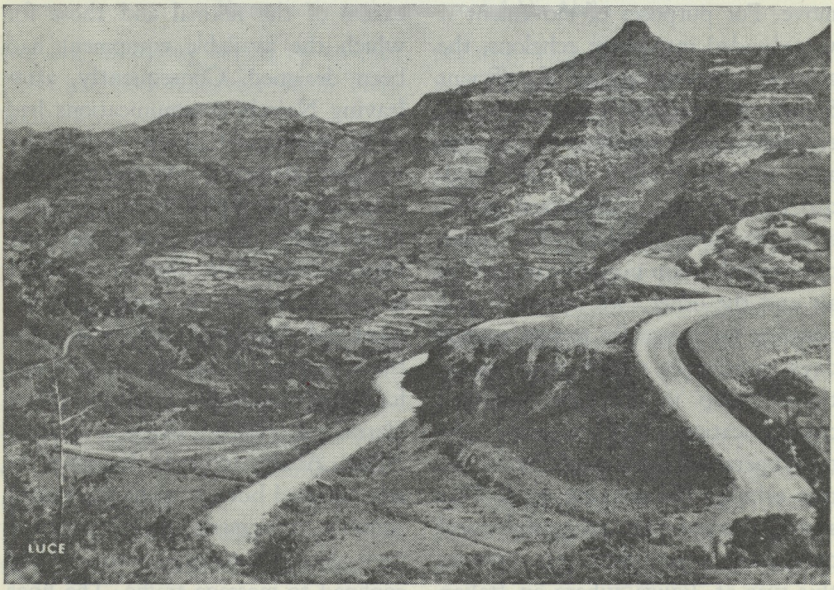
Moves of Divisional Headquarters were also abnormal; for instance, the 11 (A) Division moved its headquarters 21 times up to the capture of Addis Ababa, the average distance of a move being 77 miles.

Distances greatly increased the difficulties of Signals; not only were moves over long distances but distances from Advanced Force Headquarters to Divisions, from Divisions to their Brigades and on occasions from Brigade to Battalions were far in excess of the normal and those for which the available equipment had been designed. Consequently, after leaving Nairobi communications had to be maintained almost entirely by wireless telegraphy. At one time the distances were 740, 570 and 250 miles, respectively. From the time the Headquarters left Garissa until it arrived at Harrar, the speed of movement and absence of civil communications prevented the use of land line for other than locals. Civil lines from Harrar to Addis Ababa and from Addis Ababa towards Jimma were rehabilitated but owing to the lack of suitable equipment their use over very long distances was initially confined to message traffic. The lines

were also extremely difficult to maintain as they ran up and down the mountains well away from the roads and were subject to frequent interruption by the local inhabitants, who used the wire for everything from the manufacture of ornaments to the repair of bed-springs. Distances, atmospheric and terrestrial conditions, particularly in Italian Somaliland and Northern Kenya, and the low power of the available wireless sets, prevented the use of voice on most wireless links and telegraph normally had to be used.

To make matters worse, 11th and 12th (A) Division Signals had been only skeleton units prior to the campaign and 25 (A) Corps Signals and the reinforcements for the Divisions who were hastily rushed out had received very little training. Moreover, many of the new arrivals had had no time for acclimatization and moved straight from a ship into the field where they were forced to live on a diet of bully beef, biscuits and a small quantity of water. The result was a high rate of sickness and in some cases severe physical exhaustion during the marches and long hours of duty. This necessitated switching about of experienced Signal personnel within the force to meet the needs of the campaign and threw a heavy load on the more experienced officers and NCOs.

Despite all this, the daily average of



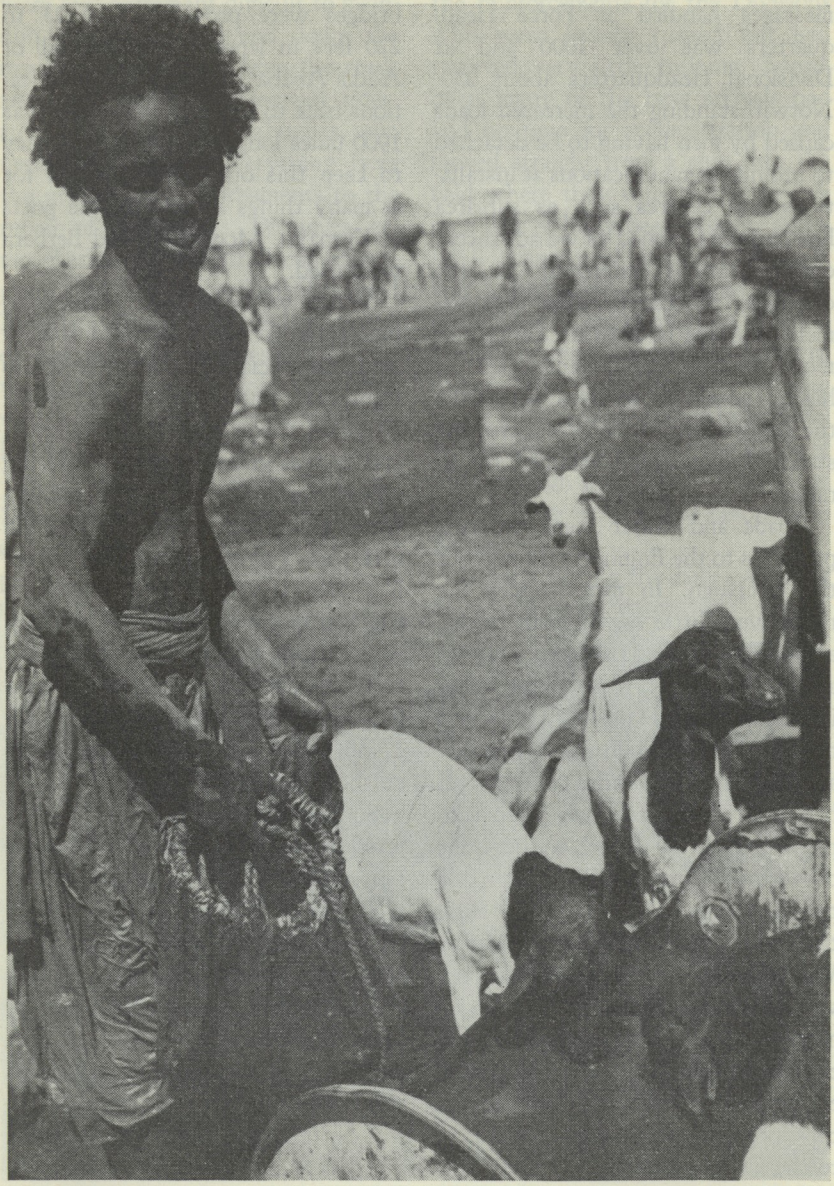
A pass on the Strada Imperiale, the main highway built by the Italians through Abyssinia.

messages handled at Force Headquarters was over 1000 and at Divisional Headquarters about 250. Notwithstanding the increased loads caused by men having to be detached to provide communications at installations and centres such as sub-area headquarters formed as we advanced, communications improved as the campaign proceeded. This improvement was due both to the capture of more suitable equipment such as higher powered wireless sets from the Italians and to the ever increasing standard of training attained by all ranks.

Roads and water were constant problems to the Engineers throughout the campaign. In many places the roads were little better than tracks, and in others roads did not exist at all. In Kenya, just to keep our forces in their original positions, it was necessary to maintain under military arrangements 1300 miles of road, and before any move forward could take place four bridges had to be built over the Tana River and roads punched forward 70 miles through the bush. For bridging the Juba, Webi Shebeli, Ausac and other rivers, service bridging equipment was not available and at first improvized equipment and later captured Italian equipment had to be used. Up to the capture of Addis Ababa, in addition to the floating bridges over the Tana and the Juba rivers, more than 70 bridges were provided from 25 to 220 feet in length. With the fall of Addis Ababa the line of communications back to the base at Nairobi was 1900 miles long, and it was necessary to keep this open, even though for as many things as possible the ports of Kismayu, Mogadiscio and Berbera were used.

Water was particularly scarce in Northern Kenya and Italian Somaliland and special units were formed to transport water and bore wells. Drinking water had to be rationed and it was common practice during moves for units to carry enough water to last for a week. It was the first time I ever realized that water had taste: it varied all the way from the flat tasteless supply of distilled water that we got at Mogadiscio to the rather bitter tang of one well in Northern Kenya that tasted like Epsom salts and had a similar effect on the constitution.

Supply of the force was always a problem. At the start of the operations all forces were supplied from the base at Nairobi and even then troops were already from 230 to 390 miles from their nearest railhead. As the campaign progressed the ports of Kismayu, Merca, Mogadiscio and Berbera were utilized but owing to the limited capacity of the shipping and harbour facilities available, the line of communication back to Nairobi had to be kept open right up to the



A Somali with his livestock.

capture of Addis Ababa. However, most maintenance for the forces in Northern Abyssinia was done through the port of Berbera after its capture, and for the forces in Southern Abyssinia through the port of Mogadiscio. Later rains bringing mud and floods forced the switching of the supply of the forces in the south-western sector to Kenya. Thus, three routes had to be kept open.

The ration scale was simple. The staple items for white personnel up to the fall of Addis Ababa were bully beef and biscuits (hard tack); bread, fresh meat and such like were not available. The greatest treat was to get a tin of M and V (meat and vegetables) in lieu of a tin of bully beef. However, in spite of the monotonous diet and a very irregular mail service, the morale of all ranks was high and the sickness rate considering the type of campaign and the lack of facilities was surprisingly low, especially when compared to other campaigns that have taken place in that area.

The success of the campaign depended in the first instance on our ability to maintain an effective force at the end of a long line of communication. That this was done, and done more effectively than the Italians appeared to be able to do, reflects great credit on the transport companies and particularly on the drivers, South African, East African and West African alike, who were continuously employed on long trips over the most indifferent roads and tracks, often under extremely poor climatic conditions. In places the routes ran through areas where for many miles the arid loose top soil had been turned into a fine dust that was axle deep and poured up over the vehicle rather like water, blinding the driver and ensuring that the occupants of the vehicle were thoroughly parched and thirsty. After the rains came, roads were flooded and turned into quagmires which held up vehicles in places for days at a time. Roads, too, were dangerous, in many places running along the sides of mountains and narrowing precariously where it had been only possible partially to repair enemy demolitions. The performance and determination of the drivers under these conditions was excellent.

The success of the campaign was probably due more to the speed of the operations up to the capture of Addis Ababa than to any other single factor. The Italians were disorganized and kept off balance and, as a result, unable to launch an effective counter-stroke before they had lost their main bases and been broken up into small groups.

This speed was a direct outcome of the policy adopted by General Cunningham at the beginning of the campaign when operating in the

low flat bush country; his policy was to open a way through the main Italian position and motor straight on regardless of what was happening in rear. A more determined enemy might have caused considerable trouble by counter-attacks, but the Italian had made himself vulnerable to these tactics by trying to hold everywhere over an extremely wide area. This to a large extent wrote off his advantage of superior numbers and interior lines of communication. This situation was aided by the hostile attitude of some of the native population towards the Italian invader, particularly in Abyssinia. However, had he kept strong mobile reserves, our tactics might have had to be far different and the speed of the campaign would have been far less.

To take out an Italian position, the general tactics adopted in the lowlands were to search out the flanks of the position and using a mobile column of armoured cars and motorized infantry to get behind them. After the Juba, Italian morale was low and Italian troops, once our forces were behind them, succumbed fairly easily. The nature of the country aided this. Shortage of water and the difficulties of supply across the hot arid bush country ensured that any units left behind surrendered. In the mountains tactics were generally similar, but here, often aided by Abyssinian patriot forces, the outflanking had to be done by infantry on foot.

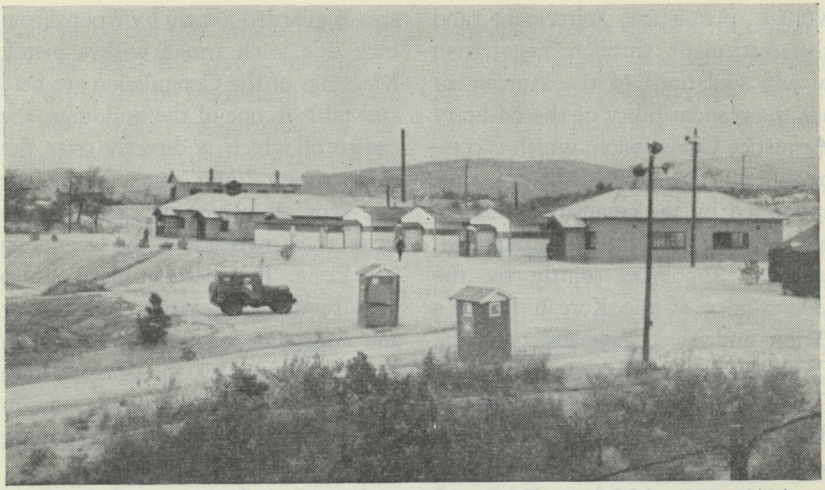
This campaign lasted less than six months. Yet, it knocked out 170,000 enemy troops and covered an area of 485,000 square miles. Surely, this is one of the most remarkable campaigns of the Second World War and well worthy of study.

* * *

To obtain basic data and facts I have made frequent reference to the first and second reports (dated 6 June 1941 and 22 July 1941, respectively) by Lieut.-General Sir Alan Cunningham, KCB, DSO, MC, on the East Africa Force Operations as published in the Supplement to the London Gazette dated 10 July 1946.—*Author.*

The Soldier of Today

In this age the quality of the individual soldier not only continues to be vitally significant, but becomes more important than ever. Proper use of the more complex instruments of modern war requires men of higher calibre. Now, more than ever, the soldier must have high technical ability, intelligence and initiative. Necessarily, his training requires more time. Not only must he master the technical aspects of new weapons, but he must also be better prepared physically, mentally and spiritually for the greater stresses of modern war.—*General Charles L. Bolte, United States Army.*



The Joint Security Area near Panmunjom where the Military Armistice Commission's meetings are held.

THE ARMISTICE IN KOREA

By
MAJOR W. B. ARMSTRONG, DIRECTORATE OF ADMINISTRATION,
ARMY HEADQUARTERS, OTTAWA*

More than two years have elapsed since the Armistice Agreement was signed in the "Peace Pagoda" at Panmunjom, Korea, bringing about a cessation of hostilities in Korea after more than thirty-seven months of bloodshed and destruction. For more than two years there has been an uninterrupted cease-fire and a stabilized line.

The Armistice in Korea has now taken its place among the other contemporary compromise agreements, including those in Palestine, Kashmir, the Balkans, Indonesia and Indo-China. The Korean Agreement, however, was different in that it was between the Military Commands and not between governments. The commander-in-chief of the United Nations Command (UNC), representing the forces of the eighteen participating nations of the United Nations, had signed a military armistice with the commanders of the two opposing military forces—the Korean People's Army and the Chinese People's Volunteers (KPA/CPV).

The functions of supervision of the

** The author returned to Canada recently after a tour of duty in Korea as a Canadian Army representative on the Military Armistice Commission.—Editor.*

Korean Armistice Agreement and the settlement through negotiation of any violations of the Agreement are the responsibility of the Military Armistice Commission, which is composed of ten senior officers, five appointed by the commander-in-chief of the United Nations Command, and five appointed jointly by the Commander of the Korean People's Army and the Commander of the Chinese People's Volunteers. Major-General (now Lieutenant-General) B. M. Bryan, United States Army, was appointed the first senior member of the United Nations Command side, and Major-General (now Lieutenant-General) Lee Sang Cho, of the Korean People's Army, who had assisted General Nam Il during the truce negotiations, was chosen as the senior member for the Korean People's Army and the Chinese People's Volunteers. There have been four successive changes in the senior members for the United Nations Command, but Lieutenant-General Lee Sang Cho has remained as the senior representative of the KPA/CPV.

Since Panmunjom is in the Communist portion of the Demilitarized Zone, the meeting place of the Military Armistice Commission was moved to a point in the zone which is astride the centre of the Demarcation Line in an area which is now known as the Joint Security Area. This area is guarded jointly by troops from each side, each armed with a pistol. Meetings of the Commission are held at a table in one of the buildings, the centre of which is directly over the Demarcation Line; this permits the five representatives of each side to sit on their own side of the Demilitarized Zone. The meeting place is also used by the Secretariat, a Secretary and Assistant Secretary, chosen from each side, and by the special committees composed of staff officers appointed by both sides to negotiate the many minor problems.

At a typical meeting of the Commission, the staff assistants take their places about ten minutes before the meeting is scheduled to begin. The United Nations Command staff sit on the UNC side of the table (in the Demilitarized Zone) and the KPA/CPV staff officers occupy places on their side of the table. The Korean People's Army representatives are on one side of the room and the Chinese People's Volunteers' staff on the other. A few minutes before the meeting opens, the senior member of one side walks in followed by the other members of his group, then the senior member of the other side, accompanied by the remaining members of his group, walk in. The staff assistants rise for their own members only. As soon as all members of the Commission are seated the first statement is read. Normally, the senior

member of the side which called the meeting reads the first statement.

Although the Agreement appears to be designed to provide for the unrestricted exchange of ideas by the two sides, in actual practice during the past two years, because of the rigidity of the proceedings, there is no free discussion: all statements and replies made by both sides are read from carefully prepared papers. The fact that there are three official languages — English, Korean and Chinese, all equally authentic—has retarded and complicated the proceedings. The reader usually pauses at the end of every few sentences to permit translation into the other languages and to give the stenographers time to make the comments a matter of record in each language. The Agreement provides that the Commission should meet daily and that recesses can be agreed upon by both sides. Early in the discussions, meetings were held at least twice weekly. Recently, however, the meetings have been sporadic: two or three have been held in one week and then almost two months have gone by without a meeting.

During these two years most of the military aspects of the Armistice have been resolved. Many thousands of prisoners of war held by each side and who were marked for direct repatriation because they insisted on being returned to the side to which they belonged at the time of capture, were exchanged in operation "Big Switch". The Communists turned over 12,773 prisoners to the United Nations Command, while the U.N. Command turned over 75,801 prisoners to the Communists.

The Neutral Nations Repatriation Commission (NNRC) completed its task and was dissolved in February 1954. It was composed of Sweden, Switzerland, Czechoslovakia, Poland and India, and it was responsible for the temporary custody and the giving of "explanations" to those prisoners of war who had not exercised their rights to be directly repatriated.

Prisoners numbering 359 — 335 South Koreans, 23 United States personnel and one United Kingdom soldier — rejected repatriation and were turned over to the Communist side. Through the Committee for Assisting the Return of Displaced Civilians (established under the Agreement), 19 civilians from the North and 37 persons from the South were exchanged at their own request in March 1954.

A programme (known as "Operation Glory) for the recovery of the bodies of military personnel of each side buried in the territory of the other side was carried out with great solemnity and dignity by both sides in the fall of 1954 and resulted in the exchange of more than 20,000

The Military Demarcation Line between the North and South at Panmunjom.

bodies. The bodies of United Nations Command personnel were shipped to Kokura, Japan, where they are being processed by United States' technicians for positive identification before being handed over to representatives of the United Nations countries these dead had served.

The major military issue which has not been resolved is the claim by both sides that large numbers of prisoners of war and civilians are being held by the other side.

During the fall and winter of 1954–55, the Military Demarcation Line was completely renovated by personnel of both sides. Safe lanes were cleared and more than one thousand numbered markers were placed along the Line from the Han River Estuary across the 150-mile land front to the east coast of Korea.

The Armistice Agreement prohibits either side from introducing into Korea military matériel such as combat aircraft, armoured vehicles, weapons and ammunition which can be considered to be reinforcing matériel; also, no troop reinforcements are permitted. However, each side is permitted to bring in 35,000 individuals each month on a leave basis and on rotation on a man-for-man basis. Combat aircraft, armoured vehicles, weapons and ammunition which have been destroyed, damaged or worn out, may be replaced on a piece-for-piece basis provided the replacements are of the same effectiveness and type.

Supervision of the replacement programme is the responsibility of the Neutral Nations Supervisory Commission. This is composed of representatives of Sweden and Switzerland (the nations chosen by the U.N. Command) and representatives of Czechoslovakia and Poland (the nations chosen by the Korean People's Army and the Chinese People's Volunteers).

To carry out the actual physical supervision, inspection and reporting on the replacement of personnel and matériel, the Neutral Nations Supervisory Commission relies on the Neutral Nations Inspection Teams who are stationed at the ports of entry in South and North Korea.

It was apparent from the outset that the successful implementation of the Armistice depended to a large extent upon the avoidance of violations and upon the manner in which violations were investigated, brought to the attention of the offending side and corrected. During the past two years both sides have alleged that the other has violated the Agreement, but none of these violations have been serious enough to disrupt the Armistice.

The Communist charges have been frequent and numerous, totalling

U.S. Army Photograph

Mr. Lee Ho, Vice Minister of National Defence, Republic of Korea, presents a scroll containing a message of appreciation to Major Armstrong, author of this article, for meritorious service in Korea.

over 500 and including allegations that U.N. Command aircraft have flown over North Korean territory and that armed military personnel have penetrated beyond the Demilitarized Zone and performed "hostile acts".

The U.N. Command has charged the Communists with fewer violations of the Demilitarized Zone, but has presented them with an extensive list of violations of their area in the North by failure to report incoming and outgoing shipments of combat matériel, particularly aircraft, while they continue to maintain a military force of major proportions.

Investigations of the alleged violations were conducted by one of the two investigating teams, depending upon the location.

All alleged violations in the Demilitarized Zone are investigated by Joint Observer Teams which are made up of representatives from the two sides; investigation of alleged violations outside the Demilitarized Zone are conducted by Neutral Nations Mobile Inspection Teams. The times either side has admitted guilt, and the times the investigation reports submitted to the Military Armistice Commission by the teams have been other than unilateral ones, have been very few in number.

Since the Armistice Agreement was signed both sides have withdrawn large numbers of their "foreign" forces from Korean soil. The U.N. Command has withdrawn over two-thirds of its personnel, and about 100,000 of the Chinese People's Volunteers are known to have left North Korea for China.

The Military Armistice in Korea has become unique in armistices, for during the more than two years of *de facto* peace it has not been marred by severe and costly clashes of the armed personnel of the opposing sides. There have been incidents: several aircraft have been shot down and some military personnel have been killed. However, none of these occurrences have been considered of such portent to warrant the resumption of hostilities. It can indeed be said that despite these occurrences and the constant accusations by each against the other of "provocative" and "hostile" acts, the Military Armistice has proven itself most effective.

In July 1953 the military commanders of the United Nations Command and the Korean People's Army and the Chinese People's Volunteers agreed upon the conditions and terms of an armistice which would ensure the complete cessation of hostilities. In 1955 the armistice is still being observed; achievement of a final peaceful settlement is still to be accomplished.

A FORT FOR RENT

By
Major L. M. Sebert, Army Survey Establishment,
Army Headquarters, Ottawa

The thought of a country at war renting a fort from the enemy sounds like an episode from one of the more whimsical musical comedies. However, this strange transaction actually took place during the Crimean War. The renter was the Hudson's Bay Company, the landlord was the Russian government, and the fort was Fort St. Dionysius which was situated on the Pacific coast about a hundred miles north of the present city of Prince Rupert.

In recent months the Army Survey Establishment has been producing a series of topographical maps covering the Canada-Alaska boundary. While doing research into the legal descriptions of the present boundary markers, the story of Fort St. Dionysius came to light.

The fort was built at the mouth of the Stikine River in 1834 by the Russian American Company, the Russian crown company that developed and administered the Russian holdings in North America. The purpose of the fort was to maintain Russian sovereignty of the territory and to protect the rights and privileges of the Russian traders. This particular show of force seemed necessary to the Russians because traders of the Hudson's Bay Company were becoming increasingly active in the district just across the boundary in British Columbia. At this time the exact location of the boundary was unknown, but it was generally believed to be about 20 miles inland.

This act of downright unfriendliness by the Russians did not deter the "Governor and Company of Adventurers of England Trading into Hudson's Bay" who, deciding at this point that the codicil was mightier than the sword, entered into negotiations with the Russian government. The result was the leasing of Fort St. Dionysius and the surrounding territory by the Hudson's Bay Company for an annual rental of two thousand land-otter skins.

England's entry into the Crimean War occurred on 28 March 1854. Some weeks before the actual declaration it was common knowledge that war was inevitable, and business houses that had overseas commitments were able to make appropriate preparations to weather the coming hostilities. The Hudson's Bay Company and the Russian American Company could see that to extend

Photograph by Richard Harrington

This photograph of the old site of the Hudson's Bay post was obtained through the courtesy of the Editor of "The Beaver", a well-known Hudson's Bay Company publication.

the war to North America would be ruinous to both, so the governors of the companies urged their respective governments to declare the North American colony neutral. When war was declared the requested neutrality clauses were inserted.

It was, however, a very uneasy neutrality with each colony eyeing the other with hostility and suspicion. In spite of this the lease on Fort St. Dionysius was renewed and the Hudson's Bay Company continued to operate in Russian territory.

