Canadian ARMY Journal

VOL. XV Nº 3 SUMMER 1961

CANADIAN ARMY JOURNAL

The aim of the Canadian Army Journal, which is published quarterly by the Directorate of Military Training under authority of the Chief of the General Staff, is to provide the Canadian Army with information designed to keep it abreast of current military trends, and to stimulate interest in military affairs. The views expressed by authors are their own and are not necessarily those of the Department of National Defence.

CONTENTS

General Section

Canadian Army Orders

The Royal Canadian Corps of Signals

The Royal Canadian Army Service Corps

The Royal Canadian Army Medical Corps

The Canadian Provost Corps

The Cover

Tibetan tribesmen meet British Army officers on a treaty mission, 1903. The *Journal's* artist depicts a scene in a campaign undertaken in a country about which very little was known before it projected itself into world news when Communist China seized control of Tibet in 1951. See "Absurd Campaign", page 83.

National Survival

Re-entry Operations into a Damaged Area

A REPORT PREPARED BY THE DIRECTORATE OF SURVIVAL OPERATIONS AND PLANS, ARMY HEADQUARTERS, OTTAWA

Aim

The aim of re-entry operations into a damaged area is to save lives.

Planning

In any consideration of the situation that would exist following a nuclear attack, and of the many different activities that would be essential following an attack, it is convenient to think of the post-attack period in three phases:

1. The life-saving phase. In this period life-saving operations would be of paramount importance with others being accorded lower priorities. This phase would likely be of very short duration, possibly three or four days at the most.

2. The survival - of - the - nation phase. This would follow immediately after the life-saving phase and would last somewhat longer. It would be during this phase that the many other high priority tasks would have to be carried out. Arrangements made and activities permitted during this phase would be those concerned with ensuring the continued existence, on an austere basis, of those utilities and other organizations essential to their continued survival.

3. The restoration phase. This phase would gradually emerge from the survival-of-the-nation phase. It would go on until the nation had been restored to what would become the normal situation in the country for a good many years after the attack.

This article will consider the Army's activities in the life-saving phase only and will not discuss such other responsibilities as might devolve upon the Army in later phases.

In studying the problems of re-entry the conclusion has been reached that to delay operational planning until after the occurrence of an attack would be a serious mistake.

The disruption to communications that would result from a nuclear attack would make it extremely difficult for a higher commander to influence the actions of his units effectively for some time — up to several hours. During this time, control must be decentralized down to units of even a few men, because it is in this period that vigorous action is most necessary by those units on the immediate periphery of the damaged area.

By means of a "standing operational plan", previously rehearsed, units must be constantly ready to commence operations with little in the way of orders from higher command. The standing operational plan must include variations and modifications to meet all foreseen contingencies.

Target Area Headquarters

A headquarters is necessary for each probable target area. The Target Area Commander is to be

designated in each case in peacetime so that he may become completely familiar with his tasks. He will have a successor designated to replace him at an alternative headquarters located sufficiently far away that one strike will not eliminate both. The Target Area HQ and its alternative are to be situated as close to the target as safety will permit—possibly 20 to 45 miles from the centre of the target area.

Privy Council Order 656 of 1959, the Civil Defence Order, gave the Army the responsibility for the control of traffic and movement of people within areas damaged by nuclear explosion and within seriously contaminated areas. Studies of disasters have shown that large numbers of people tend to converge on the scene and that if traffic control is not established in the area adjacent to the damage area, the situation is likely to become chaotic. Experience suggests that, under certain circumstances, traffic control should be established as far out as 40 miles from the disaster.

It is important that the movement of homeless survivors, and of re-entry forces and welfare, medical and other agencies, with direct responsibilities in the disaster area, should be facilitated. For this reason, the Army must have authority to control movement and traffic and to direct police forces to a distance of some 40 miles from the centre of the stricken city. This control would be exercised through the Target Area HQ which would co-ordinate movements with the other agencies concerned. It is not necessary to extend the Army's control of physical resources beyond the area of immediate damage and there is no intention of doing so.

The Target Area HQ will plan and conduct re-entry operations and will be responsible for coordinating them with the necessary provincial and municipal authorities. It will be manned in peacetime by a skeleton staff of Regulars who will be responsible for collecting and maintaining the necessary data on which to base re-entry operations. Such data must include population densities and their variations, types of construction, fire hazards and fire breaks, municipal utilities, obstacles to movement, availability of routes, and civilian officials and their normal locations. All those departments and agencies with emergency responsibilities in the damaged area would be invited to maintain representatives at the Target Area HQ in emergency. Information on the damage, fire and radiation situation will be available there and it is from there that the fire and police services can most readily be directed. Cooperation between re-entry forces and other agencies with responsibilities in the damaged area such as health and welfare can best be arranged there. It and the emergency location of the municipal government should be located as close together as is practicable.

Organization for Control

It has become quite clear that the Army would be faced with two major problems immediately following an attack on this country:

1. Controlling movement and other activity in the area of operations, and
2. Finding adequate manpower and bringing it to bear on the rescue task.

Deployment of Forces

Before considering the details of the system of control that should

be organized it is necessary to review the situation in which the armed forces would find themselves when the attack occurred.

It is felt that two situations should be considered:

1. The first would occur if no strategic warning had been received, or if it had been thought unwise to re-deploy the armed forces in a time of tension. In this situation, plans must provide for re-entry using the forces as they existed immediately after the attack.

2. The second would occur if strategic warning had been received and re-deployment had been authorized. In this case it might have been possible to move Regular forces from distant locations, or from inside target areas, to assembly areas at an effective range from probable targets. In this situation permission might also have been given to call out the Militia and concentrate units at pre-selected assembly areas. These circumstances would have enabled almost all the military forces to be used effectively in the re-entry battle. It should be relatively simple to plan the employment of forces under these conditions.

While plans must be made for both situations, the problems involved in the first would probably be the more difficult. The discussion in this article will be limited to those.

Division of Target Areas into Sectors

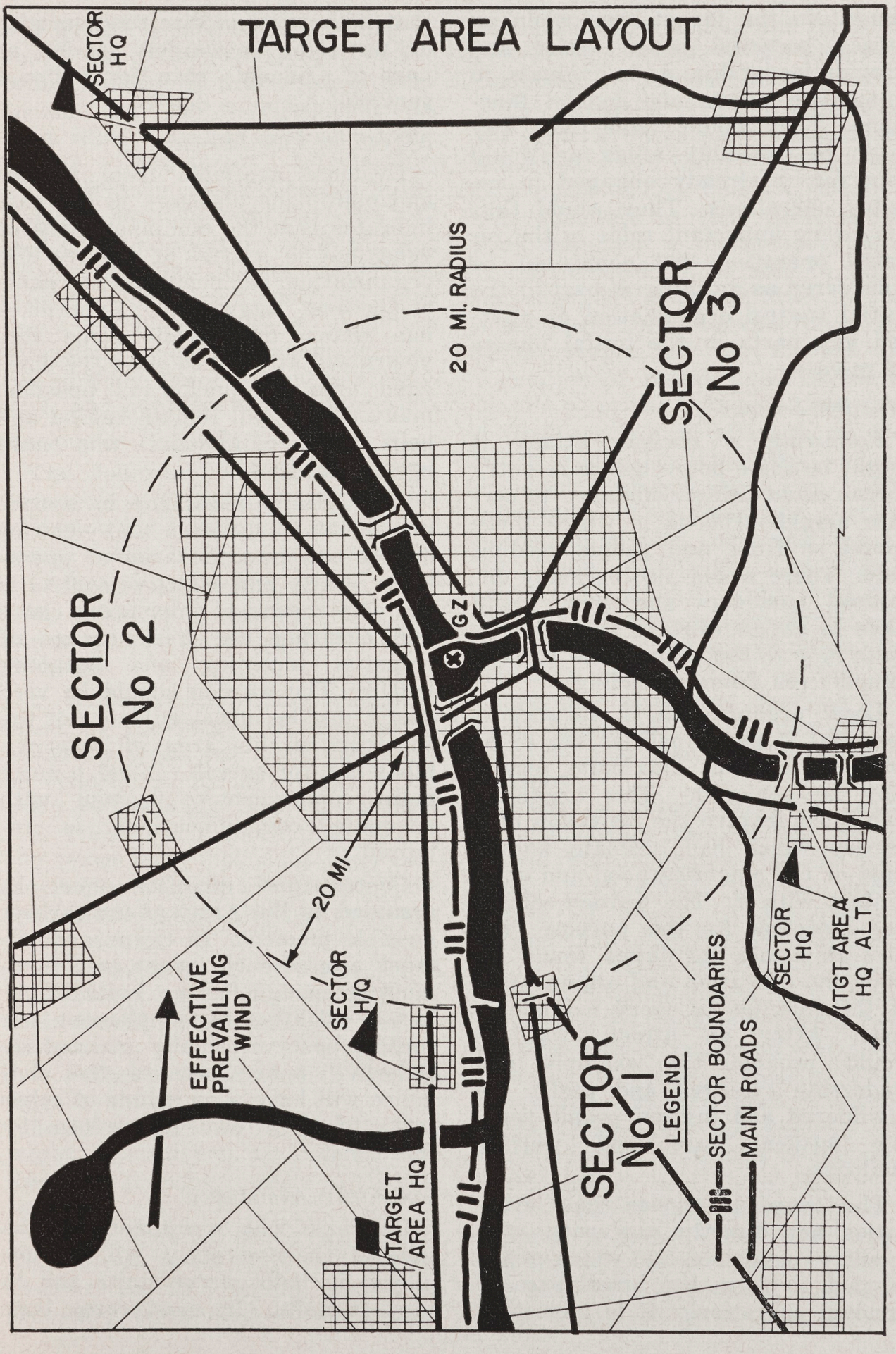
From a study of the topography of our probable target cities it is apparent that the blast and thermal effects of a nuclear attack would tend to divide a city into areas, between which movement would be difficult. In addition to this, most target areas are too large for one headquarters to control in detail. It is therefore necessary to divide the target area into sectors, each with its own headquarters to control rescue operations in detail. These headquarters will be static in nature and located on the periphery of the target area. In the event of attack they will be manned by Regular personnel on other establishments or Militia designated and trained for the purpose.