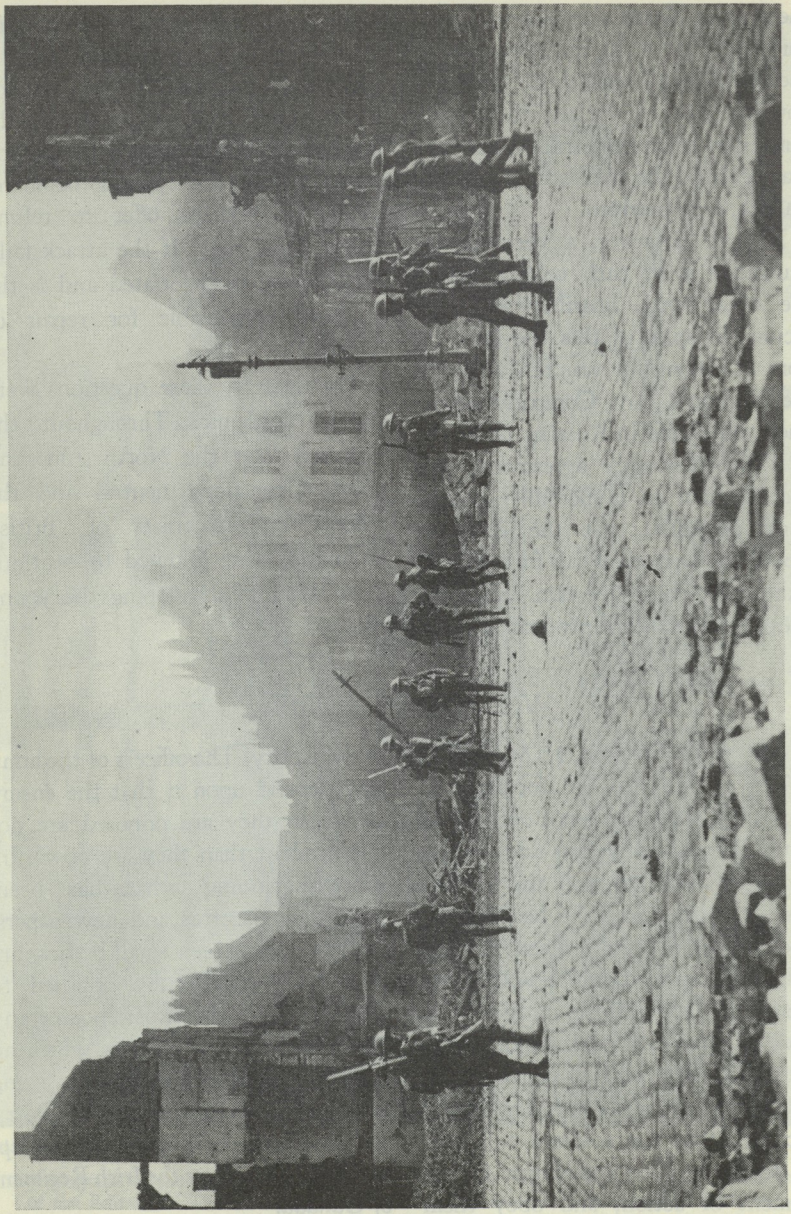
If the neutrality agreements had been broken it is possible, indeed quite probable, that the Russians would have attacked this fort. Which brings to mind certain academic questions of military protocol, always a favoured subject of the Imperial Russian Army. For instance, what is the proper procedure when attacking a fort which you are renting to the enemy? Does one deliver an eviction notice before the opening bombardment, or perhaps offer to refund thirty days' rent? If the attack fails, is the lease re-negotiated and is the landlord responsible for repair or damage?

Fortunately, these questions were purely academic. Throughout the Crimean War the North American colonies remained neutral and the traders and colonists of British Columbia were allowed to continue their work of developing the young colony.

Wellington on Fighting

Villa Fermosa, 15 May, 1811

The desire to be forward in engaging the enemy is not uncommon in the British Army; but that quality which I wish to see the officers possess, who are at the head of the troops, is a cool, discriminating judgment in action, which will enable them to decide with promptitude how far they can and ought to go with propriety; and to convey their orders, and act with such vigour and decision, that the soldiers will look up to them with confidence in the moment of action, and obey them with alacrity. The officers of the army may depend upon it that the enemy to whom they are opposed are not less prudent than they are powerful. Notwithstanding what has been printed in gazettes and newspapers, we have never seen small bodies, unsupported, successfully opposed to large; nor has the experience of any officer realized the stories, which all have read, of whole armies being driven by a handful of light infantry and dragoons.—*Contributed by Captain F. L. Jones, late the Irish Regiment of Canada.*



Flashback: No. 12

CANADIAN ENTRY INTO CAMBRAI, 1918

NARRATIVE SUPPLIED BY THE HISTORICAL SECTION,
ARMY HEADQUARTERS, OTTAWA

The picture on the facing page shows Canadian troops entering the burning city of Cambrai on 9 October 1918, during the concluding stages of the First World War.

Following the failure of the great German offensive in the spring, the bulk of the Canadian Corps was not committed to defensive operations, but was held for the overwhelming Allied counter-offensive which began in July. There followed "Canada's Hundred Days", the long succession of famous battles at Amiens, Arras, the Drocourt-Quéant Line and the Canal du Nord, leading up to the final effort at Cambrai and Valenciennes. By the beginning of October the enemy's reserves had been exhausted in bitter fighting and the end was near. On the 5th, orders were issued for an operation in which the Canadian Corps (the right Corps of the British First Army) would co-operate in an attack by the neighbouring Third Army by forcing the crossings of the Canal de l'Escaut, north of Cambrai. The result was the Battle of Cambrai, 8–11 October.

At 1:30 a.m. on 9 October Brigadier-General D. C. Draper's 8th Infantry Brigade of the 3rd Canadian Division advanced against Cambrai. A regimental history recalls that "it was a clear cool autumn night and the reflections from fires burning in Cambrai lighted the sky". Engineers moved up pontoon and trestle bridges, ladders and cork floats to assist the assault across the Canal de l'Escaut. Before dawn our patrols had crossed the Canal and it was soon evident that the Germans had evacuated the city, leaving many fires raging. Piles of inflammable material were found ready to be lit; but our troops' rapid advance, and the prompt action of Canadian Engineers, foiled the enemy. By 6:30 a.m. the Canadians had reached the central Place d'Armes and, two hours later, the 4th and 5th Canadian Mounted Rifles had secured the whole city and the enemy was being pursued beyond it.

The picture shows some of the destruction which confronted our troops when they entered Cambrai on this historic occasion.

THE PRINCE AND THE SAPPER

By
COLONEL N. J. W. SMITH, DSO, CD, DIRECTOR OF QUARTERING,
ARMY HEADQUARTERS, OTTAWA

In Porter's *History of the Corps of Royal Engineers* we read:

"Of the Officers of Engineers who led the columns [to the assault and capture of Badajos], three were killed and three wounded; the former being Captain Nicholas and Lieutenants de Salaberry and Lascelles."

The day before the attack, de Salaberry wrote the following letter to H.R.H. The Duke of Kent:

Camp before Badajos,
5th April, 1812.

Sir,—

I am ordered to storm one of the breaches this evening. As the service is rather dangerous, and I may or may not return, I beg leave to assure your Royal Highness, as well as Madame, that whatever may happen to me, I shall at every moment feel how much I am indebted to you.

Believe me, Sir, that my last moments shall be to wish all the happiness which you, as well as Madame eminently deserve.

I have the honour to be, with eternal gratitude,

Your R.H. most obedient and grateful servant,

E. A. de Salaberry.

This is the story of how the 20-year-old Lieutenant in the Royal Engineers, from Beauport near Quebec City, became indebted to H.R.H. The Duke of Kent and wrote the above letter the day before meeting a gallant death in the Peninsular War.

Prince Edward Augustus, fourth son of George the Third and father of Queen Victoria, was born in 1767. Having chosen the profession of arms, he was sent to Germany to "learn the trade". His tutor appropriated the lion's share of the Prince's allowance, censored the Prince's mail, and misrepresented the Prince's conduct to his father. Thus while the young man was being educated to a rigid system of drill and discipline he was unconsciously earning the unmerited displeasure of the King. Actually, his father had nine sons and six daughters and George's duties to his country, to his wife, and to his children at home must have left little time for attention to his son abroad.

By the time Edward was 22 he was in debt, a condition which he successfully maintained for the rest

of his life. In 1790 he returned to England without previously obtaining permission from his father who, in great anger, immediately ordered a posting to Gibraltar. At that station the Prince, to his great delight, was given the Colonelcy of a regiment. Unfortunately, strict application of the rigid discipline which he had learnt in Germany soon caused unrest among the troops and in 1791 the regiment was ordered to Canada, the Commander-in-Chief hoping that a change of climate would improve their morale.

Eighteen months after landing in Canada the regiment again became restless and plotted mutiny, including the seizure of the Prince and the General Officer Commanding. The plot was discovered and the ringleaders punished.

In 1793 the Prince sought action in the West Indies against the French, showing great bravery and leadership. Returning to Canada in 1794 he was appointed C-in-C Forces in Nova Scotia and New Brunswick, with his Headquarters at Halifax. Here he found the Garrison in an extremely dissipated and lax condition, the civilian population being almost equally bad. This was soon remedied. Parades were held at 5 a.m. every morning, the Prince invariably being present, and the state of discipline was quickly improved. In 1799 the Prince, now known as the Duke of Kent, was appointed C-in-C British North America but his health broke down and he returned to England in 1800.

Two years later he was appointed Governor of Gibraltar. Drunkenness and insubordination prevailed at that Garrison and the Prince's appointment was made specifically to tighten up discipline, which was at a low ebb, the officers being perhaps the worst offenders. Edward's first act was to close 30 of the 90 houses selling wine and spirits, particularly those near the barracks and those of evil reputation. Then followed sunrise parades, drills and exercises enough to keep the Garrison busy from dawn till dusk, ending each day too tired for mischief. He insisted on meticulous attention to the smallest details. Every officer was required to have his hair cut in the first week of every month and the Duke's hairdresser was the first to board every visiting ship, no officer being allowed to land without a trim.

On Christmas Eve, 1802, the 2nd Battalion of the Royals mutinied, tried without success to persuade the 25th foot to join them, and were met by fire from the 54th foot. The affair was over in an hour and the Prince, after issuing a suitable warning, forgave the offenders. But two days later the 25th Foot, having been paid and being well intoxicated, also mutinied. First they tried to persuade

the Royals to join them but that regiment had learnt its lesson. The rioters were quickly subdued by the 54th and the Royal Artillery, the latter opening fire, and this time the Prince showed no clemency, three ringleaders being executed. The 54th, now the Dorsetshire Regiment, were rewarded with a magnificent silver trophy which is still one of their prized possessions.

Some of the orders issued by the Prince would have caused unrest among the best disciplined troops. For example, to detect intoxication the NCOs were periodically ordered to smell the men, and the officers likewise to search for whiffs of alcohol amongst the NCOs.

"Jealousy in a certain high quarter" is reported to have been the reason for the Prince's immediate recall to England. He had been sent to Gibraltar to restore order and was doing a remarkably good job, but the King and his elder brother, the Commander-in-Chief, found fault with his work. While retaining the Governorship of Gibraltar, he was never allowed to return there.

From then until the end of his life the Prince was "on the shelf", keeping himself busy with recruiting for his regiment and with many charitable interests.

In 1807 he was drawn into an unpleasant affair when members of the household of the Princess of Wales accused her of sending anonymous letters and obscene drawings. She sought Edward's assistance and he managed to smooth things over until his brother, the Prince of Wales, heard about it and blamed Edward for not reporting the affair immediately.

The next year he ran into trouble with another brother, the Duke of York, who was Commander-in-Chief. York had taken as his mistress a certain Mary Ann Clarke who had been married to a stonemason at the age of sixteen and had lived with several men about town before captivating H.R.H. They lived together for two years but in 1806 he discarded her with an annuity which, to her annoyance, was not paid regularly. In 1809 a certain Colonel Wardle, MP, charged in the House of Commons that Mrs. Clarke, with the knowledge of York, had made great profits buying and selling commissions in the Army and various civil appointments. Mrs. Clarke then published "Rival Princes", in which she claimed that Kent was pressing the charges against his brother. The House, after an inquiry, voted the Duke's innocence, but the majority was so slim that he resigned as Commander-in-Chief. Two years later he was reinstated and before his death in 1826 he had, in the words of Fortescue, done "more for the Army than any one man during the first two

centuries of its existence."

All his life the Duke of Kent was plagued with debt, which started before his first appointment at Gibraltar and which mounted until his death. Probably no Royal Prince has ever tried harder to settle with his creditors and had more unfortunate incidents which always increased his liabilities. When he went to the West Indies from Canada in 1793 he travelled from Montreal to Boston in winter and lost all his equipment in two sleighs which dropped through the ice of Lake Champlain. The replacement outfit, ordered from England at a cost of £2,000, was captured by the French on board the *Antelope*. Another outfit shipped on board the *Tankerville* in 1795 was also captured by the French. A third outfit, on board the *Recovery*, was likewise captured, his total loss to date being more than £10,000.

When he was appointed C-in-C North America he ordered equipment worth £11,000 which was on the *Amelia* when she was wrecked on Sable Island with the loss of all hands. Needless to say, these losses increased his debts considerably, and in 1807 he owed his creditors £108,200. In 1810 his bankers failed and in 1814 his solicitor absconded. This was the final straw. He sold his wine stock, mortgaged his plate, assigned £17,000 out of his income of £25,000, and went to live abroad where he could lead a quiet existence on a small income. On the Continent he met and became engaged to Mary Louisa Victoria, widow of the Prince of Leiningen, whom he married in 1818, he being then 51 years old. Princess Victoria, the future Queen, was born on 24th May of the following year. The unfortunate Edward died eight months later from a neglected cold.

When the Prince was stationed in Canada at Quebec he met there a certain Monsieur Louis de Salaberry, who lived at nearby Beauport, a man of great height and enormous strength who had been wounded four times during the War of American Independence, and who was now retired on pension. The Prince took a great liking to the de Salaberry family and visited them often. In 1792 he was godfather to Edward Alphonse de Salaberry and not unnaturally he took a fatherly interest in the young lad. When 14 years old, at the Duke's request and expense, he was sent to England to be educated for a career in the Army. After taking a preparatory course at the Royal Military College at Great Marlow he entered Woolwich in 1807, the Prince having decided that the Engineers would be "the most advantageous for his future advancement." Commissioned in 1810, he joined the Army in Portugal in 1811 and died gallantly at Badajos on 6th April 1812.

In those days the siege of a fortress was directed by the Engineers and the assaulting troops were led by Sapper officers. On 7th April 1812, the day after the capture of Badajos, Wellington wrote home to request in the strongest terms the formation of "a trained corps of sappers and miners." Up until that time the Sapper other ranks consisted of companies of Artificers, formed for permanent employment at their trades at specified stations. They were not trained in field engineering and there were only 115 Artificers at Badajos. The frightful losses which occurred during that siege stirred the Government to action, the School of Military Engineering at Chatham was formed on 23rd April 1812, and before the end of that year the first trained Sapper reinforcements reached the Peninsula.

It was a costly lesson which took the lives of 5000 of Wellington's best troops, including young Edward de Salaberry, but such lessons appear to be necessary before authorities will recognize the need for changes and, in this case, the Sappers were given a proper training establishment. Edward de Salaberry's godfather, the Duke of Kent, was called by Charles Greville "the greatest rascal that ever went unhung." It is doubtful if he deserved this epithet and certainly he can be remembered as the father of a great Queen who was known and loved throughout the Empire.

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VC

It is difficult to get details. I have met perhaps a dozen or so V.C.'s, and in every case they explained that they did the first thing that came to their hand without worrying about alternatives. One man headed a charge into a mass of Afghans, who are very good fighters so long as they stay interested in their work, and cut down five of them. All he said was: "Well, they were there, and they wouldn't go away. What was a man to do? Write 'em a note and ask 'em to shift?"—*Rudyard Kipling.*

NEW CHIEF OF THE GENERAL STAFF IS APPOINTED

A change in the highest service appointment in the Canadian Army became effective 1 September 1955, when Lieut.-General H. D. Graham, CBE, DSO, ED, CD, succeeded Lieut.-General G. G. Simonds, CB, CBE, DSO, CD, as Chief of the General Staff. Having completed four and one-half years in this appointment, Lieut.-General Simonds proceeded on leave pending retirement from the Canadian Army.

In announcing the change in this appointment earlier this year, the Honourable R. O. Campney, QC, MP, Minister of National Defence, stated:

"The retirement of General Simonds brings to a close a Canadian Army career of notable distinction. From the day he won the Sword of Honour at the Royal Military College, in peace and in war he has contributed greatly to Canada and the Canadian Army. His service, highlighted by the wartime command of 2nd Canadian Corps, was climaxed by the dynamic direction that he has given to the build-up of the Canadian Army for the Korean conflict and for NATO."

Lieut.-General Graham, prior to his promotion and appointment as Chief of the General Staff on 1 September 1955, was General Officer Commanding Central Command. Since he enlisted as a private in the Great War 1914–18 at the age of 17, until taking over the Army's top command at the age of 57, he has had 19 years full-time service in the Army and 16 years part-time training with the Militia.

A life-long student of military affairs, his service education covers an intimate knowledge of operations, training and administration in both peace and war. This has been gained principally through practical experience as a commander in the field and later as a senior staff officer.

Ten years of his Regular Army service have been spent in training for battle or on the battlefield. Awards to General Graham include Commander of The Most Excellent Order of the British Empire (CBE); Distinguished Service Order (DSO); a Bar to the DSO; the French Chevalier de la Legion D'Honneur and Croix de Guerre avec Palme; and from the United States, the Legion of Merit (Degree of Officer).

At the age of 17 he enlisted in the 155th Battalion, Canadian Expeditionary Force, and in October 1916 went overseas with that unit. He served in France and Germany for

three years during the First World War.

After the First World War General Graham was commissioned with the Hastings and Prince Edward Regiment and served in the Militia from 1922 until 1939. At the outbreak of the Second World War he was mobilized as second-in-command of the Hastings and Prince Edward Regiment and went overseas in December 1939.

In September 1940 he was given command of his Regiment and for two years he trained his unit in England prior to the invasion of Sicily.

In September 1942, he was promoted to the rank of Brigadier to command the 7th Canadian Infantry Brigade in the 3rd Canadian Infantry Division. Three months later he was transferred to take command of the 1st Canadian Infantry Brigade in the 1st Canadian Infantry Division which was later to take part in the seaborne invasion of Sicily from the Mediterranean.

It is interesting to note that General Graham, in taking command of the 1st Brigade in 1943, succeeded another famous Canadian soldier—Lieut.-General (then Brigadier) G. G. Simonds—whom he has now succeeded as Chief of the General Staff.

General Graham's Brigade was in action throughout the whole of the Sicily campaign, during which he won his first DSO. In September 1943 his Brigade landed in Italy and three months later at the Moro River battle, before Ortona, he was awarded a Bar to his DSO. In February 1944 severe illness took him from command of the 1st Brigade and on recovering he was appointed Deputy Chief of the General Staff, in Ottawa. As such he was charged with the responsibility for all training in Canada during the critical period prior to D-Day and the advent of the National Resources Mobilization Act (NRMA).

The war over, General Graham served briefly as Deputy Adjutant-General to assist on planning the demobilization of the Army.

In November 1946 he was again posted to England, this time to succeed Lieut.-General J. C. Murchie and with the task of closing remaining military camps and completing the repatriation of the Canadian Army in Europe. While in England, he was Canadian observer in 1948 at the preliminary meetings of the Military Committee created under the Brussels Treaty and which was composed of representatives from Great Britain, Belgium, France, The Netherlands and Luxembourg.

He returned to Canada to become Vice Chief of the General Staff with the rank of major-general in October 1948. This appointment brought him in close touch with post-war defence planning. As VCGS he became a

NEW APPOINTMENTS FOR SENIOR OFFICERS

FROM A REPORT ISSUED BY THE DIRECTORATE OF PUBLIC RELATIONS, (NATIONAL DEFENCE), OTTAWA

Major-General Findlay Clark, CBE, CD, 46, of Winnipeg, formerly Quartermaster General of the Canadian Army, was appointed General Officer Commanding Central Command with Headquarters at Oakville, Ont., 1 September 1955.

He succeeded Major-General (now Lieutenant-General) Howard D. Graham, CBE, DSO, ED, CD, who was named successor to Lieutenant-General G. G. Simonds, CB, CBE, DSO, CD, as Chief of the General Staff.

Major-General Geoffrey Walsh, CBE, DSO, CD, 46, of Brantford, Ont., formerly Director General of Military Training, was promoted to this rank to succeed Major-General Clark as Quartermaster-General.

Brigadier Cameron B. Ware, DSO, CD, 42, of London, Ont., formerly Commander Canadian Military Mission Far East in Tokyo, Japan, succeeded Major-General Walsh as Director General of Military Training.

* * *

MAJ.-GEN. SAMUEL FINDLAY CLARK, CBE, CD

Maj.-Gen. Clark was born in Winnipeg, Man., 17 March 1909, and received his initial education at schools in that city.

He is a graduate in electrical engineering (B Sc EE) from the University of Manitoba and also holds a mechanical engineering degree (B Sc ME) from the University of Saskatchewan.

Maj.-Gen. Clark began his military

New Chief of the General Staff is Appointed

(Continued from preceding page)

member of the United States-Canadian Permanent Joint Board on Defence, was active in the early days of NATO defence planning and in the organization of the Special Force on the outbreak of the Korean War.

In February 1951 General Graham was appointed General Officer Commanding Central Command, the most populous in Canada, with headquarters in Oakville, Ont. He served there until his promotion to the rank of lieutenant-general and appointment as Chief of the General Staff on 1 September 1955.

Major-General Clark

Major-General Walsh

career in 1933 as a lieutenant in the Royal Canadian Signals, and served at Camp Borden, Ont., until 1937. He then went to Army Headquarters in Ottawa as a technical officer in the Directorate of Signals.

In August 1938, he was promoted to the rank of captain and appointed Associate Professor of electrical and mechanical engineering at the Royal Military College, in Kingston, Ont.

At the outbreak of the Second World War he was appointed Adjutant of the 1st Canadian Corps Signals and served in that post until May 1940, when he was promoted to the rank of major. He proceeded overseas to the United Kingdom in August 1940.

In February 1941, he was promoted to the rank of lieutenant-colonel and appointed to command the 5th Canadian Armoured Division Signals Regiment. His next move came in August 1942, when he was appointed a General Staff Officer, Grade One, at Canadian Military Headquarters in London.

From December 1942, until May 1943, Maj.-Gen. Clark attended the staff course at Camberley, England. He received his promotion to the rank of colonel in January 1943 and on completion of staff course was appointed Chief Signals Officer at Headquarters, 2nd Canadian Corps. He remained with this headquarters until the end of the war, receiving

promotion to the rank of brigadier in November 1943.

He returned to Canada in September 1945, and was appointed Deputy Chief of the General Staff at Army Headquarters in Ottawa.

He attended the Imperial Defence College in 1948. Upon completion of the IDC course he was appointed Canadian military observer on the Western Union Military Committee.

In October 1949 he was promoted to his present rank of major-general. At that time (at the age of 40) he had the distinction of being the youngest major-general in the Canadian Army.

His next appointment took him back to the United Kingdom as Canadian military representative with the North Atlantic Treaty Organization in London. This was in November 1949, and in May 1951 he was appointed Chairman of the Joint Staff, at the Canadian Army Liaison Establishment in London. Maj.-Gen. Clark returned to Canada in August 1951, and was appointed Quartermaster General of the Canadian Army, at Army Headquarters.

For his services during the Second World War, Maj.-Gen. Clark was made a Commander of the Most Excellent Order of the British Empire. He also holds the Order of Orange Nassau Degree of Commander, from The Netherlands; and the Legion of Merit, from the United States.

Maj.-Gen. Geoffrey Walsh, CBE, DSO, CD

Maj.-Gen. Walsh was born in Brantford, Ont., 19 August 1909. He was educated at St. Catharines Collegiate Institute, the Royal Military College, the Nova Scotia Technical College and McGill University.

He was commissioned in June 1930 as a lieutenant in the Royal Canadian Engineers. In the early 1930's he served in the United Kingdom at the School of Military Engineering, and on attachments to the British Army. After his return to Canada in 1933 he served in various appointments in Eastern Canada, and upon the outbreak of the Second World War was District Engineer Officer at Toronto, Ont.

In June 1940 he went overseas with the 1st Pioneer Battalion, Royal Canadian Engineers. He was appointed officer commanding the 3rd Field Company in July 1940. Later that year he became chief instructor at 1 Canadian Engineer Holding Unit.

Maj.-Gen. Walsh again commanded the 3rd Field Company, RCE, in 1941, after which he was appointed Brigade Major, HQ Royal Canadian Engineers Corps Troops.

His promotion to the rank of lieutenant-colonel followed in April 1942 when he was appointed Commander, Royal Engineers (CRE) with the 1st Canadian Infantry Division.

It was in this capacity that he participated in the Spitzbergen operation in Norway, and later in the Sicilian and Italian campaigns. In early 1944 he was promoted to the rank of brigadier and appointed Chief Engineer with 2nd Canadian Corps, and later served in Northwest Europe.

In September 1944 he was appointed Chief Engineer of First Canadian Army, and served in that appointment until the end of the war.

Maj.-Gen. Walsh returned to Canada in August 1945, and was appointed Deputy Quartermaster General at Army Headquarters in October of that year. In April 1946 he was appointed Commander of the Northwest Highway System.

In 1948 he attended the National Defence College, Kingston, and then was appointed Commander Eastern Ontario Area, in Kingston. In June 1951 he was selected to be first Commander of the newly-organized 27th Canadian Infantry Brigade, and led that formation for a year in Europe.

In January 1953 he returned to Canada and assumed the appointment of Director General of Military Training at Army Headquarters in Ottawa.

During the Second World War Maj.-Gen. Walsh was made a Commander of the Most Excellent Order of the British Empire and won the Distinguished Service Order, the United States Legion of Merit and Commander of the Orange Order of Nassau (Netherlands). He was also twice mentioned-in-dispatches.

* * *

Brigadier Cameron B. Ware, DSO, CD

Brigadier Ware was born in London, Ont., and educated at the Royal Military College. On graduation in 1935 he was commissioned in the Princess Patricia's Canadian Light Infantry.

Early in 1939, Brig. Ware, then a lieutenant, went to the United Kingdom to attend a course in small arms and to serve a number of attachments to British units. Shortly after the outbreak of war he returned to Canada, and was promoted to the rank of captain. He obtained his majority in 1940, subsequent to his return overseas.

In February 1942 he was second-in-command of his regiment (PPCLI), and in November 1943 was promoted to the rank of lieutenant-colonel in Sicily.

At the crossing of the Moro River in December 1943, Brig. Ware was awarded the DSO for gallantry and leadership. He was later promoted to the acting rank of colonel and given command of a training and reinforcement formation. He served in this capacity until the end of hostilities.

In the Canadian Army Occupation Forces he commanded the North Shore Regiment.

After his return to Canada in 1946 he was appointed to command the Princess Patricia's Canadian Light Infantry, stationed at Currie Barracks, Calgary, and served there until 1947 when he went to Kingston, Ont., to attend the Canadian Army Staff Course. On completion of this course late in 1948 he was appointed to the general staff of Central Command as General Staff Officer, Grade One.

In October 1950, he was promoted to the rank of colonel and appointed Commandant at Calgary. On August 1, 1952, he was appointed to command the Canadian Services College, Royal Roads, B.C.

In November of last year Brig. Ware was appointed Commander, Canadian Military Mission Far East in Tokyo, Japan. He returned to Canada last summer.

Physical Conditioning for the Atomic Era

BRIGADIER GENERAL CARL F. FRITZSCHE IN THE *MILITARY REVIEW* (U.S.)

Men, like the tools of war, must be kept in a state of readiness. The individual officer or enlisted man who lets himself "go to pot" physically is as guilty of sabotage as some convicted fifth columnist. In this atomic era it can be assumed that in the event of hostilities there will be no "breather" in which men who have grown soft can be reconditioned.

The early days of the Korean conflict clearly indicated that few officers or men were physically combat-ready—both in the combat arms and technical services as well. The resulting casualties and decrease in efficiency left much to be desired.

Combat makes great demands on officers and men. It takes tremendous physical endurance to withstand fatigue, to function properly in spite of near-exhaustion. In Korea the Army faced an enemy skilled in ambush, infiltration, and guerrilla tactics. Experience there proved beyond any doubt that mental and physical alertness is as imperative in the rear of a battlefield as at the front.

If this were evident in a conflict with conventional weapons, it will be doubly true in any conflict in which atomic weapons are employed. Leaders in both the combat and technical branches of the Army can expect to operate independently at great distances from "home base". These leaders must be men who can operate for extended periods under conditions unknown in the past. With good health and physical conditioning (as well as technical and tactical know-how) will come the confidence necessary for success.

NEW DEPUTY MINISTER OF NATIONAL DEFENCE

FROM A STATEMENT ISSUED BY THE OFFICE OF THE PRIME MINISTER

The appointment of Air Marshal Frank R. Miller, CBE, CD, as Deputy Minister of National Defence to succeed Mr. C. M. Drury was announced by the Prime Minister on 8 June 1955. Mr. Drury resigned from this position effective 25 July to enter private business, and Air Marshal Miller's appointment was effective 15 August. The new Deputy Minister terminated his commission in the Royal Canadian Air Force before that date to serve as a civilian.

In announcing Mr. Drury's resignation, the Prime Minister expressed the gratitude of the government for the outstanding contribution he had made to the defence programme of Canada and to the public service generally.

* * *

Air Marshal Miller was born on 30 April 1908 at Kamloops, B.C., and graduated from the University of Alberta with the degree of B.Sc. in Civil Engineering. He joined the RCAF in 1931 and served in various flying, training and administrative capacities until the outbreak of the Second World War.

During the war, Air Marshal Miller served in numerous senior

Air Marshal Miller

positions in Canada, commanding special training schools, including the Air Navigations Schools at Rivers, Man., and Penfield Ridge, N.B., and the General Reconnaissance School at Summerside, P.E.I. He also served at Air Force Headquarters as Director of Training Plans and Requirements and as Director of Training.

He proceeded overseas in 1944 and served with the Canadian Bomber Group in the capacity of Station Commander and later as a Base Commander. In the spring of 1945 he

was selected to fill a senior appointment in the "Tiger Force" in preparation for operations against Japan. After his return to Canada in 1945, Air Marshal Miller was posted to Air Materiel Command as Chief Staff Officer and later became the Air Officer Commanding. He attended the United States National War College from August 1948 until September 1949, at which time he assumed the appointment of Air Member Operations and Training at AFHQ.

In August 1951 he was appointed Vice Chief of the Air Staff. In addition to the heavy responsibility he carried in this position, he made an outstanding contribution in the field of Canada-USA military relations as the Canadian air representative on the Canada-USA Permanent Joint Board on Defence.

As announced by the Minister of National Defence, and General Gruenther during the latter's visit to Canada a year ago, Air Marshal Miller, in August 1954, was appointed Vice Air Deputy at SHAPE Headquarters, Paris, which position carried the rank of Air Marshal.

In January 1946 Air Marshal Miller was appointed a Commander of the Most Excellent Order of the British Empire for distinguished service and was also mentioned in dispatches in 1945 while serving overseas.

Air Marshal Miller is married to the former Dorothy Virginia Minor of Galveston, Texas.

THE IMPORTANCE OF GROUND WARFARE

In any attempt to look to the future and to prepare for the tests of the future, the need for a strong Army and the importance of ground warfare remain as great as they ever were. In fact, the advent of new weapons and the increased importance of airpower have but given new meaning and wider scope to the dimensions of land warfare, without changing war's nature and basic objectives.

As we proceed through this period of profound military change, it is well to recall these fundamentals, lest we lose our military bearings. Warfare is an armed struggle between organized groups of men, each seeking to impose its will on the other. The ultimate objective of the entire effort is control of land and of people living on land. It takes land forces to establish those controls, which these forces do through their vital contribution to the winning of military victory. It takes these same forces to maintain those controls. — *General Matthew B. Ridgway in the* Military Review *(U.S.).*

NEW CHIEF OF THE IMPERIAL GENERAL STAFF

NARRATIVE SUPPLIED BY THE UNITED KINGDOM INFORMATION OFFICE, OTTAWA

In November this year General Sir Gerald Templer, GCMG, KCB, KBE, DSO, will succeed Field Marshal Sir John Harding as Chief of the Imperial General Staff, the highest service appointment in the British Army.

The new C.I.G.S. comes from Northern Ireland of a military family. He was born in 1898 and was educated at Wellington and Sandhurst. He fought in the First World War in France and Belgium and his promotion was rapid. In 1942 he had become at 44 the youngest lieutenant-general in the British Army.

After the Second World War General Templer became Director for Civil Affairs, Military Government, in occupied Germany, and in 1946 was appointed Director of Military Intelligence at the War Office. In 1948 he became Vice-Chief of the Imperial General Staff. In 1952 he was appointed High Commissioner and Director of Operations in Malaya, a post he held for two and a half years. On his return from Malaya, after a period of leave, he worked for a time at the War Office and was later seconded to the Ministry of Defence to carry out a survey of the organization and administration of Colonial troops.

General Sir Gerald Templer

Proverbs are short sentences drawn from long experience.

When firmness is sufficient, rashness is unnecessary.—*Napoleon.*

CANADIAN OFFICER RECEIVES AWARD FOR IMPROVED TYPE OF FLAME THROWER

A STATEMENT BY THE HONOURABLE RALPH CAMPNEY, MINISTER OF NATIONAL DEFENCE

A gratuity of $5000, largest amount of its kind ever granted a member of the Armed Forces, has been awarded to a Canadian Army officer for the invention and development of the "Iroquois", an improved type of tracked flame thrower.

The inventor is Major Henry Sorensen, CD, 45, of Edmonton, Alta., Army Technical Liaison Officer at the Defence Research Board's Suffield Experimental Station, Suffield, Alta.

Major Sorensen has been working for the past eight years on the development of an improved flame-throwing weapon which is "50 per cent better in almost all respects than weapons previously in use".

The amount of the gratuity is considered commensurate with the additional potency of the improved weapon. The "Iroquois" has greatly increased range, portability, simplicity of operation, and reduced manufacturing costs and training time. Details of its performance are still classified.

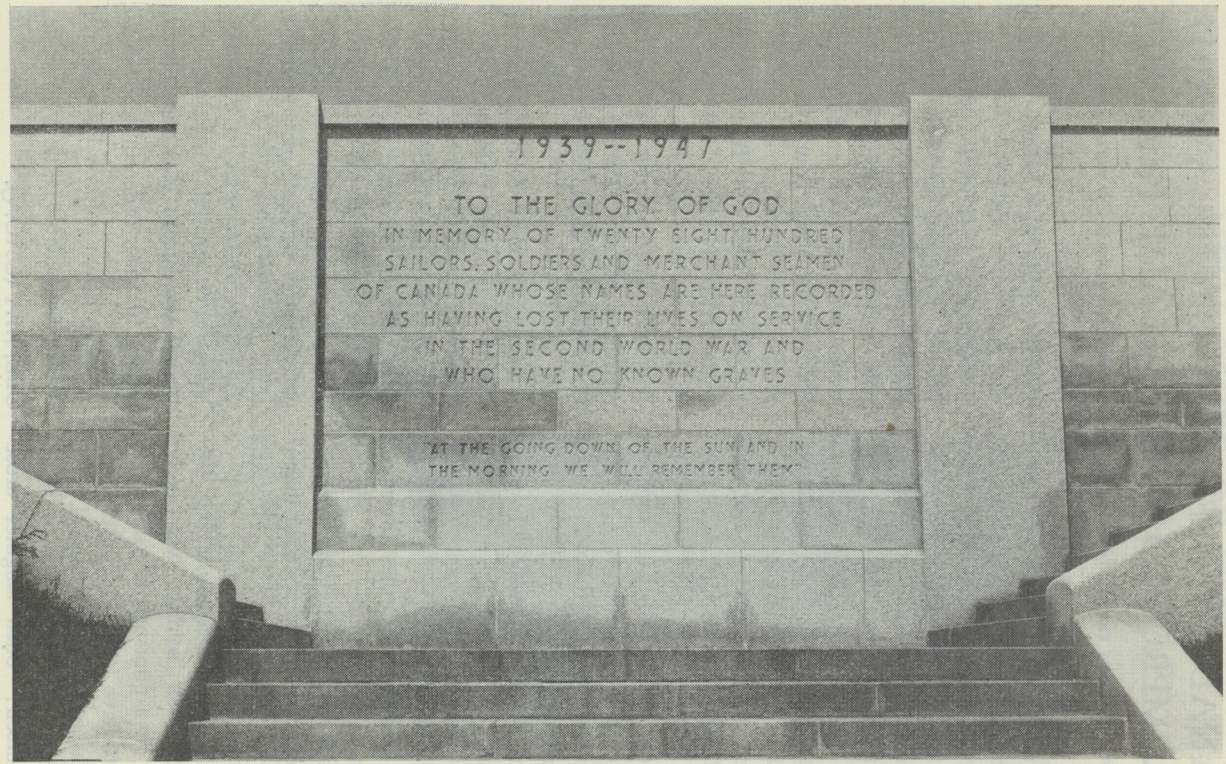
Military authorities from the United Kingdom and the United States have expressed interest in the new weapon and several demonstrations have been conducted by Major Sorensen in these countries during the past two years.

Defence Research Board technicians Alec Niblock and William Palmer worked continuously with Major Sorensen during the development period, and Defence Research Board facilities at Suffield were available at all times.

Major Sorensen, who has had no formal engineering training, is now considered one of Canada's outstanding experts in flame warfare. As well as developing this weapon, it was necessary for him to evolve a tactical doctrine which would exploit its potentialities to the best advantage.

Discipline—Old Style

A Scottish soldier was being flogged on a punishment parade. He is said to have called out after some thirty lashes: "Colonel, colonel, have mercy on a puir auld drunken body like yourself!" Such laughter arose around the square that the colonel, to save his face, ordered the man to be taken down.—*From "The British Soldier" by Colonel H. de Watterville, CBE, MA (OXON).*



National Defence Photograph

Memorial to Canadian war dead at Halifax.

ARMY CHAPLAINS

C. C. Soden in the Australian Army Journal

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

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

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

Memorial to Canadian War Dead

This is one of the panels of the new war memorial unveiled at Halifax last July by the Governor General, His Excellency The Right Honourable Vincent Massey. Dedicated to the sailors, soldiers and merchant seamen of Canada who lost their lives on service in the Second World War and who have no known graves, the memorial is set in the battlements of the Citadel at Halifax. Designed by Professor Percy Nobbs, it is in the form of two L-shaped granite walls terminated by pillars, and the space between is occupied by panels back and front bearing the names. On a higher level stands the 1914–1918 memorial, surmounted by a tall cross which is the focal point of the whole monument.

JOACHIM MURAT

By
Squadron Leader H. W. Emmott, DFC, Air Force Headquarters, Ottawa

Of all the men in history who have ridden to a throne upon a horse, the most flamboyant of all was Napoleon's great cavalry leader, Joachim Murat, Marshal of the Empire, Grand Duke of Berg, King of Naples. By his swashbuckling courage, his matchless tactical eye for cavalry terrain, his impressive physical presence, and his ability to inspire and lead cavalry in battle he climbed from trooper in a light cavalry regiment to Commander-in-Chief of all Napoleon's horsemen. Then, by accident or design, he was charming and persuasive enough to marry Caroline, Napoleon's sister, and by virtue of Napoleon's intense family loyalty he became a Grand Duke and then a King. Unfortunately he forgot that he had gained his throne and kept it by virtue of French bayonets, and when Napoleon fell he tried to keep his kingdom by his own efforts. He failed; and since those who dice for royal power stake their lives, he, who had faced cannon and musket in a hundred battles, fell to a firing squad in a little town which once he ruled as a king.

Joachim Murat was born in La Bastide, a small town in Gascony, 25 March 1757—two years before Napoleon. His father, who enjoyed the patronage of the de Talleyrand-Périgard family, destined him for the church and he received a complete priestly education. When he was twenty, however, for some obscure reason he suddenly enlisted in a regiment of *chasseurs à cheval.* His clerical learning stood him in good stead in the Army; by the time 1789 and the French Revolution arrived he had, in two years, been promoted through corporal and sergeant to *maréchal des logis* (quartermaster-sergeant).

He was promoted to sub-lieutenant in October 1792, some five years after he had joined the Army. In 1793 he became a captain, and *aide-de-camp* to a general; so far he had not heard a shot fired in battle.

In January 1794 he smelled his first powder. By this time he was a *chef d'escradon* (major) of the

21st *chasseurs à cheval.* In 1795, when *Jacobins* and *Sans-culottes* invaded the Assembly, it was Major Murat who came to the rescue of the authorities with his squadron. The Directory came into being, with Napoleon at the head of its soldiers, at the *coup d'état* of Véndemiare (5 October 1795). Murat, then in temporary command of his regiment, was told to secure the forty guns of the National Guard, and reached the square where they were parked just as a column of National Guard entered from the other side. Drawing his sabre, he told the Guard leaders that his *chasseurs* would cut them to pieces if they did not march away. The citizen soldiers retreated, and Murat had the guns that started Napoleon on his career of glory. Napoleon never forgot: Murat's fortune was made.

During Napoleon's 1796 campaign in Italy, Murat covered himself with glory. He inspired others with his own reckless daring in charge after charge. In May he was promoted (at 28) brigadier-general. In July he captured Leghorn, and at the Siege of Mantua he led 1000 grenadiers into the Austrian earthworks—his first chance to command infantry. Falling sick, he was sent to a hospital at Brescia which was soon captured by the Austrians. He gave his parole, broke it, and was back on duty, free and well again, a few days later. During the operations of the next year he took time to correspond with Count de Barras, the Director whom Napoleon was later to oust, with the object of getting back to Paris to advance his fortunes. Obviously Murat had not yet recognized Napoleon as the coming man.

The attempt came to nothing, however, for we find him in January 1797 leading a brilliant attack on the rear of the Austrian army trying to relieve Mantua. Murat crossed Lake Garda at night with a force of infantry, marched into the hills, and cut off and captured some thousands of Austrians.

Murat followed this feat with a number of brilliant successes, which kept him in Napoleon's good graces until peace was signed. It was only after peace was restored that Napoleon had to reprove him for neglecting his troops in favour of his mistresses. "How many blunders Murat has committed," Napoleon once exclaimed, "through his way of looking for his headquarters in some chateau where he could meet women." Napoleon resolved the difficulty by sending him with a column of troops to quell a revolt in Switzerland.

Murat's next adventure was as commander of a cavalry brigade in Egypt. He fought at the Battle of the Pyramids and gained some distinction as the administrator of a province. During the march through the desert

that ended at Acre his cavalry were always in the vanguard; during one fight, with 1000 foot and 100 dragoons, he routed a whole Turkish army which had been besieging a French garrison at Safed. At the battle of Aboukir Bay, Murat led two cavalry charges that cut through two successive Turkish lines. During the battle Murat personally captured the Turkish leader in a hand-to-hand fight, cutting off two of his fingers, but not before the Turk had shot Murat through the lower jaw with a pistol.

Napoleon gave him much of the credit for the Aboukir victory, and promoted him, at 32, to general of a division. When Napoleon slipped back to France in August 1799 to exploit the crisis that was brewing in Paris, he had Murat leave his hospital and accompany him.

On the 18th Brumaire (9 November) Murat commanded the Paris cavalry, and it was he who, sword in hand, cleared the Assembly whose members had just declared Napoleon an outlaw. That very evening Murat sent a note telling Caroline Bonaparte, whom he had met two years before in Italy, that her brother had become First Consul with some useful help from Murat. Caroline had her choice between Murat and the infantry general Jean Lannes, whom Napoleon favoured. Lannes was brave and short, and Murat was brave and dashing; naturally she preferred Murat. They were married early in 1800. Having married the Napoleon's sister, Murat was well on his way to a throne.

Murat fought through Italy in the 1800 campaign. He captured Piacenza, 30 barges of supplies, and 13 guns, among other successes. At Marengo he repeatedly charged at the head of one or the other of his brigades, and his uniform was riddled by bullets, though he remained unwounded. Just when the battle seemed lost Murat used a battalion of the Consular Guard for a "living citadel" and led charge after charge to relieve the pressure upon it. This held up the Austrians long enough for French reinforcements to come up and win the battle.

As commander of an army camp and then of the "Army of Observation" at Dijon, Murat showed his restless energy, his grasp of detail, and his impatience for results in a long series of letters, official and otherwise. The private letters never hesitate to point out to others his virtues, his feats, or his honours. With his army he made a winter march from Geneva into Italy again. During this campaign he was under General Brune, whom he consistently attacked in letters to Napoleon. He finally intrigued himself clear of his subordination to Brune by becoming commander of the French army of occupation in Italy, where he proved himself quite

a good administrator. He also managed to acquire enough money to spend a million francs in four months—something like $200,000 in today's value of Canadian dollars. While he was in Italy the King of Naples presented him with a magnificent sword with a diamond-studded hilt, which he wore later as he chased the King from his throne.

When he returned to Paris in 1804, he played rather a discreditable part in the execution of the Duke of Enghien—he would have preferred to save him, but not at the cost of hurting his own career. He did, however, exert himself to save a number of those accused of plotting against Napoleon.

In 1804 he received the title of Marshal of the Empire. His wife then nagged her brother into making her a princess, and this called for the elevation of Murat to the rank of Prince himself, with total pay and allowances of 670,000 francs a year—about $140,000 a year in our money. He had, of course, his own private income, and Caroline had hers. It all added up to something like $300,000 a year.

In August 1805, Napoleon sent him to reconnoitre the ground over which the French Armies were to march to Ulm and Austerlitz. In this most famous of Napoleon's campaigns Murat commanded the cavalry reserve—22,000 men and 14,000 horses (eight dragoon battalions had to depend on "Shank's mare").

Fighting a series of brilliant advance-guard actions, Murat screened the *Grande Armée* as it made its great wheeling march upon Ulm, where it penned up the Austrian general Mack with most of his army.

With the Austrians disposed of, Murat set about pursuing the Russians who had begun a retreat eastward on hearing of the disaster to Mack's army. Here, however, although his orders were to keep in touch with the withdrawing Russians, the temptation to occupy Vienna was too strong for him. Napoleon recognized his feat by writing him, "You go right on in your empty-headed way without weighing the orders I have sent you."

Once in Vienna, Murat found the Austrians had mined the great bridge over the Danube, across which the French must pass. They had posted a battery of artillery to keep it from being rushed before the French arrived in force, at which time the Austrians intended to blow it up. Murat and his fellow Gascon, Marshal Lannes of the infantry, decked themselves out in full-dress uniforms and sauntered across the bridge. They told the enemy patrol that peace had been declared, and asked to see the Austrian commander, seventy-year-old Count Auersperg.

Meanwhile a battalion in the forces commanded by General Oudinot was creeping up on the bridge, while others took cover behind the poplars along the river. On the bridge itself a French officer cut the powder train. An Austrian sergeant aimed his gun at the two Gascons; Murat complained "Is this your famed Austrian discipline?", and the Count had the sergeant arrested. An Austrian officer asked why Oudinot's grenadiers were advancing; Lannes told him the men were only marking time to keep themselves warm. Another gun was aimed at the marshals; the Frenchmen sat on them.

Suddenly Hussars were galloping across the bridge, with the grenadiers running behind them, and a minute later the hussars were knocking the matches from the gunners' hands. The bridge was won. Foolish, trusting old Count Auersperg was imprisoned for ten years.

At Austerlitz, Murat covered himself with glory. Always where the fighting was hardest, at the end of the battle he fell upon the retiring enemy and took 7000 prisoners.

Napoleon followed his victory by organizing out of a host of German splinter-states the Confederation of the Rhine. One of the states so formed was the Grand Duchy of Berg, comprising the territory around Dusseldorf. Murat was given his coronet, partly because of his successes during the war, but mostly because Caroline wanted to be a Grand Duchess.

Within a week Murat had almost provoked a war with Prussia by attempting to enlarge his principality. Napoleon told him, "You act now without any balance, now without any foresight." With Caroline pushing Napoleon from one side, and Murat pulling him from the other, however, the Emperor added 280,000 more subjects to Murat's realm a month later. Murat repaid him by trying to get control of the fortress of Wesel, which was garrisoned by French troops. Napoleon squelched him again.

In the June campaign of 1806 Murat was back in his element—on his horse. During the pursuit of the Prussian army—almost a perfect example of the "blitzkrieg"—his cavalry performed prodigies. They captured Berlin, contained whole army corps until the infantry could come up to compel surrender, and harried the once-proud Prussian army into exhaustion. At Stettin a mere six hussar regiments compelled the surrender of the city.

In November the French army invaded Poland. Murat rode into Warsaw on a horse whose bit and stirrups were of gold and whose saddle cloth was a tiger skin. His self-designed uniform included red leather riding boots, white breeches, a tunic that showed only a mass of gold

embroidery, a pelisse and shako of costly furs, and a mass of ostrich and egret plumes held by a diamond clasp. It was the uniform he wore at Eylau, where he personally led a *cuirassier* charge against a line of Russian guns, on the first day of the battle. On the second day, Murat saved the French Army by leading a furious charge of 18,000 horsemen against the whole Russian Army.

In the campaign of 1807 again and again he was in the thick of the *mêlée*, often fighting for his life among enemy soldiers. His wonderful eye for terrain and his incredible courage and example often made charges which seemed foolhardy to less reckless officers into successes, but at heavy loss in life. It is strange to note that at his death Murat claimed that he had never knowingly killed a man; indeed, he usually charged with his sword undrawn, flourishing only his jewelled riding whip.

After the armistice at Tilsit, Murat intrigued an addition to his Duchy of another 362,000 people. He was settling down to enjoy his position—from Paris, not his capital at Dusseldorf—when Napoleon appointed him commander-in-chief of Spain.

As soon as he reached Spain he tried to parlay his command into a kingdom. After he had put down the Spanish uprising of 2 May 1808 he thought he had earned the crown of Spain, but Napoleon ungratefully gave the throne to his brother Joseph. Murat succeeded to Joseph's kingdom of Naples, and the one-time private of hussars of just twenty years before was now a king.

He soon found himself in trouble with Napoleon, who considered him merely a French governor; Murat, on the other hand, saw himself as an independent potentate. Napoleon suspected Murat of aspiring to the Imperial succession, and sent French police agents to watch him. In return Murat refused to allow Caroline any part in political affairs, which Napoleon dearly wished her to have. The Emperor seemed to have considerable in-law trouble.

During the 1809 campaign against Austria, Murat stayed home in Naples fighting off a mis-managed Anglo-Sicilian attack. His subjects rose to his defence—not an unreasonable thing to do when it is considered that the king whom the British and Sicilians were trying to restore had had the habit, while still in Naples, of dressing up as a criminal and strangling innocent passers-by.

The next year Murat attempted an invasion of Sicily, but it was a complete failure, mainly due to British sea power. The invasion had been designed largely to divert British forces from Portugal, and Murat had incautiously proclaimed the invasion attempt postponed for a year.

Thereupon the British troops destined for Sicily had been diverted to Portugal, and Murat was again in trouble with his brother-in-law.

In 1812, however, all was forgiven. Murat was put in command of the largest group of mounted men Europe had seen since the days of the knights —36,000 troops.

On the road to Moscow he fought with his usual dash, interspersed with the odd touch of insubordination; on the disastrous retreat from Moscow he took command of the army after Napoleon left it, but here he proved that, great tactician though he was, he was no general. Murat simply delegated his authority to Berthier, the Chief of Staff, and then, pleading illness, left the army and went back to Naples. All the cavalry was lost in Russia; of the 14 regiments of *cuirassiers*, the "tanks" of the day, not a single squadron returned; the horses had all been used for food, and the men were dead of starvation, exposure, typhus or Cossack lances.

Back in Naples, he dispatched letters to Napoleon proclaiming his undying loyalty, and simultaneously began talks with the British to desert Napoleon provided he could keep his kingdom. Metternich at length offered him his throne on Austria's behalf if he would declare against Napoleon, but the letter he sent was in cipher which Murat could not read without the aid of a minister who was not present. In the meantime Napoleon had bullied and exhorted Murat into leading his cavalry again for the Leipzig campaign of 1813.

His agents were with the very Austrians he was now facing, trying to strike a bargain, but this did not for a moment keep Murat from fighting with all his old dash, his incredible courage and battle-leadership, and his furious energy. At Dresden (26 August) his cavalry caught the Austrian infantry in a rainstorm which made their paper-covered cartridges useless, and in four hours Murat took 30 guns and 12,000 prisoners. The next day he took 6000 more.

In battle Murat scored success after success; out of it he continued his intrigue toward keeping his throne at the price of deserting his brother-in-law.

At Leipzig (16 October) his nodding plumes were in front of a storm of charging horsemen for the last time. As Murat's brilliant uniform burst through the Russian ranks his envoy, Prince Cariati, who was present at the battle on the other side, said to the Czar, "Our ally is rather overdoing the part he is playing".

Three days later he decided to change sides, telling Napoleon he must retire to Naples to help Prince Eugene, who was fighting Napoleon's battles in northern Italy.

When Napoleon fell Murat in-

trigued with the Pope for papal recognition, but was rebuffed. The Austrians distrusted him and wanted him out of Naples, and Murat felt he would sooner or later have to fight for his kingdom. When Napoleon escaped from Elba he embarked on a wild attempt to conquer all Italy.

Perhaps if he had kept still Napoleon would have been allowed to occupy France in peace. But once Italy was ablaze, the Allies had no choice but to combine against Napoleon again.

Murat was no strategist, and his Neapolitans were not the men of the *Grande Armée*. His troops suffered defeat after defeat, and most of them deserted. Murat fled Naples in disguise, went to France and then to Corsica. In Corsica he found supporters, and organized a handful of men for a last desperate try to regain his kingdom. He landed with only 26 men at a place called Pizzo in Calabria, believing he could rally the inhabitants to his cause.

His former subjects fell on him with stones and knives. The ship from which he landed left him deserted, and Murat was made prisoner.

Five days later he was before a Bourbon court-martial, composed in part of officers who owed him their promotion. They sentenced him to death. Within the hour he had received six bullets in his chest and one in his face. He refused a blindfold and faced his firing squad, cool and fearless to the last.

Broad Vocabulary

The broader your vocabulary, the more deft you will be in expressing yourself in simple language, and the more readily you will pick up another's meaning without strain.