Each sector should have at least one main road leading through it. After a thorough study of the route clearance problem it was concluded that, for maximum effectiveness, only one route could be cleared in each sector. The maximum number of routes that could be cleared in cities was found in general to be four. In small target cities there should be at least two sectors, since certain locations of ground zero or unusual winds might knock out a single sector or render it ineffective. The second should therefore be provided and act as an alternative if necessary.

Warning of Attack

It is expected that, in the event of attack, the National Survival Attack Warning System would sound the "Alert" on the sirens. The purpose of the alert would be to warn people to listen to the radio for further instructions. As attack became imminent the "Take Cover" would be sounded and all should take the best cover available to them. The Nuclear Detonation and Fallout Reporting System would report the location of the burst and this would be broadcast over the radio together with a prediction of fallout as appropriate.

Those who survived among the civil police, Militia, or Regular Army


TARGET AREA LAYOUT
SECTOR HQ
20 MI. RADIUS
SECTOR No 3
SECTOR No 2
GZ
20 MI
SECTOR H/Q
EFFECTIVE PREVAILING WIND
TARGET AREA HQ
SECTOR No 1
LEGEND
SECTOR BOUNDARIES
MAIN ROADS
SECTOR HQ
(TGT AREA HQ ALT)

caught in the target area when an attack occurred could assist and provide leadership, as individuals, in immediate rescue and control functions. They would make their way later to assembly areas or would join forces already engaged in re-entry operations. They would thus play very important roles in the re-entry operation, but could not be considered as an integral part of the initial control organization or allotted key parts in the initial phases of re-entry.

Warden Service

Following a nuclear attack it might be some hours before re-entry forces could bring assistance to certain neighbourhoods in which there would be fires, and people needing help. There would also be many uninjured survivors and they would have to get to work to bring immediate help to the injured and to keep minor fires from spreading.

Local organization in advance is essential if municipalities are to be prepared so that maximum results may be achieved. This organization must involve the provision of a service which has intimate knowledge of the neighbourhood and daily contact with it. The warden service was conceived for this purpose. Before an attack its duties would include the education and organization of the families in every neighbourhood. After an attack, wardens would provide the example and leadership required and assist the bewildered and injured people seeking medical care and welfare facilities.

The warden service has other duties not directly concerned with re-entry operations and which might be said to form the broad base of survival operations. It is important that authorities realize the necessity of providing a warden service as part of Canada's plan for national survival.

Effect on Population

Evidence available from natural and man-made disasters in the past indicates that the dominant mode of behaviour is a kind of passive disorganization, i.e., people do not panic or become aggressive. Experience has shown that, while some survivors will attempt to leave the damaged area as quickly as possible, many others will remain behind and help their neighbours who need rescue and first aid.

It is vitally necessary to control movement of persons and vehicles out of and into the area of operations. Early and effective control is the only means of preventing chaos and ensuring the free passage of essential incoming and outgoing traffic. The warden should be very useful for the initial guidance of the survivors in his area of responsibility but, for overall control, a much more comprehensive system with adequate communications is required.

Control and direction must be assumed by the Army at the earliest possible moment. In towns and villages around each target area there must be enough Provost units, Regular or Militia, to supplement the control posts originally manned by the civil police because the civil police will have a multitude of other tasks of their own to perform by this time.

Volunteer Assistance

Civilians who volunteer at the time of the emergency will be employed in both rescue units and in support units. In most cases they

will not be needed after a period of about 48 hours, since any rescue tasks remaining will require technicians and heavy equipment. In most cases this can be carried out by the armed forces. All civilians who volunteer their assistance in the re-entry into the damaged area will be directed by military units and will receive the same logistic support as soldiers. This will include such items as food, personal radiation dosimeters, medical treatment, special clothing, decontamination, transport, and quarters where necessary.

Manpower Potential

The following assumptions have been used in estimating the numbers of people who would be available for rescue duties in re-entry operations:

1. Rescue operations, to be effective, must be undertaken at once and must be completed within some 48 hours.

2. While persons living within 20 miles of the centre of the target would be employed, they could not be counted on for key tasks in re-entry immediately after the attack.

3. Those living more than 100 to 150 miles away have not been considered at this time because of the time needed to get them to the scene of operations.

4. Rescuers would be males, 16 to 60 years of age, and about 20% of these would be available for rescue duties.

5. Females would be employed in support units.

6. About 25% of downwind area might be subject to fallout and therefore probably unable to provide rescuers.

7. It is expected that rescuers will work about 24-36 hours in the first 48-hour period. Reliefs would be necessary to allow for their decontamination and feeding and for short rest periods outside of the area contaminated by radioactive materials.

The previous Army organization for survival operations was designed some years ago when the Army was in support of civil defence. While it was adequate at that time, it has been necessary to revise Army plans if the Army is to be able to fulfill its changed responsibilities in re-entry operations. Rescue forces are being reorganized now through the formation of rescue units known as Mobile Survival Columns, each with a military cadre element of 120 which could, in the event of an emergency, absorb about 380 civilian volunteers. The arms and services needed to support these rescue units are being organized on a similar basis and, under the control of Sector HQ, allotted in accordance with the likely needs of the situation. The numbers necessary to provide the supporting arms and services have been estimated, on the average, to be 300 men per Mobile Survival Column.

Study of rescue work in peacetime disasters and in the Second World War indicates that the main need, particularly in the initial stages of rescue, is for rescuers rather than complicated equipment. Study has also shown that volunteers in large numbers have always converged on the disaster area from outside, both in peace and war, ready to assist in rescue operations. These convergers are motivated in various ways. There are the anxious who have friends or relatives in the damaged areas and who come in to find out if they survived and to attempt to assist them. Then there are the helpers who come in, knowing that help is needed, to do their part. There are in addition the curi-

ous, who come simply to find out what has happened. Again, we have the returners who possibly had left the scene of the disaster shortly before it occurred or immediately after. Finally there are the exploiters who normally show up in the hope that they may gain in some way from doing so. Whatever their motivation may be, it has been proved time and again that if the authorities adopt a negative attitude toward the convergers and simply try to disperse them, their efforts will be unsuccessful. If, however, the authorities adopt a positive attitude toward the convergers and organize them and put them to work, a great deal of useful work can be accomplished in a short time.

It is believed that Canadians will react in a similar manner and that many will volunteer in the emergency. Planning has been based on the assumption that convergers and volunteers will follow the normal pattern and that we should therefore provide the organization and leadership necessary to take immediate advantage of their presence.

Each Regular Force Garrison outside of target areas has been assessed to estimate how many columns of 500 all ranks and how many military command cadres could be provided for the nearest target area.

Approval has been granted to raising additional Militia units in the areas around our likely target cities and close to them. It is desirable that these Militia units should be raised in as many of the towns as possible in the area 20 to 100 or 150 miles from likely target areas. This plan may well require certain adjustments and relocation of Militia units as well as the organization of new units, and will be developed and adjusted as time goes on. The detailed planning to achieve this expansion has been started by Army Commands and Areas.

This system will permit the use of the greater part of the manpower available for rescue. It can be further expanded, perhaps, by several means such as going farther afield, but the limit is being approached.