One does not need all the words in the language. Shakespeare used only twenty-five thousand, Milton was content with twelve thousand, and Chaucer had eight thousand: yet their plays and poems and stories live on as models of clear, picturesque writing.

Nor does one need great scholarship to give expression to what is in him. John Bunyan, whose only book of learning was the Bible, wrote *The Pilgrim's Progress*, which to this day, though written in the 17th century, has been one of the most widely read books. There is no "fine writing" in Bunyan's work: it is in the plainest of language, fitting to its purpose.—*J. R. Heron in The Royal Bank of Canada Monthly Letter.*

DISASTER ON THE PLAINS

A Review of Custer's Last Campaign

By

MAJOR T. M. HUNTER, EDITOR OF THE HISTORICAL SECTION,
ARMY HEADQUARTERS, OTTAWA

The 7th United States Cavalry made a brave show as they rode out of Fort Abraham Lincoln, near the modern bustling city of Bismarck, North Dakota, on the morning of 17 May 1876. With their band playing "Garry Owen", they rode in column of platoons, guidons flying and horses prancing. The scouts led the way, followed by the regiment's dashing commander, Lieut.-Colonel George Armstrong Custer. One who rode in the ranks afterwards noted that "the regiment never looked better, as all the men were in good spirits." Yet, only a few weeks later, the commander and nearly half his regiment were dead on a barren hillside in the wilds of Montana—victims of the most savage clash of red and white men in the history of North America.

The story of Custer's last campaign has been told many times. Indeed, it is questionable whether any other regimental operation has been subjected to more detailed study—or more heated controversy. The present article merely reviews the main features of the campaign in the light of the latest authoritative studies, noting the application of the Principles of War.

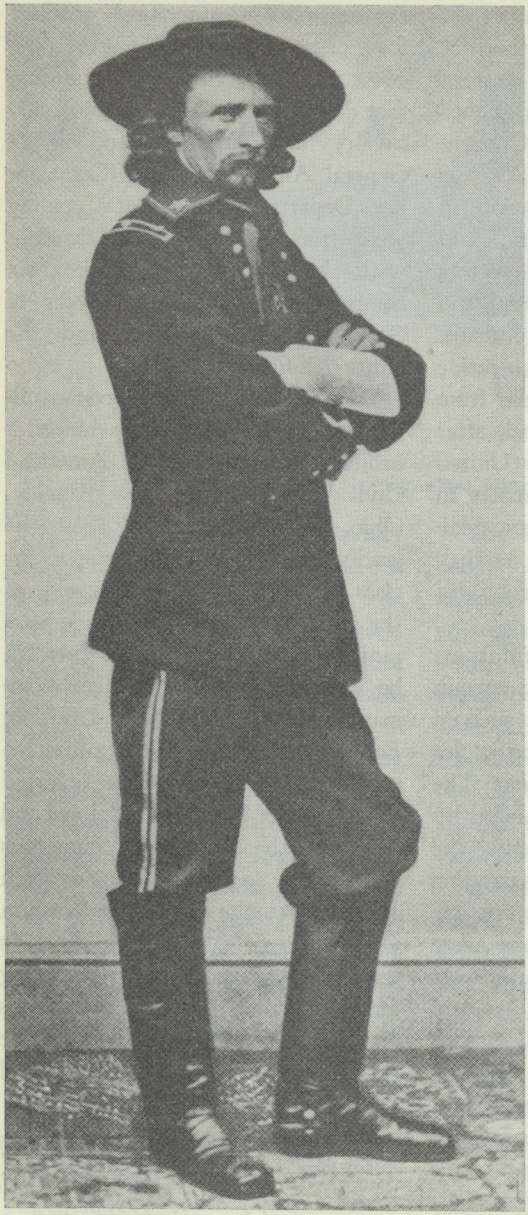
Historically, the tragedy was simply an incident in the westward expansion of the American people, the "Manifest Destiny" which drove early explorers and settlers to conquer and occupy vast tracts of land between the Mississippi and the Rocky Mountains. This expansion inevitably led to a renewal of the struggle between Indian and white man — the last large-scale conflict

in that long and chequered story. In 1868 the United States authorities made a treaty with the western Indians, setting aside a "permanent" reservation for the Sioux and Cheyennes. But six years later gold was discovered inside the reservation, in the Black Hills of Dakota, and within a short time prospectors were evading official regulations and were in open conflict with the Indians. Many of the latter refused to reside on the reservation and refrain from raiding white settlements and, after a peremptory warning, the United States Government issued orders in February 1876 for a punitive expedition against the "hostiles", as they were called, then led by the renowned Sitting Bull.

Long and sometimes painful experience had shown that no campaign against the Indians could succeed unless it was based on the principles of *Surprise* and *Concentration*. The expedition of 1876 was organized by Lieut.-General P. H. Sheridan, the Civil War leader, then commanding the Division of the Missouri. He knew only that the Indians were located fully a thousand miles west of his Chicago headquarters —where the tributaries of the Yellowstone River descend from the Bighorn Mountains. Plans were made for three columns to converge on this general area: Brigadier-General George Crook moving north from Fort Fetterman, Wyoming, with a mixed force of cavalry and infantry totalling 1049; Colonel John Gibbon heading east down the Yellowstone with 450 cavalry and infantry, and Brig.-General Alfred H. Terry (Commander, Department of Dakota) coming west from Fort Abraham Lincoln with about 925 men, including six companies of infantry, a battery of Gatling guns, 40 scouts and the entire 7th Cavalry.*

Lieut.-Colonel Custer, commanding the 7th Cavalry, had achieved a brilliant reputation in the American Civil War. Born in New Rumley, Ohio, on 5 December 1839, he graduated near the bottom of his class at West Point on the eve of the great conflict. Thereafter, he rose rapidly until, at the age of only 25, he was a brevet major-general commanding the 3rd Cavalry Division. Following the military reorganization of the post-war period he reverted to the rank of Lieutenant-Colonel and led the 7th Cavalry on numerous expeditions against the western Indians. At the Battle of Washita (1868) he defeated Black Kettle's Cheyennes. A proud man of strong convictions, he made warm friends and bitter enemies. On more than one occasion during his career he incurred

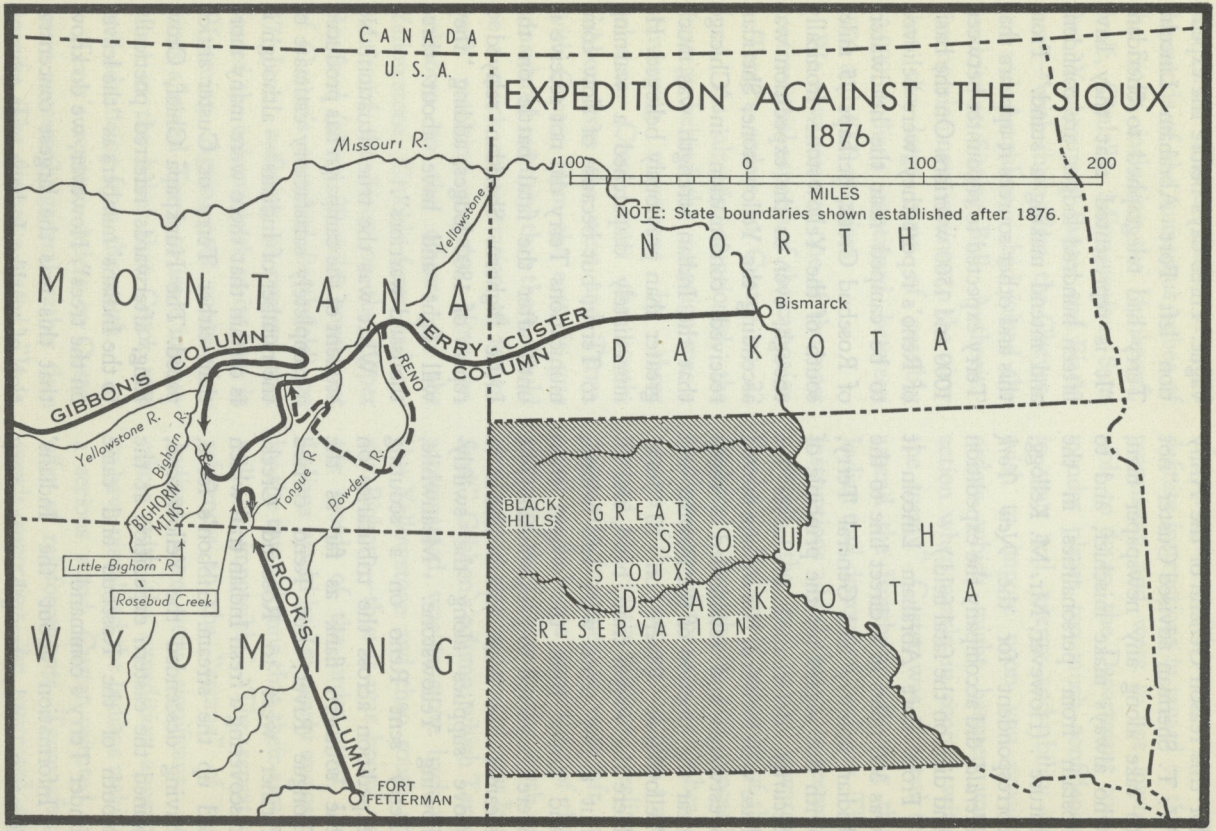
*Cf. *Major-General Middleton's plan of action against Riel in 1885.* (Colonel C. P. Stacey, "The North-West Campaign, 1885", Canadian Army Journal, *July 1954*).



Custer as he appeared about 1865. (*From a photograph by Brady in the* Custer Battlefield National Monument *booklet*).

official displeasure — including, in one instance, suspension from active duty by President Ulysses S. Grant.

The 7th Cavalry was one of the new regiments organized after the Civil War. It was about 600 strong and was composed of 12 companies (or troops, as they would now be known) designated "A", "B", "C", "D", "E", "F", "G", "H", "I", "K", "L" and "M"; its officers included two men scarcely less distinguished than Custer, himself. Major M. Reno, the second-in-command, and Captain F. W. Benteen, the senior Captain, had held the ranks of brevet brigadier-general and colonel, respectively, in the Civil War. Unfortunately, for reasons outside the scope of this article, Custer's relations with his officers were far from harmonious — both Reno and Benteen were constantly at loggerheads with their commander. Perhaps



Historical Section, G. S.

for this reason General of the Army W. T. Sherman advised Custer "not to take along any newspaper men, who always make mischief, and to abstain from personalities in the future". (However, Mr. M. Kellogg, correspondent for the *New York Herald*, did accompany the expedition and died on the fatal field.)

From Fort Abraham Lincoln it was 300 miles in a direct line to the Indian country and General Terry, with due regard for the principle of *Security*, determined to locate his base well forward. His column moved westwards and established a camp near the junction of the Powder and Yellowstone Rivers on 10 June. Here the wagon train, band, and all but a few tents were left behind, and mules from the wagon train were converted to pack-animals. The steamer *Far West* was available to move supplies along the swiftly-flowing Yellowstone. Meanwhile, Terry sent Reno on a scouting expedition across the tributaries on the southern flank as far as the Tongue River; but Reno carried farther west to Rosebud Creek, discovering a fresh Indian trail which led up the stream. Gibbon's force, having descended the Yellowstone, joined the eastern expedition at the mouth of the Rosebud and came under Terry's command.

Information about the Indians' location and strength was very vague. Three days before the expedition left Fort Abraham Lincoln, Terry had telegraphed to Sheridan: "It is represented that they have fifteen hundred lodges, are confident and intend making a stand." From this and other sources it appears that Terry expected to encounter between 1000 and 1500 warriors. On the basis of Reno's report they were believed to be camped near the headwaters of Rosebud Creek, perhaps 75 miles south of the Yellowstone. Ironically enough, even as the expedition was ascending the Yellowstone, Sheridan received confirmation in Chicago that the Indian strength was much greater than previously believed. He immediately dispatched a warning to Terry; but because of slow communications Terry did not receive it until after the fatal battle on the Little Bighorn. Sheridan relayed a report of 1800 lodges, adding "they will fight and have about three thousand warriors".

What was the true situation? No student of the campaign has produced a completely satisfactory estimate of the number of Indians — although it is certain that there were many more than either Terry or Custer anticipated. The Hunkpapá Chief, Crow King, afterwards referred poetically to the Indians' numbers as "the leaves on the trees". However, we do know that this was the largest concentration of warlike Indians ever seen on

the Great Plains. Early in 1876 thousands of the numerous tribes of the Sioux, including the Hunkpapā, Brulé, Ogalalla, Minneconjou, Sans Arc, Yanktonnais, Santee and Blackfeet — with their allies, the Cheyennes and Arapahoe — had joined the recalcitrant Sitting Bull. Authoritative opinion now inclines to the view that the large camp of possibly 12,000 Indians contained between 3000 and 4000 warriors.

We now come to one of the most controversial aspects of the campaign —Terry's orders to Custer on 22 June. As already mentioned, the strategy behind the campaign was a converging movement by three columns: Crook from the south, Gibbon from the west and Terry, with Custer, from the east. It was considered essential that there should be a quick concentration of forces, with resulting surprise. However, unknown to the officers on the Yellowstone, Crook's force had encountered the Sioux on the Upper Rosebud (about 20 miles south-east of Custer's eventual battlefield) on 17 June, suffering a reverse that forced the column back to its base in Wyoming. Again, poor communications allowed Terry to issue instructions in the belief that Crook was still advancing from the south.

Terry's written orders to Custer were necessarily general, rather than specific. The directive stated: "It is, of course, impossible to give you any definite instructions in regard to this movement, and were it not impossible to do so, the Department commander places too much confidence in your zeal, energy and ability to wish to impose upon you precise orders which might hamper your action when nearly in contact with the enemy". Custer was directed to ascend the Rosebud, following the Indian trail discovered by Reno. The instructions added that if, as seemed probable, the trail turned towards the Little Bighorn (a tributary of the Bighorn) "you should still proceed southward, perhaps as far as the headwaters of the Tongue, and then turn toward the Little Bighorn, feeling constantly, however, to your left so as to preclude the possibility of the escape of the Indians to the south or southeast by passing around your left flank". Gibbon's column, which Terry accompanied, was to move back up the Yellowstone and then south up the Bighorn—thus it was hoped, in the words of the order, that the Indians would be "so nearly enclosed by the two columns that their escape will be impossible". The repeated references to the "escape" of the Indians were very significant: no officer with the expedition appears to have visualized the Indians making a serious stand. Custer rejected an offer of reinforcements, Terry afterwards reporting "he expressed the

utmost confidence that he had all the force that he could need, and I shared his confidence". The marches were to be timed so that both Custer's and Gibbon's forces would reach the Little Bighorn valley at about the same time on the 26th.

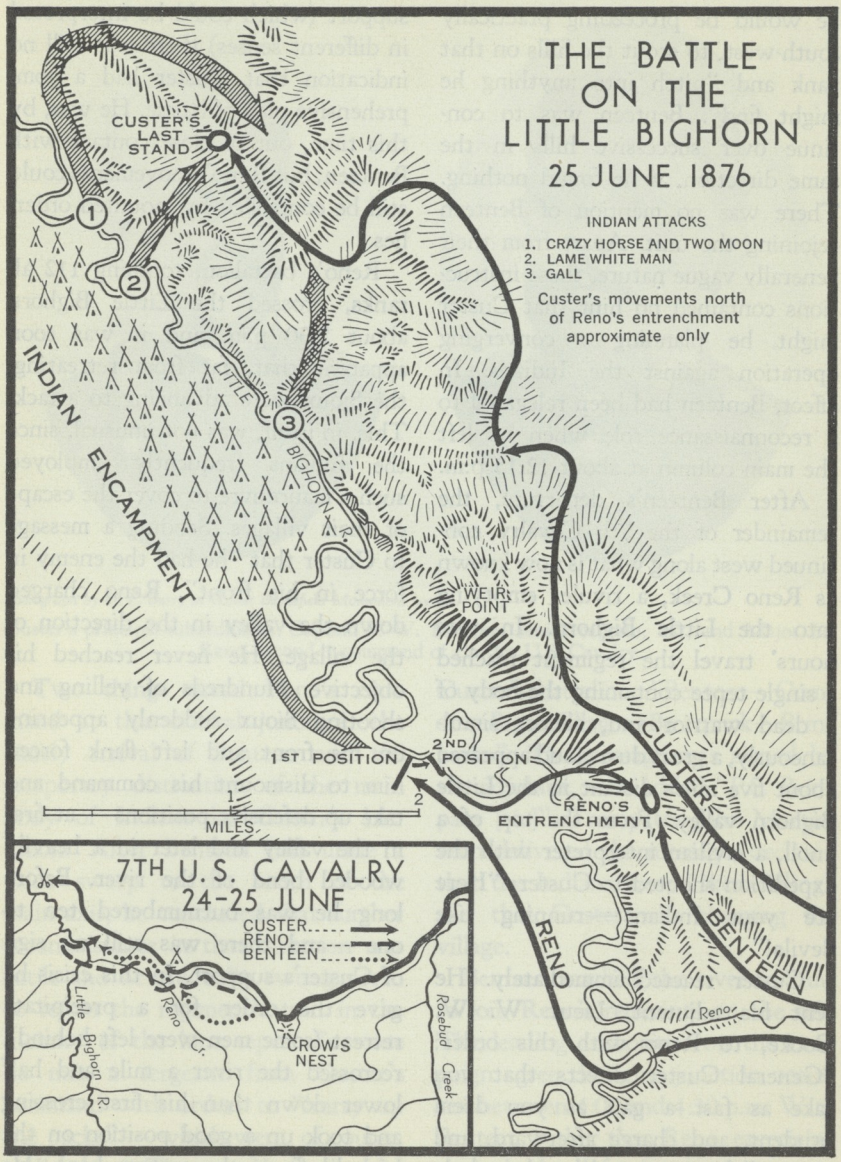
At noon on the 22nd "Forward" was sounded and the 7th Cavalry marched out of camp in column of fours. They left their sabres behind, each trooper being armed with the single-shot .45 calibre Springfield carbine and either a Colt or Remington six-shot revolver. Each man also carried 100 rounds of carbine ammunition and 24 rounds for his revolver. The carbine was accurate up to 600 yards; but dirty cartridges had a tendency to jam and sometimes had to be pried out with a knife before the carbine could be reloaded.

Custer moved rapidly up the Rosebud; by the evening of the 24th he had covered about 60 miles. The trail then veered west, in the direction of the Little Bighorn River, and it was evident that the Indian camp was not far distant. Great pains were taken to hide the regiment's approach: no bugles were blown and, of particular importance on the prairie, efforts were made to reduce the dust kicked up by so many mounts.

On the morning of the fateful 25th the regiment reached the watershed dividing the Rosebud and the Little Bighorn. From a vantage point known as the Crow's Nest, the scouts reported they could see the Indian village, which was actually about 10 miles distant. Custer had a look himself, but apparently was not convinced that the village was in sight. Until this time he had intended to "lie up" with the regiment during the 25th and attack on the following day, in keeping with Terry's suggestions. However, at this critical time Fate intervened with disastrous consequences: Custer learned that contacts had been made with the Sioux (ironically, it seems that one was with a wandering band of Cheyennes unconnected with the main camp) and, fearing that surprise was lost and the Indians would escape, he immediately gave orders precipitating the battle.

At 12:07 p.m. (the last time which can be accurately fixed on this eventful day), Custer divided the 7th Cavalry into three battalions, or squadrons, as they would now be known. The first, consisting of Companies "A", "G" and "M", was assigned to Major Reno; the second ("D", "H" and "K") was given to Captain Benteen and Custer retained command of the remainder, "C", "E", "F", "I" and "L", except for "B", which guarded the pack-train.

Custer ordered Benteen to diverge at an angle of 45° to the left of the regimental axis, which meant that



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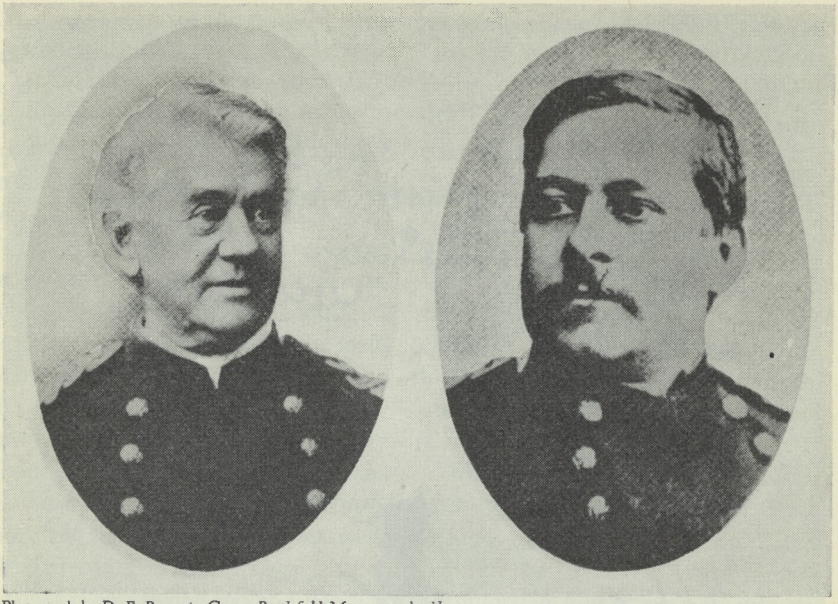
he would be proceeding practically south-west, to scout the hills on that flank and "pitch into anything he might find". Benteen was to continue over successive hills in the same direction, if he found nothing. There was no mention of Benteen rejoining the unit. Apart from their generally vague nature, these instructions contained no hint that Custer might be planning a converging operation against the Indians. In effect, Benteen had been relegated to a reconnaissance role when he left the main column at about 12:15 p.m.

After Benteen's departure, the remainder of the 7th Cavalry continued west along what is now known as Reno Creek, a rivulet emptying into the Little Bighorn. In two hours' travel the regiment reached a single tepee containing the body of a dead warrior and, almost simultaneously, a great dust cloud appeared about five miles distant in the Little Bighorn valley. From the top of a knoll, a civilian interpreter with the expedition shouted to Custer: "Here are your Indians — running like devils!"

Custer reacted immediately. He sent his adjutant, Lieut. W. W. Cooke, to Reno with this order: "General Custer directs that you take as fast a gait as you deem prudent, and charge afterward, and you will be supported by the whole outfit." Beyond the suggestion of support (which could be interpreted in different senses) there was still no indication that Custer had a comprehensive plan of battle. He was, by this time, out of close contact with Benteen; but Reno's movements could still be controlled by mounted orderlies.

Reno's battalion, totalling 112 all ranks, crossed the Little Bighorn about 2:30 p.m. and it was soon apparent that, far from retreating, the Sioux were advancing to attack. This, in itself, was not unusual, since the Indians frequently employed such a manœuvre to cover the escape of their villages. Sending a message to Custer that "he had the enemy in force in his front", Reno charged down the valley in the direction of the village. He never reached his objective. Hundreds of yelling and shooting Sioux suddenly appearing on his front and left flank forced him to dismount his command and take up defensive positions — at first in the valley and later in a heavily wooded bend of the river. Before long he was outnumbered ten to one — and there was still no sign of Custer's support. In this crisis he gave the order for a precipitate retreat (some men were left behind), recrossed the river a mile and half lower down than his first crossing and took up a good position on the high bluffs of the eastern bank. He had lost 29 killed and many wounded.

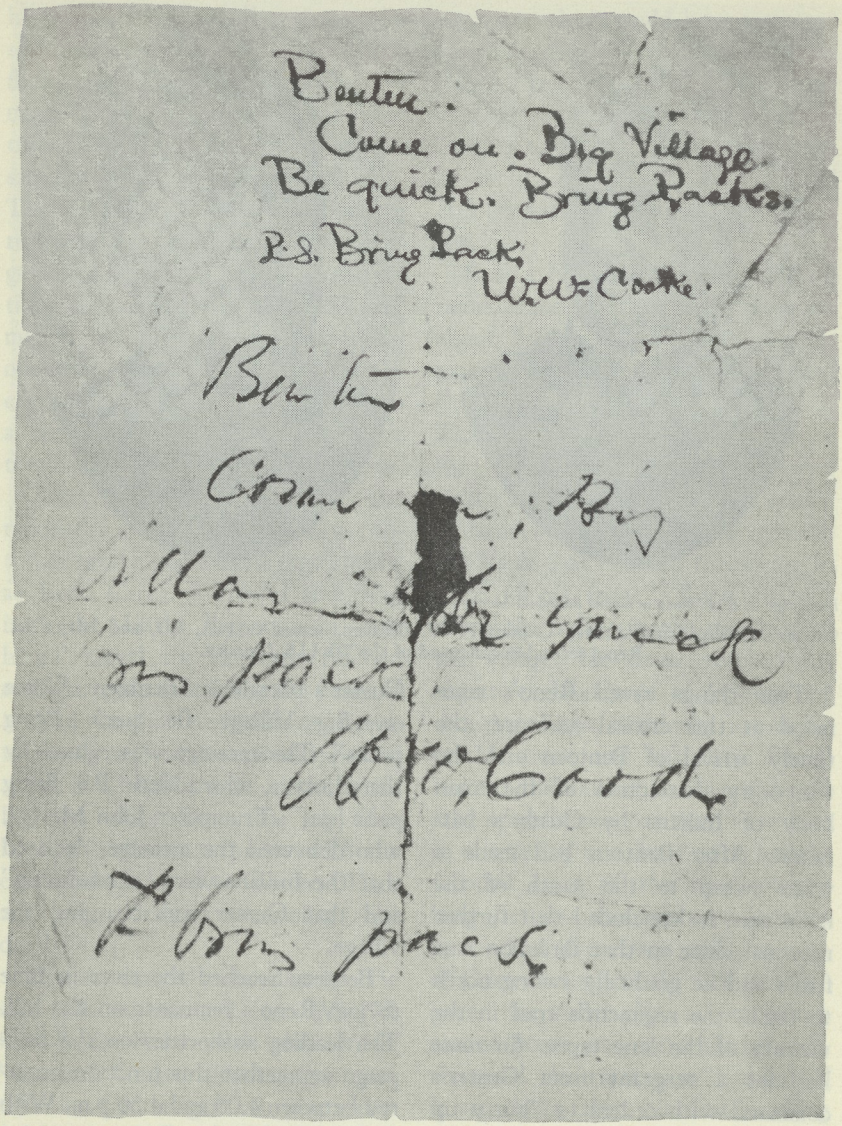


Photograph by D. F. Barry in Custer Battlefield Monument booklet.

Custer's principal subordinates: Captain F. W. Benteen, senior captain, left, and Major M. Reno, second-in-command of the 7th U.S. Cavalry.

Two things saved Reno's command at this critical juncture: the timely arrival of Benteen and the temporary distraction of the main body of Indians by Custer's battalion. After Benteen had made a wide sweep to the south of the main axis, he concluded that further reconnaissance in that direction was futile and he gradually swung north to rejoin the regiment's trail in the vicinity of the lone tepee. *En route* he met a sergeant from Custer's command with orders to "hurry up the packs" — which were, of course, well behind. Then, a mile further, he received the famous last message of Custer's battalion: "Benteen—Come on—Big Village—Be quick—Bring packs". The message was signed by the adjutant, who added "P.S. Bring pacs [sic]". Trumpeter John Martin, who delivered the message, declared that the Indians were "skedaddling" and that Custer was charging the village.

Benteen reached the river in time to join Reno's remnants on the hill. The leading authorities on the campaign agree that this junction occurred between 4:00 and 4:30 p.m. With Benteen, rather than Reno, exercising control, the defences were soon put in order and the exhausted troopers



Reproduced by courtesy U.S. Military Academy Library, West Point.

Facsimile of Custer's last message, signed by his adjutant (Benteen's transcription at the top). The message reads: "Benteen—Come on—Big Village—Be quick—Bring packs", to which the adjutant added, "P.S. Bring pacs [sic]".

prepared for a siege. In the meantime heavy firing was heard from the north — downstream, in the direction taken by Custer. Company "D" advanced about a mile and a half in that direction, reaching a high contour (Weir Point) from which "they could see the Indians, some of whom were gathered in groups, while others rode about, shooting at objects on the ground". But the main body of the Reno-Benteen command did not advance until after the pack-train came up, and it was probably about 6:00 p.m. before they all joined Company "D" at the forward position. By that time the Indians were able to concentrate so large a force against them, that Reno and Benteen were forced to fall back to their original position. There they were to endure an agony of thirst and nerve-racking Indian attacks for 36 hours— until relieved by Gibbon's column on the morning of the 27th.

What had happened to Custer and his men? There is a story that when Reno made his charge in the valley, Sitting Bull stopped the squaws dismantling the tepees with the terse comment: "The medicine is strong". This was a classic understatement! There is little doubt that the charge surprised the Indians. But, as we have seen, their strength was probably three or four times greater than anticipated; the warriors were full of confidence, following the reverse inflicted on Crook and, as will be shown, many had superior arms to those of the troopers. Sitting Bull, commonly considered a "medicine man", was in reality a political chief — perhaps what we might describe as an "elder statesman" — wielding great influence over the vast Indian camp. But the real leaders in the battle to follow were the war chiefs Gall, of the Hunkpapá, and Crazy Horse of the Ogalallas, together with Lame White Man and Two Moon of the Cheyennes.

The exact route taken by Custer after he left Reno is unknown. From a high bluff overlooking the Little Bighorn he evidently saw Reno's battalion in action and it was reported that he waved his hat as if in encouragement. Apart from the messages received by Benteen, nothing was known of Custer's whereabouts until, on the morning of the 27th, Gibbon's column discovered the entire battalion dead on a hill overlooking the Indian village. A leading authority, Colonel W. A. Graham (formerly Judge Advocate of the United States Army), writes: "It is probable that he approached the village from the south-east, emerging from behind the hills and ridges that screened the march of his troops until he turned toward the river, and that he was attacked and overwhelmed before he had time or opportunity to strike the village,

From a photograph by D. F. Barry
War Chief Gall of the Hunkpapá in winter clothing.

which lay on the other side". If he had a plan for a concerted operation it never reached either Reno or Benteen.

On the other hand, another authority (Dr. Charles Kuhlman) has advanced an interesting theory based on a close study of the positions of the slain, the location of expended cartridges and the Indian accounts. (Unfortunately, the latter are not easily reconciled). He maintains that when Company "D" moved forward to Weir Point they were seen by Custer, who then extended his flank to effect a junction. This gave the Indians their opportunity to defeat the troops in detail.

All that is certain is that Custer's battalion of 225 officers and men was enveloped and annihilated by an overwhelming force of Indians. However, the broad outline of the Indian attack is reasonably clear. Recovering rapidly from Reno's initial charge, the Sioux in their turn employed the principles of *Concentration* and *Surprise* against Custer with devastating results. After driving Reno out of the valley, Gall led a large body of warriors up a deep coulée to strike Custer's southern flank and separate him from the remainder of the regiment. This movement also revealed due regard for *Security*, since the Sioux were then between their camp and Custer. Further west, Lame White Man led an attack by the Cheyennes which cost him his life, but which broke the centre of Custer's line. Meanwhile, the Ogallallas and remaining Cheyennes attacked the troops from the rear. By stampeding their enemies' horses the Indians destroyed the cavalry's greatest asset — its mobility. The Indians' actions may have been almost instinctive, but many more

carefully considered plans have been less successful. Their counter-attack was a striking illustration of the principle of *Offensive Action.*

Contrary to the fancies of many artists and film-makers, the Indians did *not* ride around the remnants of Custer's command in ever-diminishing circles showering arrows on the doomed soldiers. Due to unscrupulous activities of frontier traders, large numbers of Sioux had acquired Winchester repeating rifles, which were much superior to the troopers' carbines. With these rifles the Indians were able to snipe at the soldiers from a safe range, gradually working their way nearer as resistance weakened. Custer, himself, died from two bullet wounds, either of which would have been fatal. Not one of the 225 officers and men who rode with their commander survived the action. Only one living thing was found on the battlefield — this was "Comanche", Captain M. Keogh's horse, and he bore seven wounds. Counting the losses of Reno's and Benteen's battalions, the 7th Cavalry suffered more than 300 casualties, or about 51% of its effective strength. The Indian casualties were never accurately determined; Colonel Graham believes that their losses were "negligible".

For nearly 80 years fierce controversy has raged over the actions of Custer, Reno and Benteen on the afternoon of 25 June 1876. Custer's supporters have maintained that the two subordinates failed to take sufficiently energetic action to effect a junction with their commander, thereby making the disaster inevitable. On the other hand, the defenders of Reno and Benteen have emphasized the uncertainty of Custer's intentions, the *débâcle* resulting from the charge in the valley and the probability that, if the three battalions had united, the magnitude of the disaster would have been even greater. An official court of inquiry held in 1879 absolved Reno from all blame for the tragedy.

From Graham's "The Custer Myth"
This sketch of the Cheyenne Chief "Two Moon" was drawn from a photograph taken during the late 1870's.

Photograph by the author

The burial place, scene of "Custer's Last Stand". The museum referred to in the accompanying narrative may be seen in the middle background.

Today, only a few hundred yards from the scene of the last stand, the United States authorities maintain a most interesting museum. Excellent exhibits depict the leading commanders, the progress of the battle and the arms and equipment of both sides. On a wall is the tattered Regimental Standard which the 7th Cavalry carried on the long march to the Little Bighorn. As we gaze upon these relics we again catch the refrain of the old battle song:

We are the pride of the Army,
And a regiment of great renown,
Our name's on the pages of history,
From sixty-six on down.
If you think we stop or falter
While into the fray we're goin',
Just watch the step, with our heads erect
When our band plays "Garry Owen".

Books on the Campaign

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E. A. Brininstool, *A Trooper with Custer* (Columbus, Ohio, 1925).

Edward C. Bailly, "Echoes from Custer's Last Fight", *Military Affairs* (Winter 1953).

Custer Battlefield National Monument: Montana, Historical Handbook Series No. 1, prepared by [U.S.] National Park Service (Washington, D.C., 1952).

INVENTION AND DISCOVERY

J. R. Heron in The Royal Bank of Canada Monthly Letter

All business progress is the result of invention and discovery. The scientist in his laboratory, the traveller on his voyages, and the inventor at his workbench—these have played a vital part in developing our industrial civilization.

During the past half century science has drawn a never-ending succession of gasps from humanity. It has been told that it is wonderful, marvellous, and unbelievable. Inventors have followed hard upon the heels of the scientists, so that no sooner is a novel principle uncovered than it is embodied in capsules, gears or gadgets for popular consumption.

Lest overweening pride should seize us, however, it is well to look back over the life of mankind as Dr. Julius E. Lips does in his book *The Origin of Things*. Primitive people in all parts of the world showed their inventiveness to so good effect that Dr. Lips needs nearly 500 pages to tell what they did. Today's and tomorrow's inventions are built upon inventions that stretch in a long line from the first tool-using creatures.

No one will deny the profound effect of science, invention and discovery upon society. What we call civilization could never have come into being had we not been capable of proceeding from old to new things, and eager to make the change.

Every age has witnessed greater or smaller improvement in people's material environment, and has become accustomed to the new ways, which are, in turn, accepted by the succeeding age as old ways, crying out for change. Innovation has become revolutionary at times, as in the rise of machines to their present important place in our lives.

Consider the dynamic effects upon all of us, of but six inventions: telephone, automobile, airplane, motion picture, rayon and radio. These six represent great accumulations of capital, give employment to millions of people, and have had social influences so vast in number and intensity as to be impossible to calculate.

There is, however, one area in which science has no control. In matters of morals or purposes, it has no word to say. What we do with our lives that medical science has lengthened and to which invention has given so great leisure: that is not a thing doctors and engineers can control. As John Dewey pointed out,

we reason rationally about the material arts, but when it comes to institutions and society we are often ruled by prejudice and tradition.

It is a sobering thought for those who boast contentedly about our material culture that intelligence does not seem to have increased rapidly in depth during the past ten thousand years. As much intelligence was needed to invent the bow and arrow, when starting from nothing, as to invent the guided flying missile with the help of all the inventions that followed upon the bow.

Hazards in Inventing

The way of the inventor is not easy. To him, his invention seems to be so obviously valuable that he loses patience with other people's scepticism. Almost all new ideas have a certain air of foolishness about them, and this may account in part for some of the incredible delays in their development.

Discoverers and inventors are not always accepted with open arms. Lavoisier, the first man to explain combustion in terms now accepted, one of the greatest men ever produced by France, was executed because the new republic had "no need for scientists". Sir Charles Lyell, illustrious Scotsman, was ostracized when he published his *Principles of Geology*, but geology has advanced to its present state by working from Lyell's axiom.

Dr. L. Austin Wright, M.E.I.C., General Secretary of The Engineering Institute of Canada, recalls the story of the man who invented the jet engine and tried to get government officials and industry to accept his design for this new power unit.

Every place he went he was turned down promptly, because of two things: he was only 22 years old, therefore he wasn't likely to know what he was talking about; and nobody took seriously to the idea of developing power by this new and novel method.

The world knows of course that eventually Frank Whittle, now Sir Frank, was successful. As Dr. Wright points out, there was never any doubt as to the person responsible for this development, and accordingly the British government at the conclusion of the war rewarded him with a grant of £100,000 tax free and a Knighthood.

Any one who doubts the difficulties that face an inventor who has a really new idea will find Sir Frank's book *Jet* revealing.

While carefulness about accepting an innovation is commendable, there are many examples of this carefulness being carried beyond reasonable limits. Franklin's report on the experiment that charged a Leyden jar by drawing electricity from the clouds was read before the Royal Society in 1752, and ten years later

Galvani reported the discoveries he had made through applying electric shocks to frogs' legs: both were studiously ignored. Priestley, the discoverer of oxygen, was driven from his sacked home and came to America. A century after his death the chemists gathered around his grave and there organized the American Chemical Society. When William Murdoch proposed lighting the streets of Cornwall with gas he was ridiculed by Scott, Byron and Napoleon. Selden battled for 16 years before his invention of the gasoline-propelled car was allowed a patent, and Morse struggled for twelve years before his telegraph was tried out.

Not ridicule alone, but self-interest also, interferes between the invention and the production of something new. The use of stage-coaches was resented in every country; local authorities kept the roads in a bad state lest business go elsewhere, and travel restrictions amounted almost to persecution. When railroads came upon the scene they were opposed by turnpike companies, stage-coach proprietors, tavern keepers and farmers. The railroads and horse breeders obtained an Act of Parliament in England in 1861 which practically made it impossible for horseless vehicles to operate. The British War Ministry refused to have anything to do with airplanes even four years after Wright's first flight. Recently in Alaska the drivers of dog teams and those who sold them fish were vigorous in their opposition to air mail service.

Of course, the mote is not always in another's eye. Inventors and discoverers sometimes fail to see the possibilities in their own findings. Fessenden achieved wireless telephony in 1900, and on Christmas Eve of 1906 he put music into the air, but it was not until KDKA opened in 1920 that anything effective was accomplished. Sir James Jeans tells us in his book *The Growth of Physical Science* that Paracelsus (1493 to 1541), who initiated modern chemistry, once let vinegar act on iron filings, thus producing hydrogen, without in the least suspecting that he had uncovered the most fundamental of all chemical substances. He prepared ether, and observed its anæsthetic properties, without realizing that he had made one of mankind's most useful medical discoveries.

Patent Laws

Besides all these hazards, the inventor must cope with perplexing patent laws. Social protection has been awarded the inventor from early days, ranging from the magic secrecy of early discoveries to the patent laws of modern civilized nations and to international treaties.

Many people have hazy ideas about patents. Something that is only an

idea may not be patented, nor may the mere changing of material of which an object is made. The supreme court of the United States ruled against a man who wished to patent the addition of an eraser to a pencil, because, said the court, you could break the pencil in two and still write with one end and erase with the other: in other words these two did not combine to produce a new result. There are hundreds of pitfalls and winding paths in the patent laws of all countries, so that only specialists can find their way with confidence.

The patent law in Canada is designed to promote the progress of science and useful arts. Part of it provides against the possibility of anyone blocking development of any patent if to develop it would be in the public interest. A publication of the Chemical Institute of Canada remarked: "these provisions are so widely drawn that it is difficult to conceive any abuse that is not caught within their net."

The number of applications for patents in Canada has increased by one thousand annually since 1947–48, the end of the peak period following World War II, according to the *Report of the Secretary of State of Canada* in 1953. In the latest year reported on there were 16,405 applications for patents, of which 10,325 were allowed and 9,683 matured to patents.

Of the patents issued, 7,113 went to companies, 2,568 to individuals, and 19 to companies and individuals jointly. Sixty-four of the patents went to women, and 40 to men and women jointly. The total patents granted to Canadian applicants was 1,393. Revenue of the patent branch rose from $366,253 in 1943–44 to an all time high of $756,714 in 1952–53.

Common Sense Needed

The budding inventor needs to apply common sense to his urge to make something new. There is, for example, no crying need for a walkie-talkie that will enable Canadians to communicate with China, because very few of us have the language or purpose to make such calls. There has been talk for years of concentrated food pills, but most of us will have nothing to do with them until a capsule is invented that will give us the taste sensation as well as the nutritional value of soup, steak, potato, mushrooms, salad, ice cream and coffee, each in turn.

There will not be a mass market for the toy invented by Donald Davies, noted for his work on a big electronic brain in Britain. He has perfected a machine that plays "naughts and crosses" with him in his spare time, and usually beats him. Dr. T. W. M. Cameron, head of the institute of parasitology at Macdonald College told facetiously four

years ago about a patent issued to the inventor of a trap designed to catch tapeworms.

Not every invention must have a mass market, of course. The apparatus that controls the size, direction, and velocity of fragments of shells or bomb warheads is not likely to become widely popular, but it is welcomed in its special field. A 16-inch telescope so powerful that one may read the time on a clock fastened to the outside of an airplane flying out of sight of the ground is a specialized invention without mass appeal.

On the other hand, the fireless furnace that takes air from the rooms of a house at 70 degrees, passes it through pipes buried below frost level under the lawn, and restores it to the house at 100 degrees, need only be made economically attractive to rate a big market.

Invention Follows Invention

Behind every inventor there are many ghosts, some of whom made contributions without which the inventors of today could never achieve fame. Every development rests upon previous ones, so that it is literally true that there is nothing wholly new under the sun. Devices that we call new are combinations or modifications of old ones, adapted by agile minds to do some new thing or to do an old thing in a better way.

A cycle of invention begins with a group of important fundamental discoveries or inventions, then numerous additions, improvements and refinements are made. Every concept represents only a slight advance, but when taken together over several decades these advances achieve significance.

Consider jet propulsion, which we look upon as an excitingly new form of power. Its principle is as old as Newton's third law of motion: to every action there is always an equal and opposite or contrary reaction. As children, we used this principle when we blew up a toy balloon, then let go of the stem: the balloon, driven by the escaping air, darted across the room.

Dr. Raymond W. Miller, in *Take Time for Human Engineering*, goes a step farther when he says: "The successful completion of a project based upon research and study is the same as putting together the segments of a jigsaw puzzle, the original design of which has already been made."

To forecast discovery and invention is a risky undertaking, and it is even more difficult to weigh their probable influence on life, economics and government. Always there is being built up a great surge of knowledge in many fields; always we are on the verge of great discoveries. When or where the dam will break,

letting loose new facts upon which the scientists and technicians will seize to advance invention, no one knows.

Vannevar Bush, president of the Carnegie Institution of Washington, told this year's graduates at Massachusetts Institute of Technology some of the possibilities. A new phase in the life of civilization, he said, may be opened by studies now being made into the cause and cure of mental illnesses; progress is being made in agriculture toward expanding the supply of food to meet the needs of the world's rapidly growing population; we may soon be on the verge of discovery of what constitutes muscles, and from there we may go on to make artificial muscles; solar energy may come into practical use sooner than atomic energy, so great have been our advances recently toward understanding ways of utilizing the sun's power; in metallurgy we have developed alloys that have a tensile strength of a million pounds per square inch.

What will be made of all these advances rests with the inventors and the innovators, men and women who will bring about a synthesis of recently found knowledge with what is already known and pass it through their minds seeking the spark of an idea.

Qualities of the Inventor

The qualities that make a good inventor are like the qualities that make an exceptionally good newspaperman, chemist, banker, secretary, carpenter, farmer or salesman. One of these is a distaste for unnecessary work, another is an instinctive disrespect for established methods that depend for their perpetuation on the idea that grandfather knew best, but most important is the constant curiosity that prompts the question: "I wonder what would happen if . . .".

Because planned invention is essentially a mental process in which you first think of something needed, and then combine a number of elements to produce a new result, you need to have a mind crammed with elements and informed as to what is going on in the world. He who knows only one science, or one craft, or lives in an ivory tower, is handicapped. Unless they have background and the light of present day knowledge you might fill an academy full of geniuses and reap not a single discovery.

Very often, says H. Stafford Hatfield in the useful Pelican book *The Inventor and His World*, the greatest advances are made in industry by persons who come from other fields of technical activity into work new to them. Such people see with new eyes the routines accepted as perfect by those who have been for years in close contact with them.

Adam Smith tells an illustrative

story in his economic classic *The Wealth of Nations*. In the first steam-engines a boy was employed to open and shut the communication between the boiler and the cylinder. Then someone looking at the contraption thought of tying a string from the handle of the valve that opened this communication to another part of the machine. Thus an historic improvement came from an observant mind.

The inventor needs energy and enthusiasm. Seldom indeed do the fruits of technology drop ready made into our laps. Almost always the man who produces a new idea has attacked some problem with all his strength and in a spirit of fiery ardour.

There is not always a "moment of discovery" when the solution to a financial problem or the plans for a machine crackle into consciousness like a flash of lightning. True, there may be an instant when inspiration illuminates the mind, as with Johann Kepler and the first law of planetary motion, or James Watt and the steam-engine, or Archimedes and the principle of specific gravity, or Sir Robert Watson-Watt and radar, but all these men spent months of hard work laying the foundation and then verifying their ideas.

A period of calm receptivity will repay the person who is immersed in research. It will not do to allow our heads to become so filled by a problem, or one aspect of a problem, that there is no room for a new idea to get in. The mind will often produce an original thought or combination if given relaxation after a vigorous bout of work.

On Being an Inventor

The role of the inventor is to find applications of knowledge that are new. His success may depend in some measure upon natural ability, but he needs training, too, and a purpose. If he is content to amuse himself with ready-made toys and gadgets instead of devising some himself, he need not aspire to a career of invention.

If you want to invent something, but have no definite thought as to what, or if you wish to do something in a different way, but don't know how to change, here is a suggestion. Set aside definite periods in which to analyse your work—at your bench, at your desk, or in the kitchen—as though you were a rank outsider.

Suppose you did not already know how to do a particular job, what approaches might you make to it? If forced to work without the standard tools to which you have become accustomed, what devices could you adapt from other crafts or activities? In office, factory or home, curiosity that is let run wild will turn up ideas both within and outside your field of specialization. Then is

the time to write down what your thoughts are — and the game is afoot.

The Future

Without doubt the coming years will see a host of new machines and gadgets that will make the work of the world still easier to do. All that we know is still infinitely less than all that remains unknown. Every man must give his own answer to the question: "What part will you play in building that future?" but there is scope enough for all.

Science and invention are of national and world concern. Parts of the earth still slumber under ancient vegetable civilizations; others have been barely touched by the wand of modern industry and have only a thin veneer of this new way of life.

It is not too far-fetched, in view of what has already been done, to look forward to a not far distant time when we of the temperate zones will be able to live comfortably in the tropics. Already, medicine has brought under control such diseases as typhus, plague, leprosy, scurvy and rickets and technologists are steadily improving devices that condition the air. With atomic power we can dig for water in the Sahara and pump it to the surface for use in man-made oases, or we can, perhaps, introduce a miniature artificial sun to the Arctic and the Antarctic. These are optimistic vistas based upon present achievement and the probable successes of inventors.

We must not become so obsessed with the thought of work-saving and ease-giving and nature-conquering inventions that we lose sight of the basic things that make us civilized. Progress in science and invention needs to be accompanied by understanding of the part these activities play in human life. What man's mind can conceive, man's character can control.

The problem before Canadians and like-minded people today is this: are we going to despair of making the social advances that will enable us to live together in the new world that science and technology are building around us, or are we going to search for and find the social answer to happy survival?

Something like this was said in a lecture at the University of Toronto in 1950. Sir Richard Southwell, distinguished lecturer in mathematics at Cambridge and professor of engineering at Oxford, put the case this way: "It argues, surely, some weakness of imagination if its wildest forecast is yet cheaper power, more abundant leisure. What has mankind done yet with power and leisure that these should seem self-evident blessings now? . . . Good faith, not technological advance, is the thing most needed in the world of today."

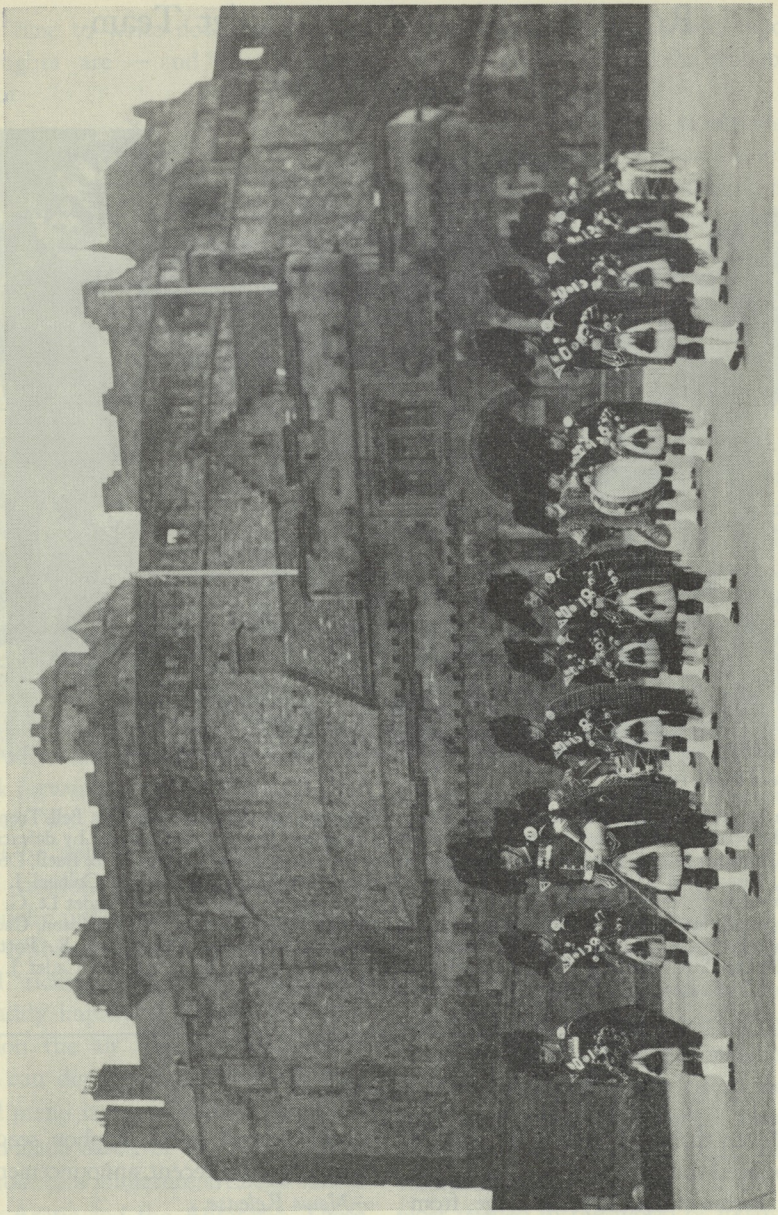
Royal Canadian Army Cadet Team Winners at Bisley

National Defence Photograph

The Royal Canadian Army Cadet Rifle Team which won the Alexander Graham Bell Trophy at the National Rifle Association's annual meeting at Bisley, England, last summer by defeating the British cadets, 726 to 724. Accompanying the team overseas were Colonel D. B. Buell, DSO, CD, Director of Militia and Cadets, Army Headquarters, Ottawa, and Lieut.-Colonel J. N. Dow (retired), team coach and experienced Bisley shot. *Left to right, back row:* Cadet Lt. G. R. Harper, Cadet Sgt. E. K. Bell, Cadet Sgt. P. J. Landrigan, Cadet Sgt. D. A. Donaldson, Cadet Major P. Nadon and Cadet Lt. A. Nadon. *Left to right, front row:* Cadet Cpl. R. Potter, Cadet Lt. C. R. Ouellette, Lieut.-Colonel J. Neal Dow, Cadet Sgt. R. Wilson and Cadet J. H. Kaakee. *Seated in front:* Cadet Capt. A. G. Flegel. (*Photograph No. Z-7508*).