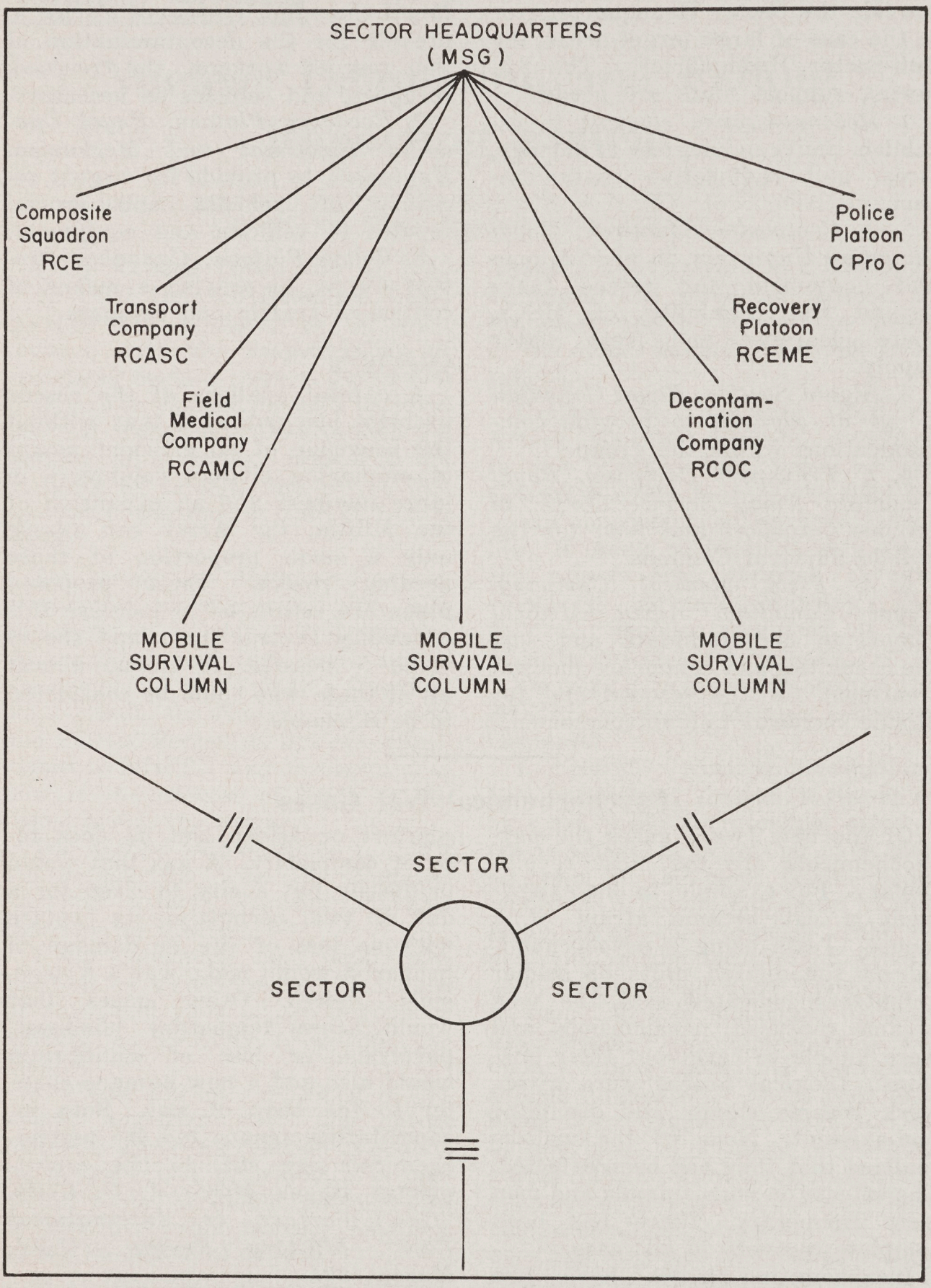
Supporting Arms and Services

In the case of supporting arms and services methods similar to those used for the provision of rescue units are being adopted. The object is to form certain purely military units from the Regular Army and Militia units. The cadres would form the basis of the command elements and would provide communications personnel and those other specialists not readily available from civilian sources.

By planning in peacetime with municipal authorities and commercial organizations it should be possible to arrange for the support of re-entry operations required in an emergency. There are considerable resources in transport, engineering and many other types of equipment available from civilian resources for this work. The problem is to arrange for a planning and control organization to see that these resources may be employed to the best advantage in an emergency.

Mobile Survival Columns will be organized into Mobile Survival Groups for control and logistic support. The number of columns in a group will vary from one to four depending on the area and the task, the average number being three. Each of these groups will have support units allotted to it, the support units being built of subsections or "bricks" with one subsection for each column in the

Sector Command Organization



Diagrammatic layout of a sector when only one mobile survival group is allotted to the sector.

group. Group Headquarters will provide the Sector Headquarters, or in the case of large target areas, the Sub-Sector Headquarters. The following support units are needed:

1. *Reconnaissance element* to establish limits and degrees of damage, fires, and radioactive contamination.

2. *A Composite Squadron, Royal Canadian Engineers,* to provide men and equipment for rescue tasks beyond the capability of MSCs, route clearance and fresh water supply.

3. *Signal Section, Royal Canadian Corps of Signals,* to provide communications within the group.

4. *A Transport Company, Royal Canadian Army Service Corps,* to provide transport and food for the Mobile Survival Columns.

5. *A Field Medical Company, Royal Canadian Army Medical Corps,* to decontaminate and sort the casualties and commence medical treatment for the rescued and for Mobile Survival Column personnel.

6. *A Decontamination Company, Royal Canadian Ordnance Corps,* to provide for the decontamination of the rescue workers, the rescued, refugees, and vehicles as necessary.

7. *Recovery Platoon, Royal Canadian Electrical and Mechanical Engineers,* to provide for urgent recovery of vehicles and crucial repairs to vehicles and equipment.

8. *Police Platoon, Canadian Provost Corps,* to provide a means of control of traffic and refugees.

Capability

A careful analysis of the rescue problem has indicated that without the provision of an efficient means of employing civilian volunteers in large numbers and an expansion of the Militia, the Army can rescue only a small proportion of those needing rescue. These proposed plans are estimated to increase this capability several times and should make it possible to rescue almost all of those who could be considered to be rescuable.

Psychochemical War Gases

Of the new [war] gases the psychochemicals are the most revolutionary. For example, in one experiment a cat became afraid of a mouse. Tests using a psychochemical on squad-sized units of soldier volunteers indicated that the men became confused, irresponsible, and were unable to carry out their missions. Illogical orders were given, work became sloppy and discipline non-existent. None of the victims realized that they had been affected. The effects on both animals and men were temporary. There has been complete recovery in all cases.

Incapacitating gases have two characteristics: the victim is in discomfort or asleep and he does recover completely. A gas that would painlessly put a city to sleep for a day or two, permitting its capture with no loss of life or damage to property, would make war a *Kriegsspiel,* indeed. Other gases that would cause temporary blindness, paralysis, or loss of equilibrium would also add a new humane chapter to the book of war. Both incapacitating agents and the psychochemicals are still in the experimental stage.—*Major J. B. Kelly, "Gas Warfare in International Law", Military Review (U.S.), March 1961.*

National Survival

Nuclear Detonation and Fallout Reporting System

A REPORT PREPARED BY THE DIRECTORATE OF SURVIVAL OPERATIONS AND PLANS, ARMY HEADQUARTERS, OTTAWA

Privy Council Order 656 of 1959 (The Civil Defence Order of 1959) charged the Minister of National Defence with the responsibility of exercising certain powers, duties and functions in connection with national survival, including: "Determining the location of a nuclear explosion, the patterns of fallout, and giving the necessary warning of fallout to the public".

The Army was designated as the responsible agency within the Department of National Defence for the establishment and operation of the system to perform this function. As a result, the Nuclear Detonation and Fallout Reporting System abbreviated to NDFRS was devised and is now in the process of being established across the country.

The system was designed to fulfil (in conjunction with the National Survival Attack Warning System) three major functions:

1. To determine and report the location of ground zero, the height of burst and yield of the weapon as quickly as possible after the explosion.

2. Using the data obtained in (1) above, together with the latest meteorological information available, to prepare and disseminate a predicted probable fallout pattern plot to give the public advance warning of the likelihood of fallout.

3. To determine the actual pattern of fallout, its time of arrival and its intensity as it arrives on the ground, to amend the predicted pattern as necessary and to inform the public of the actual hazards resulting from fallout.

Unlike the National Survival Attack Warning System, discussed in the Winter 1961 issue of the *Canadian Army Journal*, the NDFRS is not dependent on advance warning. It starts to function only after the attack has occurred, though, obviously, advance warning will ensure complete readiness of the NDFRS before the blow falls.

To fulfil its assigned functions, the NDFRS consists of the following elements:

1. NUDET (Nuclear Detonation) Reporting Posts, located in groups of at least three surrounding each of the 16 Canadian cities that have been assumed as the most likely places where NUDETs might occur. These posts have the primary role of determining the location of ground zero, height of burst and yield of the weapon for any strike on or near that target. They also have a secondary role of reporting subsequent fallout intensities. Each post will have direct communication to the appropriate Provincial Warning Centre (PWC) by radio with standby emergency power available. These communications probably will also be tied in with the Target Area Headquarters for the applicable city.

2. Fallout Reporting Posts located

approximately on a grid of 45 miles east and west by 15 miles north and south throughout the populated area of the country and on a reduced scale outside these areas. Their primary role is determining and reporting fallout as it occurs at their location. Some posts will be equipped for a secondary role of reporting, with limited accuracy, random NUDETs that might occur outside the probable target areas due to a variety of reasons and not reportable by the existing NUDET posts. These posts will rely on existing communications, which will be tied into the most convenient system which enables the speediest transmission to the PWC.