Oil Sources

More than 650 tons of oil will be produced this year in East China from silkworms in the chrysalis stage, from tea seeds and from camphor seeds, according to a recent announcement. —*News Release.*



The Black Watch Pipers At The Edinburgh Tattoo

National Defence Photograph

This photograph and the one on the facing page were taken recently during the visit of the pipers of the 2nd Battalion, The Black Watch (Royal Highland Regiment) of Canada, to the Edinburgh Tattoo. *Above:* Brigadier Alasdair Maclean, producer of the Tattoo, greets Drum-Major M. Phelan of Edmonton, Alberta, as the pipers arrive at Caledonian Station, Edinburgh, on the first leg of the band's European tour. *Left:* the pipes and drums parade on Edinburgh Castle Esplanade with the historic castle in the background.

Underground Bases

Constructed out of solid rock beneath the Alps by the Swiss are atomic bomb-proof fuel reservoirs, aviation repair shops, and ammunition depots. In the fuel storage depot, the first of several to be built, it was reported that there were huge caverns which housed 550,000-gallon tanks. The aviation repair depot had spaces able to hold several damaged planes. The ammunition depot was said to be practically 100 per cent. safe from explosion.—A *news release in the Military Review (U.S.)*

MAN IN A COLD ENVIRONMENT

Reviewed by Dr. E. A. Sellers, Defence Research Board, Department of National Defence*

Man in a Cold Environment† is of particular interest to Canadians because it was prepared at the request of the Defence Research Board by Professors A. C. Burton, of the University of Western Ontario, and O. G. Edholm, now of the National Institute for Medical Research, London, England, but formerly of the University of Western Ontario. Much of the work described in it was done during the Second World War by investigators in the United Kingdom, the United States and Canada, and originally appeared in report form. The purpose of writing the book was to collect in one place the many isolated findings which had been submitted to various committees and official bodies, but which, for the most part, had not been published in the open literature. In addition, reference is made to related papers published to December 1951.

The book has been published as one of a series of monographs, produced under the auspices of the Physiological Society. As might be expected, with this sponsorship it is addressed primarily to physiologists and biologists who may be interested in the effects of a cold environment on humans. The contents may attract a wider audience of those concerned with the clothing, protection and feeding of men exposed to cold, and to such readers the first seven chapters should prove a useful and reliable source of information. In this first section the physical and physiological problems involved in maintenance of a thermal steady state are discussed and a scheme for assessing the "thermal demand" of the environment is given. The use of meteorological data in relation to the insulating requirements of clothing

* *The reviewer is Superintendent of the Defence Research Medical Laboratories. Formerly a member of the Medical Faculty at the University of Toronto, Dr. Sellers is a physiologist who has made for himself an international name in his field.*—Editor.

† *Man in a Cold Environment.* By Alan C. Burton and Otto G. Edholm. Edward Arnold (Publishers) Ltd., London, 1955. 273 pages, 75 illustrations. Available in Canada from The MacMillan Company of Canada Limited, St. Martin's House, Bond Street, Toronto 2. $5.00.

and shelter is considered. The reader who is familiar with general scientific terms should have no difficulty in following the text. Indeed, the reviewer is not familiar with any one source in which is presented such a concise and unified account of the interesting relationship of man with his thermal environment.

In the second half of the monograph, chapters are devoted to discussions of vascular reactions to cold, the metabolic response to cold, acclimatization, hypothermia and resuscitation, local cold injury and, lastly, to problems for future research.

In spite of the fact that each chapter is short, the reader is given enough background material to orient himself in relation to the subject in hand. Thus, recent developments are fitted into a pattern, and the suggested areas for research mentioned in the final chapter seem a logical outgrowth from what has gone before.

During the Second World War, and in the years immediately following, a voluminous literature has appeared covering all phases of the problems which men and animals face, in common, when living in the cold. Many practical problems have not yet been solved completely (clothing, nutrition, treatment of cold injuries, etc.), and the practical applications of using cold in medicine and surgery are still to be developed (surgical or medical procedures in artificial hibernation). In this small book the authors have succeeded in presenting and, in many cases, clarifying the concepts upon which future advances will be based.

* * *

GREEN BERET, RED STAR

Reviewed by J. Mackay Hitsman, Historical Section,
Army Headquarters, Ottawa

Fortunately, Canada has been spared the terrors and suspense of guerrilla warfare and Canadian servicemen have never had, nor are they likely ever to have, any occasion to serve abroad in a repressive police role. And so Canadian readers of Major Crockett's excellent personal account of operations in the Malayan jungles can relax in their armchairs and treat it merely as a lively story of faraway places.*

Traditionally the English have not been nearly so lucky. There was France in the Middle Ages, the Thirteen American Colonies in the 18th Century and then Ireland. In each instance the English finally withdrew. At the moment Kenya

* *Green Beret, Red Star.* By Anthony Crockett. Eyre & Spottiswoode, London (Canadian Agent: McClelland & Stewart Limited, Toronto), 1954. $3.75.

seems to indicate a reversal of this trend but the situation is less clear in Malaya.

That it has taken so many so long to accomplish so little in Malaya will be far more evident to the average reader after Major Crockett's experiences have been considered. Initially the British Army was sent to reinforce the local police forces in their struggle with the Communists, mostly Malayan-born Chinese who had belonged to the wartime underground and then conveniently forgotten to turn in their weapons after the Japs surrendered. The R.A.F. became involved, chiefly to supply advance units and fighting patrols from the air, but also for the odd strike against known or suspected enemy strongholds. Finally, Royal Marine Commandos were added to the so-called "Security Forces".

At the outset the author states that his account is written from memory and concedes that there probably are inaccuracies. "For various reasons, not all unrelated to the emergency", the names of certain men and places have been changed while dates are vague or missing. What emerges is a personal account of small unit operations which may be presumed to be typical of the contest being waged against a few thousand guerrillas operating on the fringes of the Malayan jungle. Sketch maps of the sort usually associated with manuals and articles on patrolling are included to illustrate the more important raids and there are a fair number of the type of photographs usually associated with travel books. There is, however, too much anonymity for the serious reader. And there really should be a photograph of the author and some reference to his previous service, whether or not it had any connection with jungle warfare.

In any event, although *Green Beret, Red Star* is not intended primarily for service readers, there is little doubt that they will be able to read a bit more into the accounts of jungle patrols, abortive raids and successful ambushes. And the very strenuous attempts at relaxing, once removed from the actual presence of the enemy, will be more understandable to anyone with a service background. Quite frankly, the Christmas season spent by Sugar Troop of 42 Commando in the remote village of Tanjong Tualang seems to have been rather a strenuous affair. The author suggests, however, that morale was better when troops were deployed operationally in tiny villages, surrounded by bandits and mosquitos, than when congregated in larger centres where cinemas and more iniquitous forms of entertainment soon made off with the ordinary Marine's pay.

The usual confusion and delays

seem to have attended the reinforcement draft with which the author arrived in Singapore and started up country by train. Even though the trip across a good part of Malaya to the town of Ipoh in the tin mining area was uneventful, at the time no one could be sure.

One of the lighter forms of amusement for the bandits was the shooting-up of trains, especially at night. This was a most un-British form of sport, rather like potting at a fat pheasant on the front lawn from one's bedroom window. The chances of hitting a train somewhere were considerable, while the chances of getting hit back in the process were almost negligible. The whole idea therefore appealed enormously to the bandit point of view. This was by that time a well-known fact to all and sundry in Malaya, and about the only people who travelled by train at night were the stupid 'military', who anyhow had no choice, as they were told to do so.

War never is sporting, of course, and guerrilla warfare merely is a shade worse. In each of the operations mentioned by the author the policy of shooting first and asking questions after was followed. Of course, the enemy never surrendered unless badly wounded and any other practice would merely have provided a better opportunity for melting into the jungle. For, even when the cordon of police and troops surrounding a suspected area was advancing almost shoulder to shoulder and knee to knee, it was not unknown for Chinese to be passed over in the long grass. Why dogs were not used more often is something that the author fails to explain: on the odd occasion when they were employed by the Police and Marines they were the small mongrels of some local miner or planter rather than bloodhounds or Alsatians.

On one occasion a small ambush laid across a well travelled path yielded two Communist couriers, unconcernedly making their periodic trip at a time of day when local villagers and pipe line workers were not expected. These were shot down with bursts from a Bren firing on fixed lines. That shooting on sight was necessary is obvious from the following:

Into the blazing patch of light below walked the first bandit. He was talking loudly and looking over his shoulder as he did so. The man behind then came into sight. He opened his mouth to reply and Loring put a burst of fire into his body. Without a sound he fell where he stood, his blood welling out from beneath his crumpled body. In a flash the first man had dropped his bundle and had his carbine in his hand. He darted like a weasel towards the pipes, tried to dodge beneath them and was shot down in a hail of bullets.

Documents found on their bodies, however, did provide Intelligence with information for further punitive operations.

The likelihood of getting valuable information from prisoners seems to have been regarded as so remote that the desirability of taking them alive is nowhere stressed by the author. There were instances of wounded youths and girls breaking down, but they came within the category of the deluded individuals whose Communism was of a half-hearted nature anyway, founded on promises made

by recruiting agents and dampened by the experiences and privations of the ensuing months.

To anyone not involved it must inevitably seem strange that several hundred troops and police could be engaged against a mere half dozen bandits and that the liquidation or capture of three or four should be treated as a real success. But that seems to be the true essence of guerrilla warfare.

* * *

"THE VOICE"

Reviewed by Captain J. A. Thomson, Canadian Provost Corps

The scourge of idlers and malingerers in the British Army has been presented at last to the public in book form.* Leather-lunged Regimental Sergeant-Major Ronald Brittain, late of the Coldstream Guards and known throughout the armies of the Commonwealth as "The Voice", is now retired but his military life lives on in Mr. Leasor's story.

The author was faced with the difficult task of trying to write an interesting story about a soldier so full of regimental rectitude. However, he has succeeded to some extent by sprinkling his narrative with a number of colourful tales about this parade-ground giant.

The British Army, and especially the Brigade of Guards, is shown in transition through the many years of the Sergeant-Major's service.

Albeit a stern disciplinarian, R. S. M. Brittain had compassion hidden away in his heart, and his handling of the soldier's welfare problems give the reader a hint of the more human qualities possessed by this Warrant Officer.

R. S. M. Brittain's military philosophy was simple: "Anybody can carry the coal-box. You want to be the chap who says 'PICK IT UP!' "

Anecdotes about him are legion. There was the time during his younger years in the service that he complained to the Medical Officer that he was not getting enough to eat. He was charged immediately with making a "frivolous and highly irregular complaint in an improper manner." However, he finally was issued a ration and a half because he was such a big man, but he was told that in return for this he would be expected to do the work of a man and a half!

The author has included countless other stories in his book, which should be of particular interest to those Canadian officers who passed through the Guards Depot during the Second World War and were drilled by "The Voice".

*The Serjeant-Major: The Biography of R. S. M. Brittain. *By James Leasor. Clarke, Irwin & Company Limited. 103 St Clair Avenue West, Toronto 5, Toronto, Ontario.* **$2.25.**

TACTICS AND ATOMIC WEAPONS

COLONEL K. MACKAY, MBE, ROYAL AUSTRALIAN INFANTRY*

Views expressed in this article do not necessarily represent those of Army Headquarters, nor do they in any way reflect approved doctrine or trends as far as the Department of National Defence is concerned.—Editor, Canadian Army Journal.

* * *

The aim of this paper is to assist regimental officers to marshal their thoughts and provoke discussion and further study of the practical effects of atomic weapons on tactics.

INTRODUCTION

Atomic weapons include bombs, guided missiles and artillery shells. The practical effect is a much more effective bomb or shell burst than was used by the opposing armies in the last war. There is nothing unusual about this—in fact it is a normal development. They do not replace any existing weapons, they supplement them.

Now read the title and aim again. There is no reference to "conventional warfare". Such a reference would tend to brand atomic weapons as unconventional. They are not, and to the practical soldier, there is really no such thing as conventional warfare. We study principles, procedures, drills, characteristics and so on in order to get the maximum efficiency from the forces at our disposal. We have a "normal way" of doing most things under different circumstances, but this is largely a guide. As we develop new or improved weapons and techniques let us master them, regard them in their turn as normal and progress from there. We must think well and wide, be flexible and place a premium on brains and initiative. Then by all means let us be unconventional in our methods if they will surprise the enemy and lead to success in battle.

Very few officers have seen an atomic weapon or know very much about them. That does not matter. Consider two practical examples. For years we have been studying the characteristics and best employment of heavy gun tanks. In due course we will get them and quickly be able to use them efficiently. Modern tanks have a stabilizer. How or why it works is no concern of the crew, yet many private soldiers can use the stabilizer very well. So it will be with atomic weapons.

* *Reprinted by courtesy of the* Australian Army Journal.—Editor.

General Considerations

Cost: It has been stated that atomic weapons are extremely expensive to produce. Right now they are, but it is possible that cheaper ways will be found of producing a similar effect. Yet one or two planes with atomic bombs may be more effective than hundreds of planes carrying ordinary bombs, or a gun firing atomic shells may be more effective than many regiments firing HE. However, total war can only be assessed in terms of total national wealth and effort. In a total war we must win the initial defensive battle for survival or our national wealth counts for little. Our manpower is limited, difficult to replace and cannot be given a monetary value. So if atomic weapons will save manpower, particularly the lives of trained soldiers, and these weapons will assist us in defeating the first onslaught of an aggressor, then they must be used regardless of cost. To the soldier, the user, the cost in national effort is a factor for consideration, but it cannot and must never be an over-riding factor.

Use: It has also been stated that a decision to use atomic weapons will be made only on the very highest level. Let us be practical. The decision to use them may be made already, but by whom, when and how the decision is made, is only a matter of academic interest and newspaper headlines to the regimental officer. Atomic weapons will be used in another war, in fact they might well be used to check an aggressor in the first day of war.

Supply: It has been suggested that atomic weapons might be in short supply. This is an idle or defeatist thought. We must look ahead a little and we must assume that lessons of the last two wars have at last been learned and these weapons will be available when and where they are likely to be required and in quantities to be fully effective. Our task is to employ them effectively.

Control: Next consider the question of control. Here it would be appropriate to refer vaguely to joint army/air machinery for command and control. This, of course, exists at the Army Group/Tactical Air Force level. If smaller forces are operating in a particular area this control would be exercised at Corps or possibly Division. Now let us come right down to earth. Effective control is not possible without accurate and timely information which will be obtained principally from air and ground observation. In defence, attack, advance and pursuit the employment of atomic weapons can be pre-planned to a certain degree, but recommendations must come from the forward units in contact. Regimental officers must have the tactical knowledge and ability to appraise the situation

quickly and take advantage immediately of any opportunity offered. Skill on the part of junior officers in the art of war and leadership will be vital, whereas at the moment the question of control of atomic weapons is relatively unimportant.

Effects of an Atomic Explosion

Nominal Bomb: Before proceeding further it is necessary to have a rough but practical knowledge of the likely effects of an atomic explosion. Most figures produced to date are theoretical and tend to be alarming. These figures are calculated on the explosion of an air burst "nominal" bomb. This is a bomb calculated to be equal in explosive energy to 20,000 tons of TNT burst at an optimum height of 2000 feet under ideal conditions. This 20,000 tons of TNT sounds frightening, but most of it is wasted because it is over concentrated at the centre of burst and much of it is thrown upwards. Figures of likely casualties in the open envisage a flat surface with no protection at all and for practical purposes this is unreal. Similarly figures for troops in trenches are likely to be misleading as they cannot take into account the configuration of the ground, depth of trench and degree of overhead cover. An indication of casualties is contained in Table "A".

Size: Explosions have been produced both larger and smaller than the nominal bomb. Larger bombs are less predictable and are more susceptible to weather, particularly wind. The explosive force carried up large quantities of particles of pulverized earth which become contaminated and eventually "fall out," or return to the ground, perhaps many miles from the burst. For practical purposes it would appear that the nominal bomb is the largest which might be used by either side in a tactical role. This bomb then represents the best or worst case. Smaller bombs or missiles might be perhaps one quarter the size of the nominal bomb or less. Size and casualty effect are not in a direct ratio because of the waste at the centre of burst. Let us assume for practical purposes that the smallest missile will have a casualty-producing effect of about one-third of the nominal bomb. Now check back on Table "A" and see that it is not devastating or formidable at all.

Types of Burst: Consider the nominal bomb again and radio activity. A high air burst, that is one at 2000 feet, will produce no residual radioactivity. A low air burst, about 500 feet, will produce residual radioactivity and a fall-out area of contaminated particles close to ground zero (immediately under the centre of the burst) extending down wind. Such ground could be traversed safely in a vehicle one hour after the burst, or on foot, after six hours. A ground burst will produce a large crater

PROBABLE CASUALTIES FROM A NOMINAL BOMB BURST AT 2000 FEET

RANGE (From ground zero)	LIGHT (Instantaneous)	BLAST (Speed of sound)	RADIATION (Lasts only 10 seconds)	HEAT (Lasts only 3 seconds)	INDIVIDUAL ACTION TO BE TAKEN
Up to 1000 yards	Temporary blindness if soldier is looking towards the explosion	OPEN. Perhaps 50% casualties TRENCH. Few casualties, except in immediate area of ground zero	OPEN. Death TRENCH. 100% casualties. Death up to 500 or 600 yards	OPEN. Death. TRENCH. Severe burns with any exposure	Fall flat face downwards — eyes closed — hands under body. No time to run for cover; stay down for 15 seconds
From 1000 yards to 2000 yards	Duration of temporary blindness half an hour to half a minute, but no permanent damage	OPEN. Some casualties from flying debris TRENCH. SAFE	OPEN. Death up to 1200 yards with severe radiation sickness up to 2000 yards TRENCH. SAFE	OPEN. Death up to 1200 yards with severe burns up to 2000 yards TRENCH. SAFE If not exposed	As above
From 2000 yards to 3000 yards		OPEN. SAFE TRENCH. SAFE	OPEN. SAFE TRENCH. SAFE	OPEN. Some casualties from burns TRENCH. SAFE	As above

1. The above figures are a rough guide only and, for the OPEN, do NOT take into account that some troops will be behind cover or in folds on the ground. The effects of the bomb are reduced by broken ground, rain, mist or fog.
2. As a rough guide there will be few casualties past 1 mile in the open, ⅔ mile in slit trenches and ⅓ mile in trenches with good overhead cover.
3. Remember that most of the casualties are caused in the first few seconds.
4. This table will emphasize the vital importance of troops digging in.
5. Weapons are less likely to be affected than soldiers.

TABLE "A"

about 100 feet deep and 200 yards in diameter, depending on the type of ground. This area will be heavily contaminated for days, possibly months. Each type of burst has a tactical application.

Casualties: As a working guide for the regimental officer, the largest explosion in a tactical role under favourable conditions will produce few casualties on troops in the open beyond one mile radius from the burst. There will be a few casualties past 1200 yards radius if troops are in slit trenches and few past 600 yards if troops are well dug in. Low air or ground bursts will produce less casualties and the smallest explosion will have about one-third of the effect of the nominal bomb. Apart from troops moving into an assault, who will remain highly vulnerable, these weapons cannot and will not produce devastating results if they are used singly.

Now examine this more closely and take the case of an infantry battalion in defence, dug in, with overhead cover, against a strong enemy. It would be reasonable for the battalion to hold an area, preferably hilly, of up to 2000 yards by 2000 yards in depth. Arrange the companies in any reasonable way in this area and superimpose the worst case of a high air burst nominal bomb over it. It might look like Figure 1. Those in the area of the circle would be killed or become severe casualties. There will be some casualties outside the circle but the majority would be safe. Those not casualties would be under a tremendous psychological strain, but they could still fight. A proportion of troops will be out of this area at A or B echelon, so the overall effect on the battalion might be 50% or 60% casualties. If the area occupied by the battalion was about 1200 yards by 1200 yards casualties might be as high as 90%. This means that units in well-prepared defences will not necessarily be wiped out by one explosion and it suggests that several missiles may be required to produce worthwhile results.

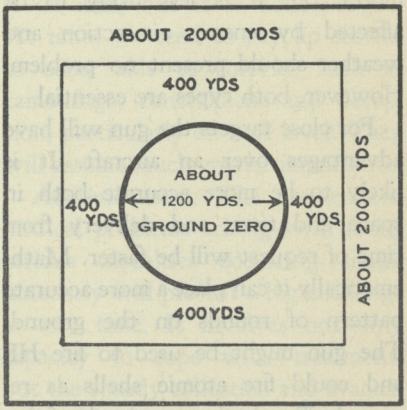


Fig. 1

The tactical employment of atomic weapons offers wide scope. For a start it is not easy to say where strategical employment ceases and

tactical employment begins. As a rough guide, targets in the enemy communication zone which, if attacked, will have a direct effect on his build-up or his front line troops, may be regarded as tactical targets. In Europe this might be 50 miles or so and in undeveloped areas it might extend for 200 miles or more. The principal means of delivering an atomic weapon are aircraft and heavy guns. Guided missiles are also being produced with a much greater range than the gun and one day they may replace it. The weapon delivered by air has no range limitation in a tactical role, but it may be affected by enemy air action and weather. The gun has a range limitation (15 miles or more), but it is less likely to be affected by enemy air action and weather should present no problem. However, both types are essential.

For close targets the gun will have advantages over an aircraft. It is likely to be more accurate both in space and time, and delivery from time of request will be faster. Mathematically it can place a more accurate pattern of rounds on the ground. The gun might be used to fire HE and could fire atomic shells as required. To obtain surprise its firing position could be surveyed in and the gun could be moved by night to fire at first light. It might register targets with HE or HE of a type designed to conceal its calibre, then be moved and concealed until it was required to come into its prepared position to fire atomic shells.

The Enemy

We know that at the beginning of a war an aggressor has many advantages and primarily we must conduct a successful defence to beat his attack. Our enemy, initially at least, will have a superiority in numbers of troops. In attack his planning calls for as much superiority in men and weapons as he can muster at the point of attack. He prefers to attack on a wide front or at several points at once and aims at deep penetration. He is not so much interested in the capture of ground as developing an attack into a pursuit which will give him greater gains. He emphasizes both quality of troops and weapons and we must assume he will have atomic weapons. He regards power as more important than reason and requires blind obedience so he does not emphasize initiative. Higher headquarters exercise very tight control over subordinate formations and units which leads to rigid planning. The unexpected or surprise will be a potent weapon against him. We require highly-trained troops and the best weapons from the outset, but equally important, we require a high degree of knowledge, leadership and initiative to get the best value from what we have. Naturally he will be forced to reconsider his methods in

the light of modern developments, but in any study of tactics we must keep our enemy well in mind.

THE PRINCIPLES OF WAR

At this stage it might be wise to check over the principles of war. Look at them again: The Selection and Maintenance of the Aim, Offensive Action, Maintenance of Morale, Surprise, Administration, Flexibility, Economy of Effort, Concentration of Forces, Security and Co-operation. They are a fruitful source of study in themselves and each warrants a separate detailed examination. However, that might not be appropriate here, as this study is intended as a quick check to note some of the more important aspects as a lead up to a consideration of the phases of war.

Offensive Action: All agree that offensive action is essential for success in war. Yet, in the past, our forces in the first year or so have suffered disadvantages in such things as numbers, weapons, vehicles, even training, and opportunities for offensive action have been limited. Then when the opportunity offered, the offensive action was often limited. Perhaps we tend to place too much value on ground for its own sake and are inclined to be methodical or overcautious. Now we have powerful weapons which could prevent heavy concentrations of enemy troops and so place a greater premium on individual skill and leadership. There will be more opportunities in future for bold thinking and bold action. Offensive defence will take on a new meaning.

Morale: High morale will assume added emphasis in future. The psychological aspects of morale might be more important than those we know better—high standard of proficiency, fitness, discipline, understanding, and a state of well-being. Moral fibre will be more than a term, it will be vital. Education, knowledge and careful mental preparation will be required but, more than ever, morale in all its aspects must be watched and nurtured, or fear might predominate in a show-down.

Surprise: Here the added emphasis is obvious, but it is double-edged. At times we tend to pay lip service to some aids to surprise such as camouflage, concealment and deception, particularly on unit level. They will assume much greater importance.

Administration: The tremendous medical problems arising with many serious casualties occurring simultaneously will present a big challenge at any time. It involves not only capacity to cope with treatment, but the speedy collection and evacuation of hundreds of casualties over many miles to where treatment will be available.

The whole supply system is now more vulnerable and the most efficient control of all handling agencies

forward will be essential. Many installations, including ports, will have to be kept small and be duplicated. This will probably involve more dispersion and reduced holdings in base areas, but not necessarily further forward. We may have reached a stage where further dispersion is hardly practicable, but it would be wise to consider the duplication and spread of both installations and commodities in an area of about the same size as that required in the past.

Administrative planning must also take into account that bottlenecks such as defiles through which main rail and road arteries run could be put out of action for months, and detours, due to terrain, might not be practicable. This means having alternative and spare capacity to get maintenance through to forward units. We should look more to the air but not necessarily to planes dependent on well-prepared airfields and ancillary services which could be rendered unusable. Assault aircraft and cargo helicopters would give much needed flexibility and could also be used to back-load casualties quickly.

In more inhabited areas the use of atomic weapons may terrorize the civilian population and road capacity could become clogged with refugees. These few examples indicate that administration in all its aspects will assume increased importance.

Flexibility: Flexibility has always been a great asset and its importance will increase. It includes mobility, command and communications, and flexibility of mind. Speed is implied, particularly the ability to recover quickly from shock or surprise and redispose forces to overcome a threat or take advantage of an opportunity. We have this advantage of flexibility over our enemy now and the aim should be to exploit it.

Security: The enemy will seek worth-while targets for atomic attack. He will require good information. This must be denied to him more than ever before. Our ideas on firm bases may require some adjustment. In the past a heavily defended feature often formed a bastion in defence or a firm base around which, or from which, offensive action was initiated. Such a feature can now be neutralized or destroyed by one, but more likely by several atomic explosions. In future a firm base might consist of an area in which, or into which, a mobile force could be deployed quickly to hold. Perhaps a feature could be dug and prepared with the bulk of the force to hold it dispersed and concealed to the rear, but ready to man it should a threat develop. Alternatives and mobility and deception will be required.

The Phases of War

The phases of war might be considered in any order, but for this study it is probably more convenient

to begin with defence, both deliberate and hasty, then lead on to the attack, advance and withdrawal. Let us consider them in some detail in that order.

THE DEFENCE—DELIBERATE

Here the ground will be of our own choosing with the enemy some distance away, and some time should be available to prepare the position and rehearse the main likely actions in the conduct of the defensive battle. *The minimum requirement is that the defence should be strong enough to defeat normal enemy methods without atomic weapons.* The last imposes additional problems. We require as much time as we can force from the enemy to dig deep and develop overhead cover. We must know where the enemy is and begin hurting and delaying him as early as possible.

Covering Troops: Very little change is indicated except to increase their delaying power. This could be improved by increasing their supporting artillery and air support. The 25-pounder has not got the range or weight of shell, so medium artillery should be made available from an AGRA. Possibly several regiments deployed forward of the main defensive position might be the ideal.

Screens: The main requirement of denying the enemy close observation of our position is increased. As with covering troops, screens may require more strength and might be sited a little further out. Strength could be provided by additional artillery support and the use of more armour, but not necessarily infantry. Again they should offer as much resistance as their strength will allow and more co-ordination, at least on brigade level, will probably be required.

FDLs: A strong line of FDLs will be required as a good front door to the position. Gaps in the FDLs may be unavoidable due to numbers, but they will be more than ever undesirable. Enemy patrols seeking information should be stopped in the last instance at the FDLs and penetration by patrols must not be permitted. It would appear that we require the FDLs to be held with not less strength than we have used in the past. Further dispersion due to an atomic threat might not be acceptable with the forward battalions. In fact, there appears to be no change. Forward platoons and companies must be mutually supporting, dug in with overhead cover level with the ground and camouflaged. Protective wire will be required forward and over the positions and mines will be laid if it is desirable or policy to use them.

Depth: Depth in defence is always essential. Now we should think in terms of much greater depth since focal points of the defence, usually dominating high ground, can be neutralized or made untenable to either

side by ground burst explosions. Most ground is defensible, so it might be better to regard as depth the total distance from where we chose to fight initially back to a general line the enemy must not be allowed to penetrate. Here it may be necessary to deny some or most of the approaches by contamination from ground bursts, or more likely from radioactive material sprayed or dropped on the ground. Depth on a large front might be anything from 30 miles to 300 miles.

In the forward division it might not be possible to obtain much greater depth than in the past, although more dispersion within that area might be achieved. One limiting factor is our artillery. The divisional artillery plays a very important part in the conduct of the defence and the gun area should be secure. This area will tend to increase to provide for dispersion, deception and adequate alternative positions. The present range of the 25-pounder does restrict to some degree the area in which the forward brigades can manœuvre. If the 25-pounder had a range comparable to that of the enemy light medium gun (120 mm) of over 20,000 yards, the whole of the division would obtain considerably more freedom of action.

Penetration: Let us try to consider counter-penetration and counter-attack separately, as far as possible, in the case of a forward division. It might be deployed with two brigades forward and one brigade held in depth. The forward brigades might each have two battalions committed to holding a strong line of FDLs. These will form the first crust of the defence and will be in some depth themselves. These battalions will fight from the positions they have dug and prepared. They should not consider counter-attack and can do little about penetration. This leaves one battalion in the brigade, or at least a part of it, preferably supported by armour, for counter-penetration and most likely it will have more than one task. Its job will be to stop enemy penetration and hold the attack. This should take place not far behind the forward units through which the penetration came or the forward units may be defeated in detail. Once the enemy is stopped he can be attacked with fire or by a counter-attack force. All of this might be regarded as normal tactics and in such close fighting the use of atomic weapons by either side would not be practicable.

If a forward brigade failed to stop penetration it would fight from the positions it then held and force the enemy attack to lose momentum through lack of support. At this stage part of the brigade in depth might be used to ensure that penetration was stopped or, when it was

stopped, counter attack.

It would appear that the threat of atomic attack against the defence might not affect greatly the tactics of forward brigades. A reserve held in the brigade will be primarily for counter-penetration, but it should also have a position, at least partly prepared, from which it could fight if atomic weapons were used to neutralize the forward battalions. This latter task could still be called counter-penetration. The reserve might be in a little more depth than in the past and it could remain more dispersed until it was required to move to carry out its role.

In the case under consideration, the division used a brigade in depth with part of it held as a reserve, and it would appear that its role and dispositions will be very similar to the reserve of the forward brigades. The whole of this brigade in depth may be required to stop penetration if the forward sectors are over-run quickly. The ground used for this role will present problems as it may be in or near the divisional gun area. Also at this stage a proportion of the guns will be moving, and their fire will not be available.

Counter-Attack: The reserve held by division must prepare for two roles and we can but hope that its task will be counter-attack. It would seem, however, that the main counter-attack strength on a sector of the front might be controlled by Corps. At this level something really solid will be necessary and a force of up to a division in composition might be required.

Offensive Defence: Another very interesting aspect arises. If the conduct of our defence is sound up to the stage where the enemy comes against our FDLs in strength, we should have a good deal of information about his build-up and intentions and he should know far less of ours. We might not be in a position to assume the offensive, or desire to, but a limited offensive action could destroy the enemy's capacity to attack.

The force required might be up to a division supported by armour which should be available from well back in the depth of the defensive position. This force could be moved to forward concentration areas with the role of attacking to a depth of five or ten miles behind the enemy front following the explosion of several atomic missiles. These could destroy or completely neutralize the enemy troop build-up over some 5000 to 6000 yards to a depth of about 4000 yards. The limited offensive could have the role of destroying his supporting arms and administrative build-up and taking prisoners. The whole operation might last twenty-four hours or a little longer and be completed before it encountered strong enemy counter-action.

Our possession of atomic weapons will hinder the enemy's ability to develop an undue superiority of men and guns against any part of the defence. The use of these weapons might deny him this ability and at the same time create opportunities to develop limited offensive operations aimed at destroying his capacity to attack in strength. In the final analysis offensive defence on such lines might well be the best policy to adopt.

Security in Defence: More than ever before it will be necessary to deny the enemy information of our position and our intentions. To attack he will want to know in particular the location and strength of our forward units and reserves, including armour. Good camouflage and deception will be required and our patrolling must dominate his. Alternative plans for the contact of the defence will be required to cater for such eventualities as atomic weapons being used on our forward units, gun areas and reserves. Good communications will be essential and more than ever the emphasis will be on the efficient use of wireless.

The Defence—Hasty

Here the ground may not be of our own choosing. Examples are the reorganization and holding of objectives in the attack or the final line held as a result of enemy penetration into a position. Usually close contact is involved and from our point of view it is a temporary measure until our forces are in a position to continue or develop the attack, counter-attack or exploit to seize further ground we require. It will be essential to dig in fast, not so much because of an atomic threat, but to reduce casualties and develop better fire from the position. Greater dispersion than was used in the past will probably not be practical, but that will be largely dictated by the strength of the enemy at the time. The employment of atomic weapons by either side in the immediate area of the conflict will be unlikely until the position is more stable.

The Attack

It would appear that atomic weapons will affect considerably the method of conducting the attack. There will be a choice between attacking where the enemy is known to be weak or deliberately attacking his strength to obtain greater destruction. However, let the attacker beware, because troops in the open, such as in the attack, are much more vulnerable than at any other time.

In planning the use of atomic weapons in attack we should be bold and should not pull any punches. The aim should be a break-through in depth with the main gains coming from pursuit or preferably from a rout. Atomic weapons may be required in two or three phases and

they would be required in considerable numbers to be really effective.

The first phase might be to neutralize with high air burst, a sector of the front, which will include immediate reserves, to enable a quick break in. The forces in this phase will require good mobility to move from dispersed assembly areas and attack positions to secure the flanks and penetrate as far as they can go. They will, in fact, seize a large bridgehead giving enough room to allow the next phase a clear run on as wide a front as possible.

The second phase might be composed of mobile troops with good hitting power and cross-country performance. They would require tactical air support and their task would be to break through the second or third zone of the defence taking advantage of speed and surprise. They would require atomic weapons to neutralize strong points to keep up momentum.

The third phase would be the normal break-out using armoured formations. They would require atomic weapons on call but with the speed envisaged their use may not be required. Possible tasks might include the disruption of main communication centres ahead of the pursuit to delay the enemy or on the flanks to slow and disorganize any enemy counter moves. This phase might work in conjunction with airborne forces, but let us consider them separately later.

Mobility and speed, particularly across country, have been emphasized. These will be required not only in the attack itself, but in the preliminary moves behind our own position prior to the attack. This will require careful co-ordination or surprise might be lost and worthwhile targets might be presented to the enemy. In any case flexibility will be required in planning as atomic weapons may be used against the attacking forces. Administration is likely to be a limiting factor on speed though air supply might help. Enemy casualties will be beyond the capacity of attacking formations and special arrangements will be required. The problems of natural and artificial obstacles such as deep defensive minefields are not solved with atomic weapons.

The day of the infantry moving in an attack formation with their normal support will still be the rule rather than the exception. Mopping up and exploitation on foot will always be required. More use might be made of good cross-country type vehicles to increase mobility, but greater dispersion will hardly be practicable if ground has to be mopped up quickly and held.

The Advance

Basically the advance should be considered from two points of view. One has already been covered to a

degree; that is the follow-up to a successful attack. The other is advance to contact when touch with the enemy has not been made or has been lost.

In a follow-up, an advance continues to be called such while the enemy retains the ability to withdraw intact and fight delaying actions on ground he chooses. It becomes a pursuit when the enemy loses this ability, and a rout when he loses cohesion. The use of atomic weapons does offer far greater scope to turn a follow-up into a pursuit or rout. However, the use of atomic weapons and mines by the enemy, particularly in broken country with few developed roads, will slow the advance and may prevent bold action. In these circumstances there may be little change from the tactics used in the past, that of keeping up strong pressure with forces ready to go should the opportunity offer.

The advance to contact is really a question of sweeping forward with balanced forces on all available approaches until the main enemy strength is located. Light hard-hitting forces with a strong reconnaissance element forward clear the terrain as they go, drive in weak opposition, and then search to find the flanks and strength of the enemy when they are halted. It is unlikely that atomic weapons would be used in such action.

The Withdrawal

In the past, due to dire necessity, the ability to conduct a successful withdrawal was most important, particularly in the early stages of a war. As a phase of war, the withdrawal tends to be over-rated, and it might be opportune, in the light of atomic weapons, to reorientate some thinking on this subject.

The essential elements of a withdrawal are meticulous planning and resolute leadership coupled with good discipline. These are not likely to change at all. Atomic weapons used on the enemy administrative elements and troop concentrations could slow a follow-up and allow a withdrawal to be conducted as planned. Ground burst explosions or radioactive material in road defiles or even in restricted approaches will make that ground unusable and impose further delay on the enemy. In these circumstances it might be wiser to regard any withdrawal action simply as a manœuvre in the over-all conduct of the defence.

Airborne Forces

Reference has already been made to the possibility of much greater use of assault aircraft and cargo helicopters to provide more flexibility on the administrative side. At first glance it would appear that greater use might be made of airborne forces in the future. An airborne force ready for action is a potent threat in itself to the enemy and surprise is an

element it can exploit well. Surprise can also be exploited by the use of atomic weapons and it would seem that the combination of the two might achieve great gains.

Airborne forces are particularly vulnerable in the air and immediately on landing. Perhaps they could be adequately protected in flight and dispersion might defeat undue casualties from ground to air missiles. However, as soon as the force begins to land they will be vulnerable to sneak raid attack or ground to ground atomic missiles. Again, dispersion over several dropping zones might be effective in reducing the number of worth-while targets. It would seem that operations on the scale of an airborne division would involve considerable risk. Yet in a fluid situation, if airborne forces were dropped and made contact immediately, the use of atomic weapons might not be practicable. The same might apply to the capture of important communication centres involving large numbers of the enemy civilian population.

If the enemy should use radioactive contamination to hamper a ground advance, airborne forces will be essential, In attack, the use of even a small airborne force in conjunction with the use of atomic weapons to achieve sudden and deep penetration is likely to pay great dividends. They might also be used in limited offensive operations referred to in consideration of the defence. There is certainly a future for airborne forces and it is a subject which requires a great deal of thought. One avenue worth special consideration might be to simplify our technique and increase the number of regular field units, who with very little training, might be used in an airborne role. In other words we might look to the air to obtain much greater mobility, not just for specialized forces, but for the majority of regular field units.

Jungle Warfare

The jungle presents special problems arising mainly from the lack of suitably developed communications and resources, restricted visibility and usually the lack of information. As a rule, large forces are not likely to be opposed in action at one time and contact, though bitter, will probably be restricted to a relatively small area. The effect of an atomic explosion in heavy jungle is likely to be considerably reduced. In these circumstances, when contact is made, the use of atomic weapons in forward areas seems rather unlikely. However, any attempt to hold a small area with a garrison or develop a tight perimeter defence might present a worth-while target and invite disaster.

In jungle terrain the capacity of the communication zone will probably dictate the size of force which

can be maintained in the field. This capacity will be a governing and perhaps critical factor. Any serious disruption of the communication zone is likely to have immediate repercussions on the forward troops. This zone is likely to provide the more worth-while targets for attack by either side.

The sea, and it is usually not far away, offers wide scope as a means of getting maintenance forward, but the development of many small, even temporary ports, and beach dumping might be the only practicable way of getting sufficient dispersion. A railway system, should it exist, is likely to have a limited capacity and like roads, it will probably cross defiles which could be attacked by ground burst contamination. Existing airfields are likely to be few in number and small and will require considerable time for development. Sites for new fields might be limited and will require a great deal of effort and time to prepare. Yet this must be done as alternatives will be required in the event of attack. One thing seems to emerge clearly and that is the means to provide a considerable supplementary air lift and air drop will be essential.

Summary

The aim stated that this was an introductory precis to assist regimental officers to marshal their thoughts and it has been prepared from that point of view. Most of the points raised have been presented deliberately in brief outline and detail has been avoided. Many are contentious and provocative to lead to further discussion and study.

Conclusion

It would be both premature and unwise to arrive at any firm conclusions from this brief study. The only certain conclusion is that the junior officers of today will be the commanders of tomorrow and the sooner they begin a serious study of the atomic weapons they will be dealing with in another war the better.

Freedom—The Source of Life

Not only will science and truth wither away where freedom is suppressed or curtailed, but the state itself will wake up one day to the realization that, both by reason of a pervasive dullness of mind which it has succeeded in generating among its citizenry, and by reason of the unavailability of material instruments which the inventiveness of freedom alone can supply, it is decisively handicapped in the pursuit of its own ends. He tampers with the source of life itself who tampers with freedom.—*Dr. Charles Malik, Republic of Lebanon.*

STUBBLE SHOOTING

By

MAJOR-GENERAL C. VOKES, CB, CBE, DSO, CD, GENERAL OFFICER COMMANDING WESTERN COMMAND, EDMONTON, ALTA.

Annually in the Autumn, the great plains of Western Canada teem with wild fowl preparing for their migration to wintering grounds in the South. To those interested in wild fowl shooting it is a season without equal anywhere else in Canada.

During this period the wild ducks, particularly the mallard, have voracious appetites, their favourite feed being wheat and barley. Many a farmer who leaves his fields of wheat or barley in swath, prior to combining it, has occasion to hate the sight of them, for they will often descend on his fields in huge flocks and remove every particle of grain from sections of it. Thus stubble shooting is one of the better methods of obtaining a good bag.

A stubble shoot requires, however, a fair amount of care and organization. It is excellent training for young officers and I will therefore describe the manner in which it may be done.

I have found that the best time for a stubble shoot is in the early morning, but afternoon shoots are possible and should not be ruled out. The morning is preferable, in my opinion, because it permits the digging of pits during the hours of darkness when all self-respecting mallards are roosting on sloughs or lakes. The ducks usually pick the centre of a huge field for their morning and evening banquets, and it is seldom possible to find cover in a hedge close enough for good shooting, although it sometimes happens. Surface cover in the form of straw blinds in the middle of a large field stand out like the pyramids in a wily duck's eye, and they get extremely wary of man early in the shooting season. Hence to go below the surface of the ground by digging is the hardest but wisest course to follow if one wishes to outwit the quarry.

But long before one settles down to digging, or providing oneself with other cover, it is necessary to locate a field where the duck are feeding. They normally feed in the early morning and late afternoon. For spotting, binoculars are necessary and sometimes miles of driving during the time when ducks are in flight to feed. Having located the field, the ducks must not be disturbed, but left to finish eating and fly away of their own accord. A crop full of grain, I am told, burns their gullets and they must wash it down with a good drink of water and rest while it digests. If the ducks are spotted late in the afternoon, great care must be taken to

memorize the lay of the land so that one may find the exact spot in the dark.

The next step is to interview the farmer and seek his permission to shoot on his property. The majority of farmers will have no objection and will readily grant permission. There are, however, exceptions: some farmers will be quite abrupt and rude in their refusal. Usually this is due to the misdemeanours of some previous shooter who has gone on the property without permission, has failed to close gates, has failed to fill in pits or who has shot up cattle. If the farmer is kind enough to let you shoot on his property you must never be guilty of such carelessness.

Having obtained permission, the next step is to dig pits when it becomes dark. It is preferable to do it before going to bed, as it gives one an extra hour of sleep in the morning. However, it's all a matter of taste. If there are cattle in the field and the pits are dug at night, you must cover them with planks or secure them so that the cattle will not accidently fall in and break a leg or receive some other injury. The pit should be long enough, wide enough and deep enough so that when you crouch down your head is below the surface of the ground. In digging the pit in a field which is in swath, dig your pits in the line of the swath, first removing the swathed grain from the area in which you propose to dig. Be careful not to spread the spoil too much, then camouflage it with the swathed grain you had previously removed. Camouflage should be as realistic as you can make it.

The next step before shooting is to set out the decoys downwind of the pits. It isn't too important whether they are downwind or upwind, as the object is not to decoy the ducks onto the ground, but to hit them when they are circling the decoys at an altitude within range. The decoys can be of very simple construction. No. 1 black building paper in oval pieces laid on the ground, or the same paper cut in the silhouette of a duck are quite adequate. The secret is to have plenty of them, not less than fifty. Sometimes it is possible to implement them by upending handfuls of stubble. At a distance the stubble root covered with black earth looks exactly like a duck's head sticking up out of the stubble.

Get into the pits before first light if it is a morning shoot, or into them before the afternoon feeding flight starts, and you are ready to shoot. The rest depends on your personal skill with a shotgun. Never shoot more than your daily bag limit.

As I said earlier on, this is excellent training for young army officers, particularly infantry officers, as it covers reconnaissance, organization, digging, camouflage and occupation of a position.

I recommend it to all.

THE USE OF LANCE-CORPORALS AND LONG-SERVICE SOLDIERS IN TRAINING

COLONEL F. GAVRIKOV IN "VOYENNYY VESTNIK"
(THE MILITARY MESSENGER)*

Lance-corporals and long-service soldiers† are valuable helpers of commanders in the work of training and education. Officers and NCOs should systematically use their services for assisting young soldiers who are in need of their wise leadership.

Lance-corporals and long-service soldiers may be asked by the commander in charge of the exercises to work with those who lag behind in their training. This is bound to a considerable degree to lighten the commander's burden and would enable him to complete his instructional task faster and with greater success. In addition, this kind of use of lance-corporals and long-service soldiers will have a most favourable effect on their own training.

As a rule, most lance-corporals and long-service soldiers are fully familiar with all the skills and knowledge which young soldiers are expected to acquire. Hence, they are called upon to perfect these skills and knowledge while working in the ranks of subunits or by performing the duties of group leaders. By helping the commander to teach soldiers, by training the latter in the performance of various movements or practices lance-corporals and old-service soldiers are steadily perfecting know-how of their own.

A proper use of lance-corporals and long-service soldiers in the training of new personnel is particularly important during the summer period which is replete with field exercises designed to provide solutions to problems of training soldiers and commanders to perfection. Here commanders must teach their subordinates and themselves simultaneously. Every one of these problems can be solved much easier if lance-corporals and long-service soldiers are called upon to devote themselves exclusively to the work of perfecting the knowledge and skills of green soldiers. It is quite clear, however, that commanders will get the greatest possible help from lance-corporals and long-service soldiers if the latter are put through an appropriate

*Published monthly by the Defence Ministry of the USSR. It is a service journal published in the interests of all arms of the Soviet Army.

†Long-service personnel are private soldiers and Non-commissioned Officers of the Soviet Army who re-enlist voluntarily for a set number of years on completion of their compulsory service.—Editor.

preparatory course. The following experiment conducted in one of our sub-units provides, in our opinion, an instructive example of the use of lance-corporals and long-service soldiers in the training of personnel.

A few days before the beginning of a tactical exercise in offensive operations, the sub-unit commander discussed it thoroughly with NCOs. He told them about the problems which would have to be worked out at the exercise and outlined the required preparatory tasks. He ordered them to hold similar discussions with lance-corporals and long-service soldiers earmarked for assisting NCOs in the training of young soldiers.

Discussions held with lance-corporals and long-service soldiers were of a concrete and practical nature. To start with, officers made known to them the subject of the exercise and the training tasks involved. Then, taking into account the various technical aspects, an analysis was made of their part in the work of training young soldiers.

For instance, by way of suggesting what lance-corporals and long-service soldiers could be doing while section commanders were receiving their battle tasks, the sub-unit commander, Officer Osadchiy, mentioned seeing to it that camouflage measures are observed, that the "enemy" is kept under constant observation, etc. He also demanded from lance-corporals and long-service soldiers that, following the oral transmission by section commanders of battle orders, they should direct their attention to the preparation of devices enabling personnel to jump quickly out of trenches, teach soldiers to keep an eye on the "enemy" and show them how to figure out distances to local objects or to spotted targets.

After demonstrating by actual examples how, in the course of an exercise, lance-corporals and long-service soldiers can correct various kinds of faults made by trainees, the commander requested all NCOs to determine beforehand who should pay a special attention and to whom. He advised all NCOs to engage the assistance of lance-corporals and long-service soldiers during exercises by placing them within the formation as near as possible to those trainees whose action they were assigned to supervise.

In our opinion, a specific instruction to lance-corporals and long-service soldiers as to whose performance and in what particular exercise they are called upon to improve would greatly raise the sense of responsibility for a successful execution of their task and serve as an incentive for a purposeful preparation for it. It is not expedient to place more than one or two young soldiers in the care of one lance-corporal or long-service soldier. It should be borne in mind

that the latter, just as much as the young soldier, is engaged in the execution of a specific battle task and, therefore, is not free to go from one place to another as he pleases.

Next, section commanders held several training and briefing periods for lance-corporals and long-service soldiers instructing them in their forthcoming duties. Each one of them was given a specific task, and their knowledge of methods and movements, with which they were supposed to familiarize the trainees, was checked by NCOs.

In assigning training tasks, NCOs took into consideration the state of preparedness of both lance-corporals and long-service soldiers, as well as of the young soldiers whose action had to be supervised. For example, in Sergeant Petrov's section, Privates Ivanchuk and Mukha were lacking a sufficiently developed skill in observing the enemy, in figuring out quickly and accurately distances to spotted targets, in making clear reports on what they had observed. The task of improving their know-how was assigned to Lance-Corporal Mishin who was well versed in these matters. Privates Il'in and Markin could not always keep to the right direction when moving in the extended line formation, lacked precision in conducting fire on the march and in the throwing of grenades. Long-service soldier Titov was given the task of eliminating their shortcomings.

This thorough and purposeful instruction of lance-corporals and long-service soldiers has brought positive results. It contributed greatly to the successful execution of training tasks at exercises.

While keeping the work of lance corporals and long-service soldiers under a constant control and helping them during the exercises, officers and NCOs should insist that they utilize every opportunity for checking the movements of trainees, for correcting faults committed by the latter and, whenever necessary, for showing them how to perform correctly the task or movement at hand.

The following two incidents occurred in the above mentioned subunit. While performing one of the tasks of a training exercise, Lance-Corporal Mishin noticed that Private Ivanchuk, after the command to bound was given by the sergeant, failed to set his rifle bolt on safety. However, Mishin neglected to reprimand Ivanchuk. This did not escape the attention of Sergeant Petrov who, at the very first opportunity, took the lance-corporal to task for his inexacting attitude.

Long-service soldier Titov, called upon to perfect the fighting skills of light machine-gunners Il'in and Markin, performed during the exercises his duties of an instructor with

confidence and in the right manner. When executing the task of changing fire positions, he urged the machine-gunners to make a good use of the terrain, to move forward at the right moment, to open fire effectively, etc. The efficient performance of this long-service soldier was reported by the sergeant to the sub-unit commander who mentioned it during the critique.

A very valuable assistance to the commander may be rendered by lance-corporals and long-service soldiers at firing practices, drill exercises, physical training and other lessons.

Whatever the case, the most important prerequisite for a successful use of lance-corporals and long-service soldiers is the individual approach.

It is commonly known, that the know-how and practices of lance-corporals and long-service soldiers usually vary in regard to different subjects. Some of them may be masters in the use of rifles but, at the same time, are unable to execute faultlessly some of the ordinary drill movements or exercises on gymnastic appliances. Obviously, their help should be sought in the musketry training of young soldiers. On the other hand, lance-corporals and long-service soldiers who excel on the parade ground and in sports should be made use of to the maximum in the drill and physical training of young soldiers.

During lessons or exercises, devoted to any of these subjects, lance-corporals and long-service soldiers should be put to use, first of all, for the purpose of drilling trainees. The commander demonstrates or explains, let us say, a certain drill movement. Then he checks the performance of soldiers and might find it necessary to order a lance-corporal or a long-service soldier to continue practicing the exercise with one or two of the trainees.