3. Nuclear Analysis and Fallout Prediction Centres established at each PWC to receive and analyse reports from NUDET and Fallout Reporting Posts, may confirm or amend predictions and distribute the necessary information to the proper authorities. They will prepare the isodose contour lines delineating areas and intensities of fallout and prepare suitable messages for the public.

4. Filter Centres established as necessary to monitor reports coming in from Fallout Reporting Posts. Their locations will depend on the volume of traffic to be handled en route to the PWC, the routing of communications, and the necessity for intermediate plotting.

5. A Federal Nuclear Data Collection Centre operating in conjunction with the Federal Warning Centre to collect, collate and display the consolidated nuclear detonation data, and to advise senior government and military officials as the situation develops.

It is readily apparent that existing military installations and communications do not provide the degree of coverage and continuity necessary to fully implement the NDFRS as conceived. Our manpower and financial restrictions do not permit expansion of the Army to provide for such a system, nor is such expansion desirable. In the interests of economy, it is intended to make the fullest use of all existing facilities—the Army, other services, other federal, provincial and municipal agencies, and even private companies such as railways and utilities, in the establishing of the NDFRS.

Subject to suitability regarding location, communications, normal role and reliability, the priority of selection of sites for NUDET and Fallout Reporting Posts will be in the order listed above. These posts must be manned 24 hours a day, seven days a week, i.e. the personnel to be employed must be located at or near the site, be alert and readily able to fulfil their reporting role by virtue of their normal primary role.

A permanently manned security or gate guard suitably located would make a good choice. RCM Police or Provincial Police organizations are generally ideally suited for the role: their posts are well scattered over the province, are virtually permanently manned by reliable, responsible people and are tied to their headquarters by both line and a well developed radio network, which ultimately terminates in the PWC. Moreover, the police have an inherent interest in NUDET and Fallout Reporting in the fulfilment of their normal role. The primary weakness in their use might be that in an emergency of this scale the post might be unmanned for considerable periods.

Filter Centres, Nuclear Analysis and Fallout Prediction Centres and

(Continued on page 21)

Disaster Control

Exercise Shiver I

By

LT-COL. H. L. HURDLE, MEMBER OF THE
DISASTER CONTROL ADVISORY COMMITTEE, CITY OF DORVAL, P.Q.*

On 25 February 1961 the Montreal area experienced one of the severest sleet storms in many years. Icing rain began falling in the evening accompanied by high winds with gusts of up to 70 m.p.h. which continued throughout the night, and as the temperature slowly dropped the rain changed to snow. By Sunday morning the storm had passed, with the temperature standing at about 25°F.

Everything was encased in a sheet of ice of about one-half inch thickness. While the storm was of short duration, damage to trees, power and communication circuits was heavy, streets, roads and railway lines being blocked by broken poles, fallen trees and wires. Some 800,000 people were without power in the metropolitan area, and many were without telephone service. As the majority of homes are completely dependent upon power for light, refrigeration, cooking, radio and the operation of furnaces, the loss of this service was a crippling blow. Camping equipment such as Coleman stoves, oil lamps, barbecues, bed rolls and fireplaces were brought into use, while many families with little enthusiasm for such activities abandoned their homes and moved in with friends and into hotels in central Montreal not affected by the storm because of the underground distribution system.

Let us now look at the City of Dorval, a western suburb of Montreal with a population of some 25,000 people and where a Disaster Control organization was in existence thanks to the foresight of its Mayor, John Pratt, M.P. The police and public works departments had been busy all night throughout the storm patrolling streets, clearing them of trees, or closing those with fallen wires. By 1000 hrs. Sunday it was apparent to the Chief of Police, who is also the Disaster Control Coordinator, that the emergency was beyond the capabilities of the municipal organization to deal with and he decided to call out the Disaster Control Advisory Committee. On their arrival at the City Hall he briefed them on the situation.

All primary power feeders radiating from the Hydro Quebec sub-station feeding Dorval had tripped and could not be reclosed, save one. This feeder fed a small section of the commercial district including some service stations,† a few stores, a public school and several hundred homes. The remainder of the city was without power, with the exception of the water pumping station

**The author was a lieutenant in 13th District Signals at the outbreak of the Second World War and was mobilized 1 September 1939. He took part in the landings in Sicily as Officer Commanding 1st Canadian Armoured Brigade Signals Squadron. He attended No. 11 Canadian War Staff Course, and following the war joined the Militia and commanded No. 11 Signals Regiment, Montreal. An electrical engineer, in civilian life he is assistant to the president of the Montreal Engineering Co.*—Editor.

†See note at the end of this article regarding an emergency method of operating service station gasoline pumps during a power failure.—Editor.

David Bier Studios, Montreal

The result of the destructive force of the ice storm in the Montreal-Dorval area which is described in the accompanying article is clearly shown in this photograph.

which had switched over to its emergency diesel set. However, water pressure had dropped to 30 lbs. due to householders running taps to keep pipes from freezing. Basements of homes in low-lying areas that depended upon sump pumps were slowly filling up with water. Communication with Hydro Quebec was impossible as their switchboard was swamped with calls.

The City Hall, where fire, police and the Disaster Control HQ was located, had three telephone circuits working, but they were overloaded by enquiries regarding the restoration of power supply. The city garage, the centre of public works activities, had no communication.

Several fires had occurred as a result of attempts to heat homes with fireplaces that were more ornamental than functional, and many more were anticipated as temperatures dropped. Two cases of monoxide poisoning from the use of barbecues in basements had been reported and taken to the Lachine Hospital.

Weather forecasts from Dorval Airport indicated clearing skies with temperatures falling to a low of 10° to 15°F. overnight.

It was apparent that the power supply could not be restored for several days; that an immediate need existed for warm shelter, and hot food for elderly people, invalids

and families with small babies; and that as the temperature of homes dropped the need would grow very rapidly for many more people. The public school on the live circuit was the obvious choice for an emergency shelter, and so the City Welfare Officer with help from the Canadian Army's Quebec Command set up field kitchens and sleeping accommodation in the school. Girl Guides and Boy Scouts assisted the Royal Canadian Army Service Corps cooks to feed all comers including policemen, firemen and Disaster Control workers. While this school would take care of eastern Dorval, it was decided to set up a similar shelter in the western area, and one of the church halls of the several offered was selected. In this case it was necessary to hook up a 10-kilowatt diesel lighting set to the power entrance box to put the hall in operation. As it was more economical to cook centrally, the church hall became a satellite of the school as far as food was concerned, with food being transported in army hay boxes.

Service station operators, grocers and hardware stores on the live circuit were requested to open for business all day Sunday to enable citizens to stock up on food, oil, heaters, batteries and other supplies. Apparently these service stations were the only ones open on the Lakeshore judging by the traffic jams that formed outside them. With so much dependent on this single power feeder, a public works crew was sent out to cut all branches and trees that might fall across it.

To expand the fire-fighting services all police patrol cars were equipped with 5 lb. and 20 lb. dry chemical extinguishers which were adequate to deal with most of the fires resulting from overheated fireplaces. One grateful citizen whose fire was extinguished promptly and with a minimum of damage, after profusely thanking the firemen went on to say what a fine bunch of fellows they were compared to the policemen with whom he had recently had a brush. They did not inform him that they were the same fellows but wearing different hats to suit the occasion!

The most difficult problem was that of communication to acquaint the citizens with the emergency services available, the problems they were creating by running taps, the hazards of heating with barbecues and fireplaces, and many other details. Telephone lines were down, several radio stations were out of action, and few people owned battery-operated radios. To cope with the problem, information was relayed to each sector leader in each of the Disaster Control sectors, who utilized Boy Scouts going from door to door. One Boy Scout informed his patrol leader that everybody was away on the first street he tried, forgetting that doorbells don't work either when the power is off.

All public works vehicles are equipped with taxi-type radio equipment and this was used between the City Hall, city garage and the emergency shelters, with Boy Scouts acting as operators.

On Sunday about a hundred meals were served and very few people slept in the shelters. However, on Monday several hundred meals were cooked and about fifty people found their homes too uncomfortable to spend the night. A big influx was expected on Tuesday, but fortunately the temperature rose to 50° and power was restored to a good part of the city, so that the peak of the emergency had passed. By Wednes-

David Bier Studios, Montreal

Toppled trees and power lines halted traffic and disrupted power and telephone service during the severe storm.

day, 80% of the homes had power and the RCASC closed their kitchen at 1945 hours.

The week following the storm, the disaster control organization held a post mortem on the emergency. Lessons learned were discussed and recommendations for taking care of future emergencies were prepared for submission to the City Council.

Some of the lessons learned are "old stuff" to men with wartime experience, but nevertheless are worthy of constant repetition.

1. Economy of Effort

(a) Reliefs must be organized for all key personnel on the assumption that the emergency will last for several days. Some citizens were "balls of fire" for 24 hours but then they collapsed and so did the work for which they were responsible.

(b) The services of specialized personnel such as policemen, firemen, public works employees, etc., should be conserved for their particular skills and not dissipated on minor duties.

(c) Trained volunteers are needed to augment police on traffic control, patrol of vacated residences, ambulance service, manning of an information centre to answer telephone calls, deal with the press and photographers and visitors.

(d) Boy Scouts and Girl Guides are an excellent reserve of manpower. They are generally well disciplined, reliable, trained in various skills, and have no family responsibilities to distract them.

(e) Decentralization of effort cannot be too strongly stressed. Each household, each street, sector and

division in the city should be as completely self-contained as possible to lighten the load on the central organization.

2. Planning

Any planning done prior to an emergency is rarely wasted. Even the few paper exercises conducted by the Dorval Disaster Control organization proved invaluable as most of the problems encountered in the emergency had already been discussed and solutions arrived at in the quiet of the classroom.

3. Information

A well-informed population reacts calmly and sensibly in an emergency and will likely do the correct thing without being told. Instructions regarding action to be taken in an emergency should be sent out in advance as it is extremely difficult, if not impossible, to disseminate this information during the emergency.

Among the several recommendations made to the City Council were:

1. That portable engine generator sets be purchased for such key points as the City Hall, city garage, a service station and at least two church halls or schools.

2. That a supply of rescue equipment and certain emergency stores be assembled at selected points in the city.

3. That loud hailers or PA systems be purchased for use on police patrol cars or public works vehicles.

4. That a public information programme be started in the press regarding actions in an emergency, and that "Instructions to Householders in Emergencies" be prepared and distributed dealing with such items as heating, lighting, water supply, sanitation, radio communication, location of shelters, etc.

One member of the Disaster Control organization dubbed the emergency "Exercise Shiver". We could hardly have had a better exercise if we had planned it. Every citizen took part, no one was injured, there was little property damage except for the utilities, and the need for a Disaster Control organization was vividly impressed on everyone. We trust that as a result we shall be much better prepared to deal with Exercise Shiver II, or whatever it may be called.

* * *

Note: An innovation which made it possible to operate service station gasoline pumps without electric power during Exercise Shiver I has been brought to the attention of the *Journal*. The system used was this:

1. Remove the pump cover and disconnect the motor pulley belt from the pump pulley.

2. Turn an ordinary bicycle upside down, and remove the tire and tube from the rear wheel.

3. By means of a long belt (or a spliced rope), connect the rear wheel of the bicycle to the pulley, steady the bicycle and turn the pedals to draw fuel.

One service station operator reported that this method produced a flow of fuel as rapid as pumping with an electric motor. In his case, the pump in use has a long shaft at the pump spindle so it can easily be converted for use by the method explained above. Some other types of pumps have spindles which are more recessed, which would require the cover to be cut open on the side to permit a straight link-up of the pulley to the bicycle.

In the case cited here, the makeshift method was used for two days until the fuel supply was exhausted. —*Editor.*

Aid to the Civil Power

Army Helps in Flood Emergency

FROM A REPORT ISSUED BY HEADQUARTERS, WESTERN COMMAND, EDMONTON, ALTA.

More than 200 soldiers of the Regular Army assisted in the civil emergency at Creston, B.C., at the peak activity period between 3-17 June during the high water level of the Kootenay River, according to figures released by Western Command Headquarters.

The troops came from Chilliwack, B.C., and Calgary, Alta.

Two officers and 38 other ranks were from 3rd Field Squadron, Royal Canadian Engineers, Chilliwack; six officers and 145 other ranks came from the 2nd Battalion, Queen's Own Rifles of Canada, Calgary; ten signal personnel were from 1st Signal Squadron, Calgary, and the rest from Royal Canadian Army Service Corps detachments at Calgary and Chilliwack.

Some 30 Army vehicles were involved in the operation.

Major F. R. Freeborn, Commanding Officer of 3rd Field Squadron, RCE, was in charge of the operation, which included work on the

(Continued on page 21)

Canadian Army Photograph

One of the worst "boils" (water breakthroughs) occurred at this dike. These soldiers from the 2nd Battalion, Queen's Own Rifles of Canada, and 3rd Field Squadron, RCE, worked hand-in-hand with farmers to plug the hole. The 2½-ton truck is on top of the dike barely three inches above water, and the day after this photograph was taken dikes became too waterlogged to permit traffic on the top, and all work had to be done by hand.

Canadian Army Photographs

Above: A flooded farm showing initial inundation near Creston. *Below:* One of the big problems was the muskrat holes burrowed into dikes, and the technique used by Engineers was to dig with a back-hoe until the hole was discovered and then sandbag it before water could get through. Engineers are shown carrying out this procedure while Brigadier J. W. Bishop (centre), Commander, British Columbia Area, looks on. At his left is Brigadier James Lister (retired), Civil Defence Coordinator for British Columbia.

Canadian Army Photographs

Above: Engineers and Riflemen work together to fill a boil in one of the river dikes. Part of the fertile valley of some 21,000 acres of prime farm land at stake in the fight against the flood can be seen in the background. *Below:* Another view of the same scene showing soldiers passing down sand-bags from the Army vehicle at the top of the dike. The flooded river is to the right of this photograph.

Canadian Army Photograph

A driver from No. 11 Company, RCASC Detachment, Chilliwack, made rounds twice daily to provide farmers with pure drinking water when their supplies became contaminated.

dikes to reduce flooding of 21,000 acres of prime farm land in the fertile valley.

The RCASC provided farmers with pure drinking water when their supplies became contaminated.

Quartered at the Creston Community Centre, troops consumed just under 2000 man-day rations during the operation.

Ossification of the Mind

The only way to prevent ossification of the mind is to accept nothing as fixed, to realize that the circumstances of war are ever changing, and that consequently, organization, administration, strategy, and tactics must change also . . . Adherence to dogmas has destroyed more armies and lost more battles and lives than any other cause in war. . . .—*Major-General J. F. C. Fuller.*

National Survival Reporting System

(Continued from page 12)

the Nuclear Data Collection Centre will be manned entirely by military personnel either Regular or Militia. Personnel for Filter Centres will be earmarked and trained in peacetime but the centres will not be manned under normal peacetime conditions. The other two will be manned full time by the Regular Army staff of the Warning Centres in both peace and war, though staffs will be augmented under emergency conditions.

Dissemination of warning and information from PWCs to the public will be done through the National Survival Attack Warning System.

ARMY OPERATIONAL RESEARCH: AIMS AND METHODOLOGY

By

MR. H. H. WATSON, DIRECTOR OF THE CANADIAN ARMY OPERATIONAL RESEARCH ESTABLISHMENT, ARMY HEADQUARTERS, OTTAWA

This paper contains the text of a lecture given to the Canadian Army Staff College on 16 March 1961. It deals in a general way with operational research, its historical development, its aims and its methodology as applied to Army operational research.

SOME BASIC MATTERS

On page 29 are given basic definitions of the following: Research, Science, Technology, Development, the Scientific Method and Operational Research. It will be noted that research and development are two different things, and although they proceed together hand in hand, they require very different techniques and outlooks. It is sufficient to say that research aims to discover new facts whereas development is concerned with the application of known facts for specific purposes, usually development of equipment. You may be baffled by the fact that I have given four separate definitions of operational research; there are others. In this respect, I am reminded of a statement in a handbook on servo-mechanisms, which reads: "It is almost as difficult for exponents of servo-techniques to agree upon the definition of a servo as for a group of theologians to find agreement on the definition of sin." We do not take alarm at this apparent uncertainty, for I doubt whether there is a single definition of physics or of chemistry, or of any other basic science, which will be accepted by all.

Perhaps the most common and widely used definition of operational research is "A scientific method of providing commanders and executive departments with a quantitative basis for making decisions regarding the operations under their control."

The essential characteristics of operational research are:

1. It is a scientific discipline and quite a young one.

2. Its methodology leans heavily on mathematical analysis, and it is concerned with the development and use of techniques of applying scientific knowledge.

3. It studies the operational characteristics of equipment and/or organizations, and in doing so is not concerned with what a thing is, but what it does and at what cost. To do this it is usual to construct appropriate mathematical models. These consist of symbols and equations setting down in a quantitative sort of way the relationships between the various parameters involved in the problem. The coefficients in the equations must be determined and then, by suitable analysis, the important criterion functions have to be maximized or minimized.

4. It presents its findings in a suitable form to management, commander or staff officer.

I must emphasize that operational research is a complement to, and not a substitute for, the function of

commander or staff officer. It is an alternative method of studying a problem, particularly a complex one, which, by means of a penetrating quantitative analysis, aims to help the commander and staff officer obtain a much better appreciation on which to base a decision. The operational researcher usually delves deeper and wider into a problem than a staff officer can possibly do. Not being constrained by daily executive responsibilities, and using his special tools and skills, he can work more objectively. He does, and must, have considerable freedom and initiative in seeking new problems, or in re-defining old ones. He must not be a traditionalist, and has in fact to question every problem before proceeding to solve it, and often to frame a question in different terms.