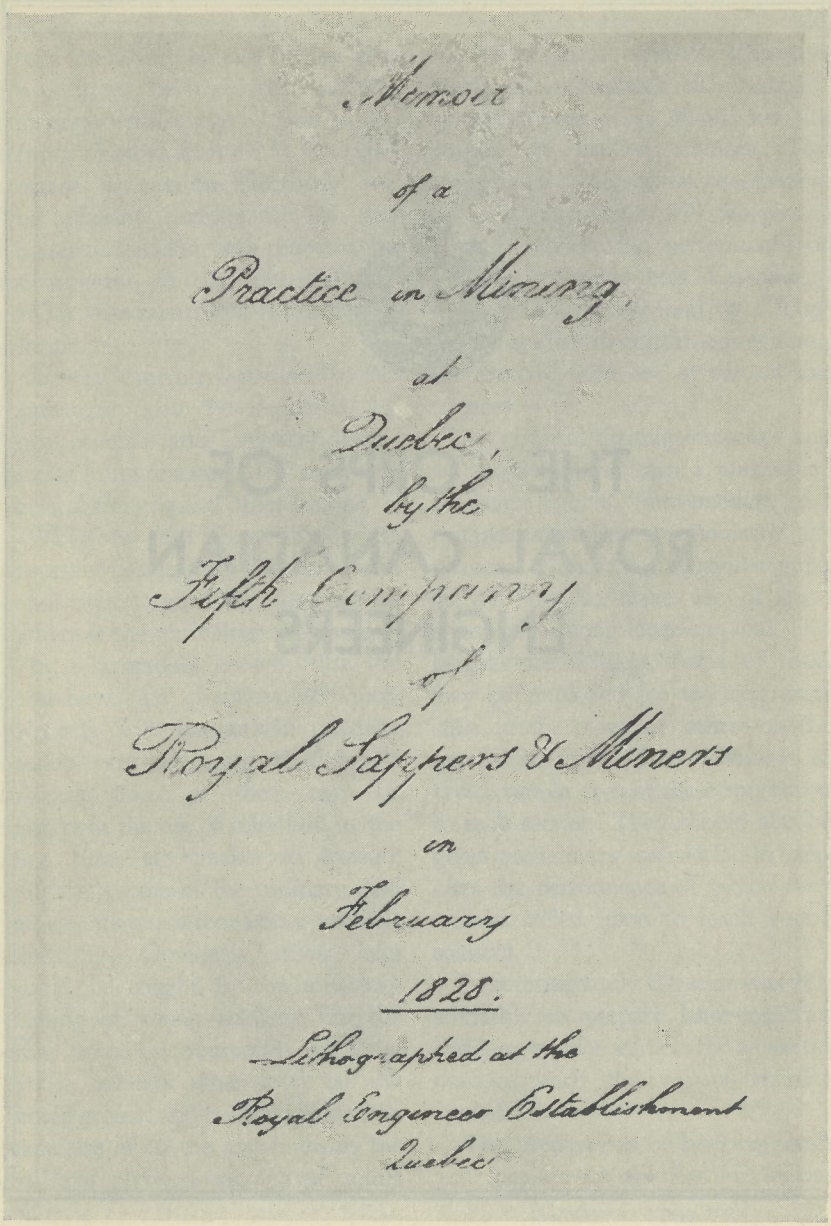
At physical training exercises one must quite often learn a number of different figures (movements), for instance, exercises on gymnastic appliances. Thus, the commander must decide how to make use of good sportsmen among lance-corporals and long-service soldiers. Some of them may be employed for teaching exercises on the cross-bar, others on the parallel bars, etc. It is advisable to attach one or two of these sportsmen to each section. They should also be given preliminary instruction in exercises the performance of which they will be called upon to teach young soldiers.

In approximately the same way it is advisable to prepare lance-corporals and long-service soldiers for musketry practice with the use of training appliances.

The preparation of lance-corporals and long-service soldiers for lessons

(*Continued on page 160*)

THE CORPS OF ROYAL CANADIAN ENGINEERS



Memoir

of a

Practice in Mining,

at

Quebec,

by the

Fifth Company

of

Royal Sappers & Miners

in

February

1828.

Lithographed at the

Royal Engineer Establishment

Quebec

MEMOIR OF A PRACTICE IN MINING

The following is reproduced from an original document in the possession of the Office of the Chief Engineer at Army Headquarters, Ottawa. A reproduction of the title page of this document appears on the facing page. —Editor.

* * *

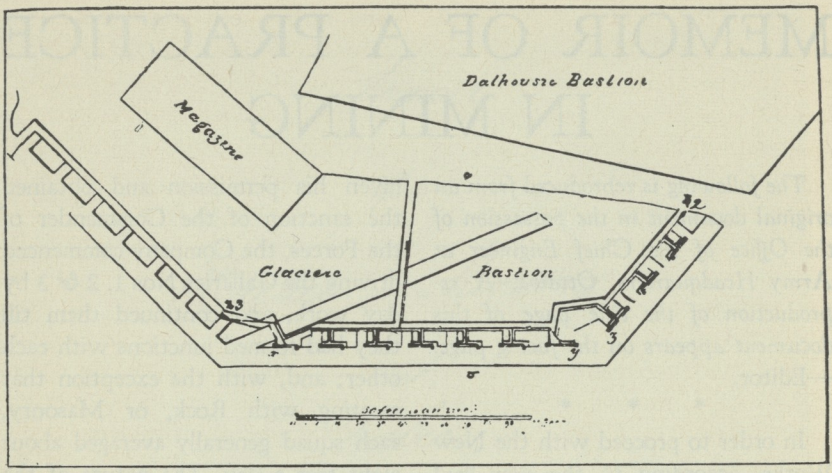
In order to proceed with the New Works, according to the plan laid down for the formation of a Citadel at Quebec, it became necessary to remove a portion of the Old French Works, called the Placière Bastion, to give place to a new Counterguard, intended to cover the Escarp of both faces of Dalhousie Bastion from the high ground on the Plains of Abraham.

The 5th Company of Royal Sappers & Miners having been out of England between 4 & 5 years and the arduous duties of the Corps in Canada affording them little or no time for instruction in their Field Duties, it was considered that the demolition of this Work, by a System of Mines, would not only afford most useful instruction to the Company, but would probably be the most economical & effectual method of shaking down its Escarp.

The Commanding Engineer having given his permission and obtained the sanction of the Commander of the Forces, the Company commenced driving the Galleries Nos 1, 2 & 3 by day work, and continued them till they had formed junctions with each other; and, with the exception that meeting with Rock, or Masonry, each squad generally averaged about eight feet a day. The nature of the soil was clayey, occasionally mixed with fragments of Rock-made ground but having acquired from the length of time it had lain together, a considerable degree of compactness.

The Galleries being completed, the Company was told off into three Brigades, consisting of one Serjeant, three Corporals, and nine privates, with orders to relieve each other every six hours; and the remainder of the Company, off duty, were employed in making the Coffers, hose, & casing tubes; and occasionally relieved such men, as felt oppressed by too long confinement under ground.

On Monday the 11th of Feby, the Branches & Chambers were commenced, at the points X, Y & Z, leaving each Squad nearly an equal portion of labour; and as soon as the coffers were properly fixed and filled,



and the Train laid, each Squad commenced a fresh Branch, and the excavation was employed in tamping the one just completed.

By this arrangement, the whole of the Branches & Chambers, measuring about 370 feet in length were excavated; the powder placed in the Chambers; the Train laid; and the whole tamped up, and ready for explosion, on the Monday following.

A Coffer 13 inches cube, containing 70 lbs of powder, was placed, its own depth, in each Counterfort, at its junction with the Scarp and another of 12 inches cube, containing 50 lbs, was placed its own depth in the back of the Scarp equidistant from those in the adjacent Counterforts.

The Line of least resistance, opposite the 70 lbs, was nearly nine feet; & opposite the 50 lbs, nearly 8 feet; & the average height of the Scarp was from 21 to 25 feet.

It is not thought necessary to enter into the detail of the dimensions of the Galleries, Branches etc, as the system pursued was strictly conformable to the instructions received from Chatham.

On Tuesday the 19th February, The Earl of Dalhousie, Governor General, & Commander of the Forces in His Majesty's North American Provinces, accompanied by his Staff and a great number of others, both Civil and Military, attended to witness the explosion.

The Galleries being, in several parts, very wet, & fearing from the length of time it required to prepare the Mines, that the powder in the hose might get damp, it was determined to fire the Mines at the three points 1, 2 & 3, & thereby produce a

more simultaneous explosion; but the Sapper stationed at No. 3, having taken the signal from the Bugle when His Lordship & the Spectators were stationed, instead of waiting for the repeating Bugle on the spot, the whole of the Mines, 20 in number, were exploded from that point.

The effect produced, far surpassed the most sanguine expectations of the Officers employed upon this service, called forth the most flattering applause from the Spectators, and induced The Commanding Engineer to direct the present Memoir to be drawn up.

The Explosion not only crumbled the Escarp to pieces without projecting a stone 50 feet from its original position, but brought down the whole of the parapet together with its interior Revetment, forming throughout the whole line a most practicable Breach.

The only parts which descended in masses were the exterior Revetment of the Parapet and the earth between that & the interior Revetment, showing the enormous power of the intense cold in Canada which strikes nearly four feet into the ground.

The Escarp was of Rubble Masonry and in an excellent state of preservation.

As an honorable testimony to the Officers and Company employed on this Service the Order of the Commanding Engineer on the occasion is hereunto annexed, and to show the Corps of Royal Sappers & Miners that their Services are not always overlooked by Officers unconnected with the Department. It will not be deemed superfluous to add that His Lordship the Governor Genl & Commander of the Forces on the present occasion, requested that the 5th Company of Royal Sappers & Miners might be allowed to entertain themselves and friends with a Ball & Supper at his expense in the New Casemated Barracks lately erected by them in the Citadel.

Remarks deduced from the foregoing Practice

1st. As the Mines were exploded from one point instead of three as intended, and as the interval of time between the first and last explosion in a distance of at least 220 feet did certainly not exceed three seconds, it is presumed that a simultaneous explosion of Mines requiring great length of hose, much time to adjust, and great additional labour can seldom or never be required, and if resorted to, that the effect would not be materially increased.

2ndly. From the immense masses in which the Earthen parapet descended without being shaken, it is almost evident, that in a cold climate, during the winter season, Rock may be excavated with greater facility

than Earth when both are equally exposed to the effects of Frost.

3rdly. That the distance to which a Gallery may be driven without the aid of Bellows, depends entirely upon the state and temperature of the atmosphere. In the present instance No. 1 was driven at least 140 feet and the lights burnt tolerably well though light men were frequently employed in it.

Copy of the Order issued by the Commanding Royal Engineer referred to in page 5.

C.R.E. Orders

Quebec, 19th Feby 1828

The magnificent sight, which has this day been witnessed and at which His Lordship the Commander of the Forces personally expressed his gratification, viz the blowing down of the Old Face & Flank of the late Glacière Bastion on Cape Diamond, in length about 260 & height 25 feet, calls upon Colonel Durnford to express his best thanks to Captain Melhuish & Lieutenant Luxmoore, Baddeley, and Wulff of the Royal Engineers, for their judicious arrangements and attention to this Service, which has been so scientifically and successfully performed, and will be a lasting record of their abilities.

To Colour Serjeant Dunnett, Serjeant Young, Acting Serjeant Smith, and the other N.C. Officers & Privates of the 5th Company of Royal Sappers & Miners, Colonel Durnford begs that Captain Melhuish will convey his high approbation of the zeal & ability with which they have performed this portion of practical duty, and to assure them that a Report of it shall be made to the Inspector General of Fortifications, as well as to the Director of the Establishment for the Field Instruction of the Corps, in order that the success of the operation may be recorded to the credit of the 5th Company.

A Correction

The Editor has been informed that an error occurred in the article entitled "Royal Canadian Engineers Militia Trophies" which was published in the July 1955 issue of the *Journal*.

With reference to the Lindsay Memorial Trophy (page 128), it was inadvertently reported that this trophy "was made available through a public appeal for funds and its introduction was announced by the MEAC [Military Engineers Association of Canada] in 1952."

Information has since been received from Major-General G. R. Turner of Ottawa, retired Engineer officer, that contributions received were entirely from personnel who had served in commissioned ranks in the Canadian Engineers in the First World War.

THE ROYAL CANADIAN ORDNANCE CORPS

THE HISTORICAL ASSOCIATIONS OF THE RCOC BADGE

By

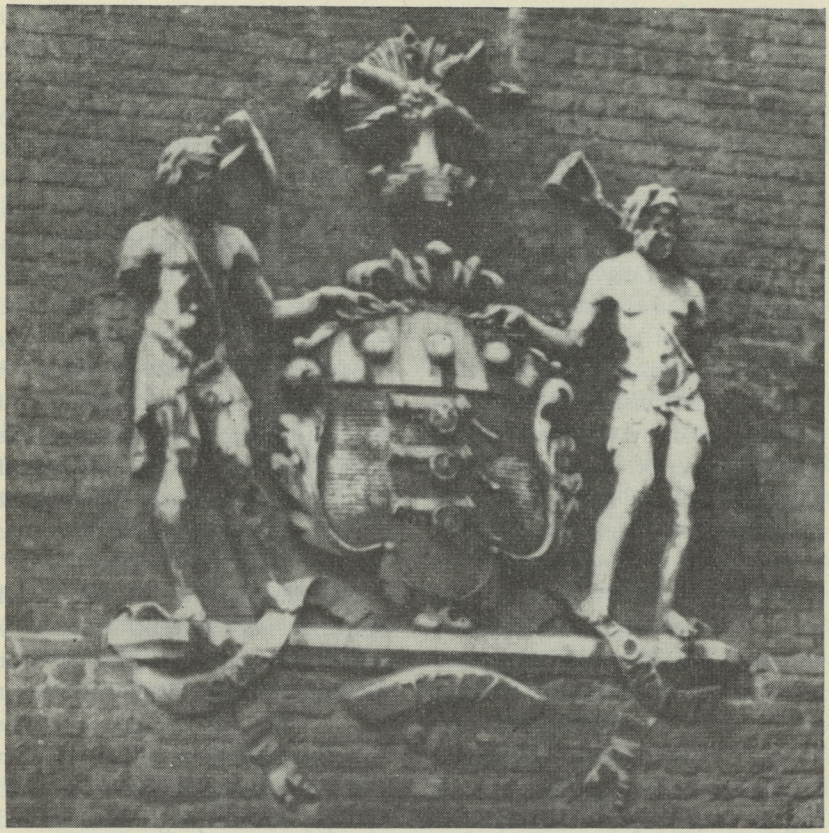
Lieut.-Colonel W. D. Timmerman, CD, in collaboration with
Captain J. P. Leclerc, Directorate of Ordnance Services, Army Headquarters, Ottawa

The centenary of the Militia Act of 1855 has been marked by the publication of several articles on the history and traditions of the army through the hundred year span. The anniversary has caused a certain amount of retrospective study of Canadian and British events, which makes an acceptable change from our normal pursuit of peering into the uncertain future of the atomic age.

In similar vein, it seems an appropriate time to recount some of the more interesting facts pertaining to the evolution of the design and the historical associations of the regimental badge of the Royal Canadian Ordnance Corps. It is hoped that this will refresh the knowledge of members of the RCOC and be of interest to *Journal* readers in general.

Those readers whose early formal studies were sometimes diverted by a healthy appetite for "Chums" and the "Boys Own Annual" will recall the picturesque and colourful coats of arms and heraldic devices which the English heroes wore on their shields, armour, horse trappings and banners during their adventures. It is generally accepted that true heraldry began during the 12th century and, in their early form, heraldic insignia were simple in design and personal to their owner. With the introduction of armour and the visored helmet in the 13th century, the wearer's identity could only be established by his pictorial shield and embroidered surcoat. These were necessary as a means of recognition in battle. Banners and standards, charged with the badge or coat of arms, were used as visual rallying points. An Article of War of 1385 by Richard II instructed that "every man shall wear the sign of the Arms of St. George before and another behind". It became the custom for retainers to wear their lord's insignia embroidered on the breast, back or sleeves of their jerkins. This practice continued into the 16th century, when it died out with the decline in the use of armour.

Although heraldic emblems are referred to comprehensively by the term "coats of arms", this term, if properly used, relates only to the devices which figure on the shield. The technical word for the entire emblem is the "achievement", and includes the shield, crest, motto and supporters. The coat of arms, then,



The Arms of the Board of Ordnance built into a wall in the Tower of London. They are said to be from the Board of Ordnance Main Building, since demolished.

is the device, insignia or picture represented upon a shield.

To trace the origin of the design of the RCOC badge, one must first go back to the organization in the British Army of the Royal Army Ordnance Corps, at which time the Arms of the ancient Board of Ordnance were adopted as the motif for the RAOC badge. A much longer journey into the past must then be taken if the circumstances under which these Arms first came into use are to be established.

As long ago as 1414 in England there are records of a Master of Ordnance. The establishment of this office merged some of the duties conducted jointly since the 12th century by the Lord High Constable, the

Marshal and the Keeper of the King's Wardrobe. These gentlemen were responsible for the stock of battering rams, catapults, slings and such formidable weapons, which were stored in the Tower of London. As a result of the invention of gunpowder about 1313, and the increase in the administrative and provision responsibility in connection with the Crown stock of cannon, the Master of Ordnance was appointed. It is of interest to note that this position was normally held by the most distinguished soldier of the time, examples being the Duke of Marlborough and the Duke of Wellington.

The growing importance of this function to the Crown finally brought about the founding of the Board of Ordnance in 1518, with headquarters in the Tower of London, the principal arsenal of the country. An idea of the broad scope of the terms of reference of the Board, as taken from an old English manuscript, is contained in the following:

To see that in war, camps have sufficient munitions.

To take charge of all ammunitions, cannon, side-arms and warlike stores generally.

To park and guard such stores on the site allotted by the Provost Marshal.

To ensure that there are enough smiths, artificers, carpenters, etc., for service in the field.

To arrange for the issue of such munitions as may be required.

To site the artillery in the most advantageous positions during the battle.

From a prestige viewpoint, it followed that the Board soon adopted armourial bearings. Although the use of the shield and its coat of arms was unofficially started soon after the organization of the Board, the identity of the individuals responsible for and the actual date of the design of the entire "achievement" cannot be clearly established. It was probably the accumulated efforts of several successive Masters of Ordnance, and was approved in 1806. That it was in use long before 1806 is inferred in the wording of the Royal Warrant of that date, which merely ratified, as many Warrants have done, a piece of old established custom. The grant of arms was duly registered at the College of Arms on 16 May 1823.

The designers of the Board of Ordnance "achievement" apparently drew on ancient mythology for their inspiration. From the illustration it can be seen that the shield carries "three field pieces" and "three cannon balls". Supporting the shield are two Cyclops, one carrying a hammer and the other a pair of tongs. The crest above the shield depicts a right hand grasping a "thunderbolt winged and enflamed". Completing the whole is the motto "Sua Tela Tonanti". We are indebted to an RAOC officer, Brigadier C. E. de Wolff, CB, CBE, for an interesting version of a legend which seems to suit the presentation:

"One day Jupiter or Jove was angry with the Earth, and decided that a definite assertion of his power

could best be displayed by hurling thunderbolts at the miscreants. In order to get an impressive quantity, he enlisted the aid of Vulcan, a forge operator and ironmonger of the period. The thunderbolts were duly forged by Vulcan's workmen, the two one-eyed artisans called Cyclops, and dispatched earthward by Jone's good right arm".

In regard to the motto, we have the result of investigation and studies made by the late Major Asser, RAOC, and the late Mr. A. E. Houseman, a professor of Latin poetry. Such a phrase as "Sua Tela Tonanti" is not uncommon, but the translation is rather difficult owing to the lack of a verb. It is thought possible that it is an abbreviated free adoption of a line from Manilius:

"Eripvitque Jovi Fulmen Viresque Tonanti".

(Reason or science has wrested from Jove his lightning and strength).

"Sua tela" (his weapons) are the equivalent in sense of "Fulmen Viresque (lightning or strength and power). From this, the translation becomes:

"Science has wrested from thundering Jove his weapons".

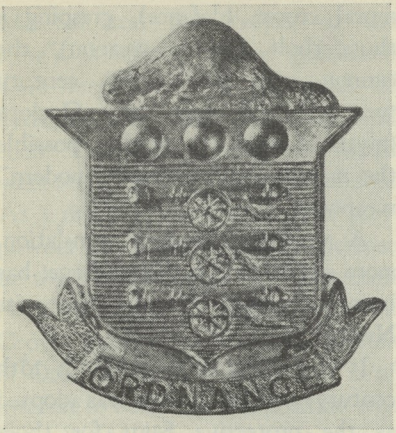
This seems to be a very probable explanation when one considers that a motto was customarily selected which alluded to the "achievement". In the "achievement" the crest denotes an arm (strength) out of the mural crown (defence), grasping a thunderbolt (Jove's weapon), the cannon and shot (16th century weapons) and supporting Cyclops (mythical artificers making possible the manufacture of these "modern" weapons).

A very free modern translation, more suited to this day and age, has been suggested: "To the Army its Needs".

It was about this time (14th–15th century) that St. Barbara was adopted as the protective Saint for those connected with the handling of explosives and guns. Those familiar with her martyrdom will see a possible connection between the thunder and lightning revenge of her execution and the legend of Jove hurling thunderbolts recounted previously. To this day St. Barbara is the patroness for the Royal Artillery, Royal Engineers and Royal Army Ordnance Corps, which all trace their lineage to the old Board of Ordnance.

The Board of Ordnance ceased its long tenancy of the Tower of London in 1820, when it moved to Pall Mall. As a result of the experience of the Franco-Spanish Wars and the Crimean War, the Board was abolished in 1855, after some 400 years of existence and its duties taken over by the War Department.

Eventually, in 1896, the Army Ordnance Corps was established and Queen Victoria approved the design

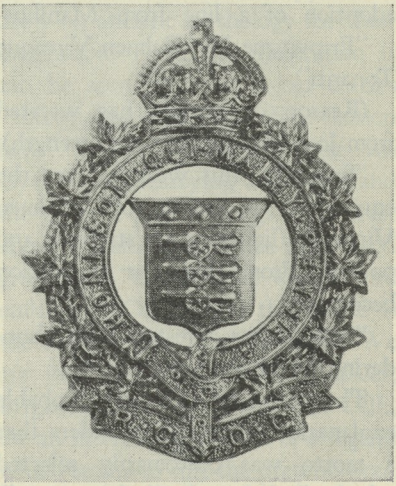


The Ordnance Corps badge which received official approval in 1904. The beaver was selected as a distinctive Canadian emblem to distinguish this badge from that of the parent British corps.

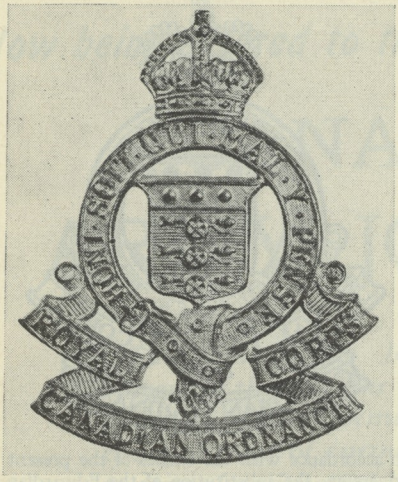
of the regimental badge "in accordance with the ancient arms of the Board of Ordnance". Succeeding years brought the normal number of minor changes in design, the most important being the authorized addition of "Royal" in 1918, following the First World War.

Let us now turn our attention to the Canadian scene. The Crimean War had forced Britain to recall some 4000 troops, and by 1871, shortly after confederation, a small garrison at Halifax was all that remained of the British regulars. The Canadian authorities took over the large stocks of military stores left behind and formed a civilian Stores Department to look after the equipment, buildings, forts and armaments. This organization equipped the units for the Red River Expedition in 1871, and the newly formed North-West Mounted Police in 1873. Other major projects that followed were The North-West Rebellion and the South African Expeditionary Force.

In 1903, as a result of a survey by a British officer, Major-General Hutton, a complete reorganization was effected, and the Ordnance Stores Corps formed, following the British precedent. The initial establishment was 20 officers and 86 men, many of whom were enlisted from the civilian department. For the first time, the provision, inspection and distribution of warlike stores came under military jurisdiction. A government department headed by the Director of



When the Canadian Ordnance Corps was granted the privilege of the prefix "Royal", the Crown replaced the beaver, as shown above.



This version of the RCOC badge was authorized in 1926. It shows a slightly enlarged badge, with more prominence given to the Corps' name.

Contracts remained as the purchasing agency.

In 1904, the new Ordnance Corps badge received official approval. As illustrated, it depicts the Board of Ordnance shield, surmounted by a beaver. The beaver was selected as a distinctive Canadian emblem to distinguish the new badge from that of the parent British Corps. By 1907, the first general regulations on equipment and clothing were issued, standing orders published and the name changed to Canadian Ordnance Corps.

As a result of the excellent service rendered in the First World War, the Corps was granted the use of the prefix "Royal" in 1919. This necessitated a change in design of the Corps badge, which was approved by G.O. 46 of 1922. As will be seen from the illustration, the crown replaced the beaver as the crest of the badge. The insignia of the Royal Garter was introduced to support the shield and crest, and the letters RCOC on a scroll added at the base. This left no suitable place for the Canadian beaver, but the national touch was retained by encircling the Royal Garter with a wreath of Maple Leaves.

In 1926, the present version of the Corps badge was authorized by G.O. 48. This redesign enlarged the badge slightly and followed the trend to giving more prominence to the Corps name. The wreath of Maple Leaves was removed and the basic scroll enlarged to accommodate the Corps name in full. With the word "Canadian" appearing on the badge it was apparently decided that the Maple Leaves were no longer required as a distinguishing feature. The present badge is considered to be an excellent combination of the best features of modern taste and ancient heraldic art.

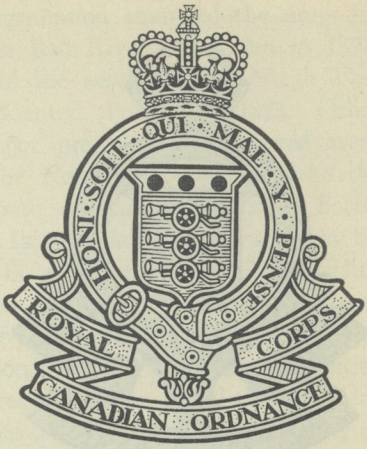
Finally, in accordance with the wishes of the present sovereign, the substitution of the Edwardian Crown for the original Imperial Crown has now been incorporated into the existing design.

While searching through the back-

ground material on which this brief article has been based, one gained a clear impression of the ever-increasing importance of the supply services as the tools of war became more complicated. The modern logistical problems of Ordnance are indeed a far cry from those of the original Board of Ordnance, but in each intervening era, Ordnance services provided a strong backbone of security in times of crisis. One thinks of the descriptive words of the Rt. Hon. Winston Churchill, who, writing in "The River War", published in 1899, said in part:

"The fierce glory that plays on the red, triumphant bayonets dazzles the observer. . . Yet even the military student, in his zeal to master the fascinating combinations of actual conflict, often forgets the far more intricate complications of supply".

Let all those who wear the modern badge of the Royal Canadian Ordnance Corps bear always in mind their association with the traditions of the past and strive to extend into the future the same high principles of service which they have inherited.



In accordance with the wishes of the present Sovereign, the substitution of the Edwardian Crown for the original Imperial Crown has now been made, as shown in this illustration of the existing RCOC badge.

The Use of Lance-Corporals and Long-Service Soldiers in Training

(*Continued from page 146*)

at which they will be called upon to teach young trainees should be most detailed and thorough. In every case they should be well briefed on the purpose of each exercise, on the consecutive order of working out of all training problems and, furthermore, every one of them should be told what and whom specifically he will have to teach. And after they gain a clear understanding of their tasks, their own skill and knowledge of the subject in question should be tested.

A proper use of lance-corporals and long-service soldiers in the capacity of assistant instructors in the training of young soldiers will help the commander to prepare his subordinates faster, more completely and expertly for skilled action in the field.

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