Military commanders have to make many decisions affecting future organization and equipment. In this respect a decision-maker can be considered a machine into which flows information; out of the machine comes a course of action. Inside the machine there are three basic components: the prediction system which deals with alternative futures; the value system which handles the various conflicting purposes; and the criterion system which integrates the other two components and selects an appropriate action. The operational researcher strives to evaluate the facts of a situation in as complete quantitative detail as possible, and to determine the inter-relationships between an array of facts, or parameters. In this he is also supporting and assisting the prediction system of the decision maker, pointing out, in doing so, the sensitive parameters and the effects of varying them.

The Staff Officer may be required to obtain a solution to a problem along stated lines, whereas the operational researcher has more freedom in his approach. He will, of necessity, ask whether the best solution is along the lines suggested, or along other lines. This is a particularly valuable thing when dealing with complex problems which have many interacting components. The operation of a land Army is probably more complex than that of any other single organization.

Early Operational Research

Operational research started as a more or less formal discipline in all three Armed Services in Britain early in the Second World War. It was concerned, as it still is, with the operational use of equipment, not its technical development. Operational research was born in the Battle of Britain when the British Government was exploring every available means to defend the country against the German bombings. It was asked, could radar make up for the smallness of the Royal Air Force? How could the radar interception system be used to maximum advantage; how should the antennae be distributed, the signals organized and so on? The Government called in half a dozen scientists of various disciplines to answer these questions. By collecting the relevant facts and analyzing them with the general methodology of science, these men devised a new operating technique that in fact at least doubled the effectiveness of the whole air defence system.

Impressed with this success, Britain organized similar teams to tackle many other military problems in all three Services. The United States armed forces likewise put operational research groups to work soon after that nation entered the war. The work of these teams from both countries paid high dividends in

deciding questions such as the most effective altitudes at which planes should fly in hunting submarines, the best payload division between fuel, instruments and armament, the best search pattern. One short operational research study showed that planes attacking submarines could increase their effectiveness fivefold by changing the depth at which depth charges were set to go off.

One of the successes of army operational research in the last war was the work that led to the better understanding of the problems of bombardment, how bombardment should be used in war, how to make it succeed, and what are its limitations. It was soon realized that the performance of guns in the field had never really been measured, and that when this was done it was much worse than had been expected. Curiously enough, in many cases the errors were not small random errors, such as had been established in proof and acceptance trials, but gross errors caused, for instance, by defects in the layout of the numerals on some of the dials and other obvious things such as deficiencies in meteorological information. The magnitude of these errors was determined, and a tremendous improvement in the effectiveness of artillery bombardment was achieved. An important by-product of this work was a sharpening of the awareness of the role of bombardment; it is much more effective in neutralization than in destruction.

I think that this wartime experience led to the important realization that a weapon or a piece of equipment cannot be considered without reference to the whole system in which it operates. A weapon system can be defined as "a composite of equipment, skills and techniques that form an instrument of combat"; thus we must evaluate not only the main combat equipment, but also related equipment, its installation, maintenance, supply, training and so on.

Operational Research Today

In the past two decades operational research has developed considerably in its scope, its methodology and its application for military, industrial and governmental purposes. Canada has developed capabilities in this discipline in industry and in the military field. The Canadian Army Operational Research Establishment, which began in a small way in 1948, aims to serve Canadian Army needs. It is staffed by a team of Defence Research Board scientists and by Army officers.

There are now flourishing Operational Research Societies in several dozen countries, including Canada, and also an International Federation of Operational Research Societies. There is an ever growing literature, some of it very sophisticated.

Today operational research is becoming an important adjunct to organizations which have to plan large and expensive refits, modifications, or extensions to plants and operations. The most worthwhile thing to do to meet future requirements (as far as they can be forecast), the best way of implementing a decision within overall policy and the limits of financial control, and the benefits likely to result from any change, are examples of the complex problems that commanders, executives, or decision makers, are facing every day. Modern technology and the rate of its advance, coupled with the huge size and complexity of many modern undertakings, have made mother wit alone an insufficient

basis for making high level decisions. Top management turns to a battery of specialists and department managers for assistance. The operational research scientist aims by an analytical approach to give specialist assistance by means of quantitative evaluation of, for instance, the likely consequences of pursuing one of a number of alternative choices; he seeks in fact to determine the optimum choice, the one which is likely to have the highest ratio of effectiveness to cost in a given set of conditions. In this respect, it is important to study the operation as a whole, for if a desirable change in one part of a system upsets unduly the remainder of the system it is not a good thing to introduce.

Most modern large undertakings are so complex that the consequences of a new or modified course of action should be examined quantitatively in relation to all relevant factors and of their inter-relationships before a decision is made on a proposal. The consequences of a wrong or a delayed decision can be serious.

Military operational research may be divided into four main groups:

1. Weapon systems evaluation under operational conditions, which involves assessment of the value of using a particular system, available now or expected to be available in the future. This includes comparison of the individual weapons, the systems in which they are used and the human factor problems involved.

2. Studies aimed at finding the best tactics for available systems of weapons and associated equipment, or the best combinations of these for possible tactics.

3. Prediction of the course of future operations at both the tactical and the strategic level.

4. Analysis of the capability and efficiency of an organization taken as a whole.

An army cannot have a straightforward criterion of profitability as does a commercial undertaking. It must look for a balance between types of soldier, types of weapons, types of vehicles, types of organization and so on. In addition, it is limited in what it can do by the physical availability of resources and their money cost. More soldiers of one type may mean less of another, more vehicles may mean less weapons, and so on.

A simple hypothetical example will demonstrate an approach used to determine the best payoff in a given set of circumstances. Suppose that the effectiveness of a piece of equipment is found to increase linearly with its weight (Fig. 1), but that its cost goes up more sharply (Fig. 2).

The ratio of effectiveness to cost would then vary with weight in a manner illustrated by Fig. 3, which shows the weight at which the ratio is a maximum.

Analytically the problem would be solved in the following manner:

Suppose the effectiveness E is related to the weight W by an equation

$$E = a + bW \quad \ldots (1)$$

and that the cost C is given by

$$C = d + eW + fW^2 \quad \ldots (2)$$

where a, b, d, e and f are constants which can be determined. Thus, the weight of equipment which gives the best payoff can be determined from Eqn. (3)

$$\frac{d\left(\frac{E}{c}\right)}{d\,W} = 0 \quad \ldots (3)$$

Methodology

The six steps in formal operations

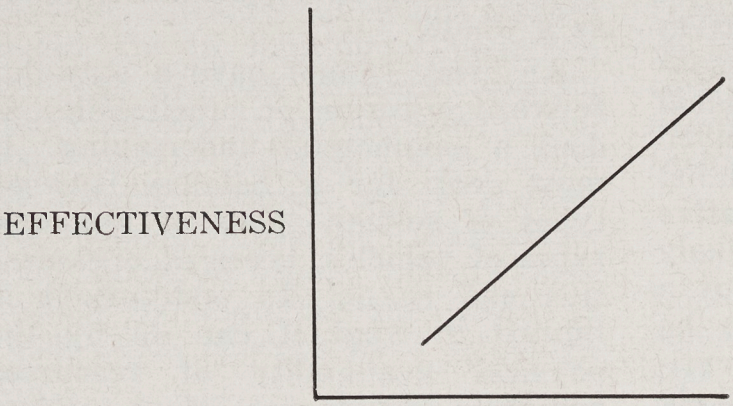


Fig 1

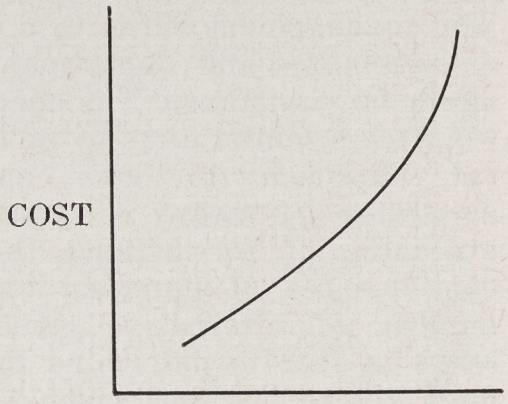


Fig 2

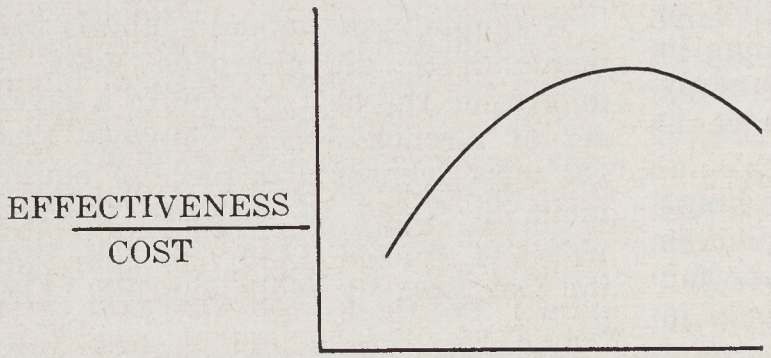


Fig 3

research are:

1. Define and formulate the problem.
2. Construct a model of the operation or system.
3. Obtain a solution from the model.
4. Test the model and the solution.
5. Establish controls of the solution.
6. Communicate the solution to the comamnder or the executive (the sponsor).

I shall deal with these in turn with an illustrative example.

Problem and Input Data

To get a neat answer to the wrong question is much less desirable than getting an incomplete answer to the right question. Therefore, it is of the utmost importance at the start to analyse the problem carefully, and if necessary to modify it by frank discussion with the sponsor to make sure that the requirements are fully understood by both, and that the problem is researchable. In setting up an operational research problem, it is necessary to ask questions such as what is required to be studied, who wants the information, why and when. Agreement has to be reached on the type and confidence of the data put into the problem, and also on the type and confidcene of the answer required. The sponsor may give greater weight to some aspects than to others; he and his Staff Officers usually collect or supply most of the input data.

Supposing, for instance, we were given a hypothetical problem dealing with the best way of giving the Engineers a greater capability in the field, with the statement that they are liable more than others to become casualties due to burns on the nuclear battlefield. We would ask questions dealing with:

1. The time frame.
2. The spectrum of tactical situ-

ations, including terrain.

3. Tasks to be performed.

4. Are more men likely to be available.

5. What money would be allowed for additional equipment.

6. In particular we would challenge the implied statement (equivalent to a biased question) that Engineers are more likely to become casualties due to burns, or at least ask for the evidence on which it was made. In all probability we would ask for the second part of the problem to be restated as follows: "How would this be compatible with minimization of casualties?"

The Mathematical Model

Once the problem has been fully defined, and this in itself may require considerable study, the next step is to develop an analytical model to represent in mathematical symbols the system and its desired operation. This assumes that the relevant parameters have been identified and defined, and that there is some analytical relationship between dependent and inter-dependent variables. The general form of an O.R. model is $E = f(x_i, y_j)$, where E represents the effectiveness or performance of the system, x_i are the variables of the system which are subject to control, y_j those which are not subject to control. The restrictions on values of the variables may be expressed in a supplementary set of equations.

Data may not be available, or reliable, particularly on the performance of men and of new equipment under tactical conditions. More and more as we move away from battlefield experience does it become necessary to conduct carefully designed and controlled field experiments, but these can only be done at best under quasi-combat conditions. This subject of field experimentation and methodology of design is a very large one, however; I will not attempt to go into it here. Suffice it to say that it is an important subject. In addition, war gaming can be a very useful tool in assessing performance under tactical conditions, providing the performance characteristics of equipment and its users are known and expressed as suitable "rules".

Turning back to our example. We would first of all list all the variables that we could think of, determine which can be controlled and those which cannot be. Then we should develop formal relationships for those variables which could affect the solution. There will usually be inter-actions and feed-back loops to take into account. Let us focus our thoughts on studying the implications of a proposed new mechanically all-purpose excavator, one capable of filling in ditches, shell holes on roads and the like, and also digging protective trenches and shelters. The requirement is to do all these things much faster than is possible with existing equipment. We should obtain a measure of the rate of working in the different roles by the present method and the new one, the manpower and skill required. Here we are interested not only in the man-hours involved, but also in machine-hours and the time the operators are exposed, and so vulnerable to thermal radiation from nuclear weapon bursts. Quality of work must be assessed in some way. Factors such as cross-country mobility of the vehicle, its mechanical reliability, its life time must be taken into account.

The Solution

Having set up the necessary equa-

tions they must be solved, with three things in mind:

1. The numerical difference between a present and a specifically proposed piece of equipment.
2. The equipment with the optimum characteristics for the tasks envisaged.
3. Sensitivity to variations in controllable and uncontrollable variables.

Calculation in many operational research projects can be heavy, and much use is made of modern electronic digital computers.

Testing the Model and Solution

A model is never more than a partial representation of reality. It is a good model if, despite its incompleteness, it can accurately predict the effect of changes on the system's overall effectiveness. The adequacy of the model can be tested by determining how well it does predict the effect of these changes. The solution can be evaluated by comparing the sults obtained without applying the solution, with results obtained when it is used. These evaluations may be performed retrospectively by the use of past data, or by a trial run or by field experiment. Follow-up studies are common in industrial operational research. They often present a serious problem in the military field. But some can be done, as many command decisions are connected with the effective and economical management of the Army in times of peace or of relative peace. An Army is effective not only by actually fighting, but by demonstrating it is capable of doing so.

Establishing Controls over the Solution

A solution derived from a model remains a solution only as long as the uncontrolled variables retain their values and the relationship between the variables in the model remains constant. The solution itself goes "out of control" when the value of one or more of the uncontrolled variables and/or one or more of the relationships between variables has changed significantly. To establish controls over the solution, then, one must develop tools for determining when significant changes occur and rules must be established for modifying the solution to take these changes into account.

Communicating the Solution to the Executive

The executive, or sponsor and his staff, will have been following the work through its various stages. It is customary to brief him and his interested colleagues from time to time, and quite fully when the report on the project is in the draft stage. Writing the report is sometimes the most difficult part of the whole project; it is certainly an important part and must be treated so. It is important to state clearly and unambiguously the limitations of the conclusions, and to present them in a usable form.

POSTSCRIPT

I might mention that by no means everything done by operational research teams is as formalized as I have indicated in this lecture. The steps enumerated are seldom conducted in the order presented and several steps may take place simultaneously. In many projects, for example, the final formulation of the problem is not completed until the project itself is well on its way. There is usually a continuous interplay between these steps during the research.

There is, in addition, the difficulty that there can be no guarantee

that a particular analysis can be wholly complete, with no important variables missing or that a particular model is wholly trustworthy. This is, of course, one of the well-recognized features of all scientific research.

Some Definitions

Research

1. Critical and systematic enquiry into things and phenomena.

Science

2. Ordered knowledge of natural phenomena and of the relationships between them.

Technology

3. Systematic application of knowledge to practical use.

Development

4. A specifically defined task or group of related tasks involving the application of known facts, techniques, materials and physical laws to the creation of new or improved material or method for use by a sponsor.

The Scientific Method

5. The scientific method is an ununbiased, objective discipline with the following procedural steps:

(a) Observation and collection of data.

(b) Formation of an hypothesis to explain the observations.

(c) Testing of the hypothesis by *controlled* experimentation.

(d) Drawing of conclusions: formulation of a theory and eventually of a scientific law.

Operational Research

6(a) A scientific method of providing commanders and executive departments with a quantitative basis for making decisions regarding the operations under their control.

(b) Quantitative study of the operations of a complex organization and the prediction of the effects of changes in conditions for the guidance of executives in obtaining the maximum effectiveness from available resources.

(c) The application of scientific methods to the study and interpretation of facts related to military problems, thus to present an array of possible solutions to a problem together with some measure of the cost and worth of each solution.

(d) Quantitative common sense.

Plastic Tank Wheels Will Save Ton

The Firestone Tire and Rubber Company is developing plastic tank wheels intended to reduce the weight of a (U.S.) Army tank by more than 2000 pounds.

The plastic wheels, a project of the Army Ordnance Tank-Automotive Command at Detroit, are expected to replace the conventional steel wheels on a tank.

A steel tank wheel weighs approximately 155 pounds. The new assembly—including the plastic wheel, a steel rim for the dispersion of heat, and a solid rubber tire—will be about half as heavy.

Test wheels have been molded from a number of reinforced resins, including a glass fibre reinforced epoxy compound.

The experimental plastic tank wheels are the largest known articles ever pressure-molded with epoxy compound. They are 7½ inches wide, nearly 25 inches in diameter, and strong enough to support 10 times the required load.—*Army-Navy-Air Force Journal.*

ANTI-TANK WEAPONS AND THEIR INFLUENCE IN BATTLE

By

MAJOR N. A. SHACKLETON, CD, LORD STRATHCONA'S HORSE (ROYAL CANADIANS), CANADIAN ARMY LIAISON ESTABLISHMENT, LONDON, ENGLAND

Since the end of the Second World War there has been significant progress in the development of both armoured fighting vehicles and anti-tank weapons. How these trends will affect future operations is cause for serious speculation.

It may be argued that in the design of the latest tanks the optimum degree of gun power, armoured protection and mobility has been achieved within the highest acceptable weight limitation. On the other hand, the widespread introduction of the receoilless, the rocket-propelled and the guided anti-tank missiles, together with the employment of high-powered anti-tank guns constitutes an increasing threat to the continued existence of the tank.

Present concepts of conventional warfare are based to a great extent upon operations of the Second World War. Experience gained in that conflict is also an important factor in the design of equipment; but it is conceivable that the improvements and innovations in the field of anti-tank weapons have rendered some of this military doctrine obsolete. Therefore, it is the intention to discuss the influence that anti-tank weapons will exercise on armoured and infantry operations and what changes in equipment and training may be necessary to meet this threat.

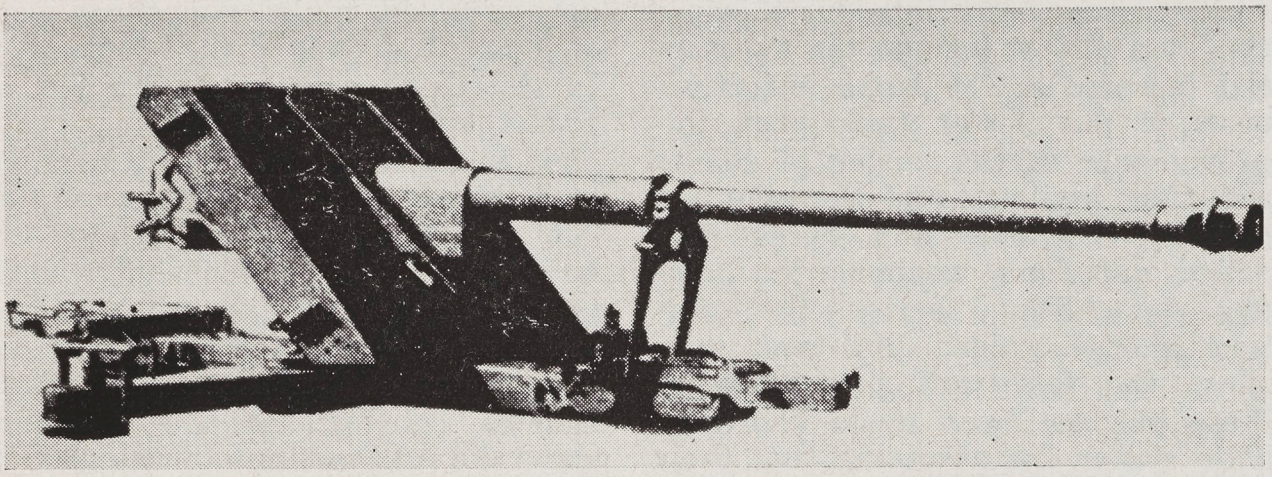
Anti-Tank Weapons in the Second World War

During the Second World War there was a steady increase in the penetrating power of anti-tank weapons and in the thickness of tank protective armour. On different occasions the advantage was held by either the anti-tank gun or the tank. Although both the Joseph Stalin and the German Tiger tanks enjoyed relative invulnerability from the gun-fire of less heavy vehicles, there is little doubt that anti-tank weapons had gained ascendancy over the tank by the end of the war.

Such an advantage enabled crippling losses to be inflicted upon an enemy who lacked the means of defence against these weapons. In discussing the early successes of the Germans in Russia, General von Mellenthin relates that in some instances a solitary anti-tank gun was capable of destroying Soviet armour at the rate of 30 tanks an hour.* To a great extent the reverses suffered by the British Army in the Desert Campaigns of 1941 resulted from an enemy superiority in the quality of anti-tank weapons. Operation "Battle Axe" began on 15 June 1941 with a British preponderance of four-to-one over the Germans in tanks. Two days later, 80 per cent of the British force was out of action—largely the consequence of anti-tank guns and a dozen German 88-mm. anti-aircraft guns deployed in the anti-tank role.†

*Major-General F. W. Von Mellenthin, *Panzer Battles 1939-45*, Cassel and Company Ltd., London. p. 295.

†B. H. Liddell Hart, *The Tanks, Vol. II*, Cassel and Company Ltd., London. pp. 94 and 95.



A German 88-mm. anti-tank gun on a cruciform mount.

Again, in Normandy on 8 August 1944 anti-tank guns were employed with devastating affect against Canadian and British armour. For example, in one period of less than 48 hours a screen of German 88-mm. guns destroyed more than 150 tanks.* This action is especially noteworthy inasmuch as the Allies enjoyed a tremendous material superiority, particularly in artillery and airpower.

On the occasions when armour could exploit its mobility unimpeded by strong anti-tank defences it produced dramatic results. Among the better examples are the German invasion of France, General Wavell's victories over the Italians, the initial stages of the German invasion of Russia, and the Allied sweep across Europe following the breakthrough in Normandy. But, in each instance, success was attributable primarily to either superior equipment and numbers, massive air support, faulty leadership and the disintegration of the losing side, or a combination of these factors. Except in isolated cases, adequate anti-tank weapons, organized into coherent defences were notable by their absence.

Throughout most of the war, however, these circumstances did not prevail. Much of the time armoured troops found themselves involved in operations against an enemy who was firmly established in dug-in positions, and who was usually well provided with anti-tank protection in the form of guns and tanks. It was under these conditions that the existing formulae governing the conduct of the attack and the defence was evolved, the main requisite of which is close cooperation between infantry, armour and artillery. In brief, attacking infantry, accompanied by armour, advances with the support of artillery. The armour provides instant fire support against targets which hinder the progress of the infantry onto the objective. The infantry deals with the short-range anti-tank weapons encountered during their advance. The longer range weapons are dealt with by the armour or with the assistance of the artillery.

As long as troops are required to close with and destroy the enemy—as they must do in conventional operations, there seems no alternative to these basic tactical principles. Yet their application becomes increasingly complicated by factors

*Milton Shulman, *Defeat in the West*, Martin, Secker and Warburg, London. p. 150.

which have been introduced since the war. These include the substantial increase in the battle effectiveness of the Soviet tank arm, improvements in the power of Soviet anti-tank artillery and the adoption of the recoilless and rocket-propelled anti-tank weapons in quantity. In addition, there is the question of the guided anti-tank missiles: the fact that possession of these has not been made known is little reason for assuming that their development in the Soviet Army has been ignored.

The nature of this problem can perhaps best be illustrated by a comparison of the existing Soviet divisions with those of the wartime German Army. In 1944 the Panzergrenadier Division comprised 14,000 men. Its anti-tank equipment ranged from guns of 20-mm. to 88-mm. calibre. There were 168 of these weapons in the division, not counting guns on tanks nor those possessing a secondary anti-tank role. In the German infantry division of 1944 there were 143 anti-tank weapons. In contrast, the Soviet Mechanized Division of 15,576 men contains 355 anti-tank weapons. These extend from the 40-mm. infantry anti-tank launcher to the 107-mm. recoilless anti-tank gun. However, an assessment of the mechanized division's anti-tank capabilities must also take into account those guns on tanks and self-propelled mounts. Excluding those on amphibious tanks, these amount to a further 326 guns.

In their design and development of anti-tank weapons it is probable that the Soviets have not overlooked those features of German equipment which proved successful during the war. It might even be assumed that the Soviet weapons introduced since that time are superior to their Ger-

The Soviet Army's 40-mm. anti-tank launcher RPG 2.

man counterparts. For this reason the performance data on certain of the German weapons can provide interesting criteria for an approximate assessment of comparable weapons in the Soviet Army.

The largest anti-tank gun produced by the Germans was the 128-mm. self-propelled Jagdtiger. At 1000 yards this gun could penetrate 200-mm. of armour at 30 degrees. The self-propelled Jagdpanther version of the famous 88-mm. gun could penetrate 169-mm. of armour at the same range and angle of attack. The performance of the 50-mm. towed anti-tank gun under these conditions was 56-mm. penetration. Another exceptional weapon of that period was the Panzerfaust 60—an anti-tank grenade launcher with a range of about 80 yards. It could penetrate 200-mm. of armour.

Anti-Tank Weapons in the Defence

How modern anti-tank equipment can affect the course of a battle may be appreciated from a review of a hypothetical attack against elements of a mechanized division in the defence. Assuming that the attack is launched 2000 yards from the objective, and visibility permits, troops who have crossed the start line can expect to come under the direct fire of 122-mm. and 152-mm. guns of Joseph Stalin 3 tanks and self-propelled mounts.

These vehicles will be difficult to locate because of their low silhouette and frequent changes in fire position. They will also be difficult to destroy. In a hull down position the 200-mm. turret frontal armour of the JS 3 renders it virtually invulnerable, at these ranges, to all but the most powerful anti-tank weapons.

When the leading tanks are 1500 yards from the objective the fire of the JS 3s and self-propelled guns will be joined by that of the 107-mm. Recoilless Anti-Tank Gun B-11. A further advance of 500 yards brings the attacking troops within range of the 82-mm. Recoilless Anti-Tank Gun B-10. There is a total of five B-10s and B-11s in the motor rifle battalion. They can penetrate nine inches of armour. Back blast necessitates the siting of these guns in shallow pits with their tubes above ground level. This type of weapon often reveals its position on firing, at which time both crew and gun are vulnerable to well placed high-explosive shell.

As the distance to the objective is shortened to 1000 yards and less, some of the 225 medium tanks of the division will begin to make their presence felt. In the defence a proportion of these vehicles is held back for the counter-attack, but the remainder are decentralized under the command of forward units. The 36-ton T 54 Medium Tank mounts a 100-mm. gun. It is likely that its performance against armour is comparable, if not superior, to that of the German 88-mm. gun. However, judging from the weight of the T 54 it is probable that this vehicle is insufficiently armoured to withstand modern tank gun-fire at the more common battle ranges. It may therefore be expected to make maximum use of ground and strive to achieve first round hits with what appears to be a highly effective gun.

The next weapons to be encountered in the advance are the 85-mm. and 57-mm. guns of the anti-tank batteries. These are towed equipments and will usually be dug-in and well camouflaged. Lacking mobility, they can be expected to hold their fire until a vital hit is more or less guaranteed. Frequently, they

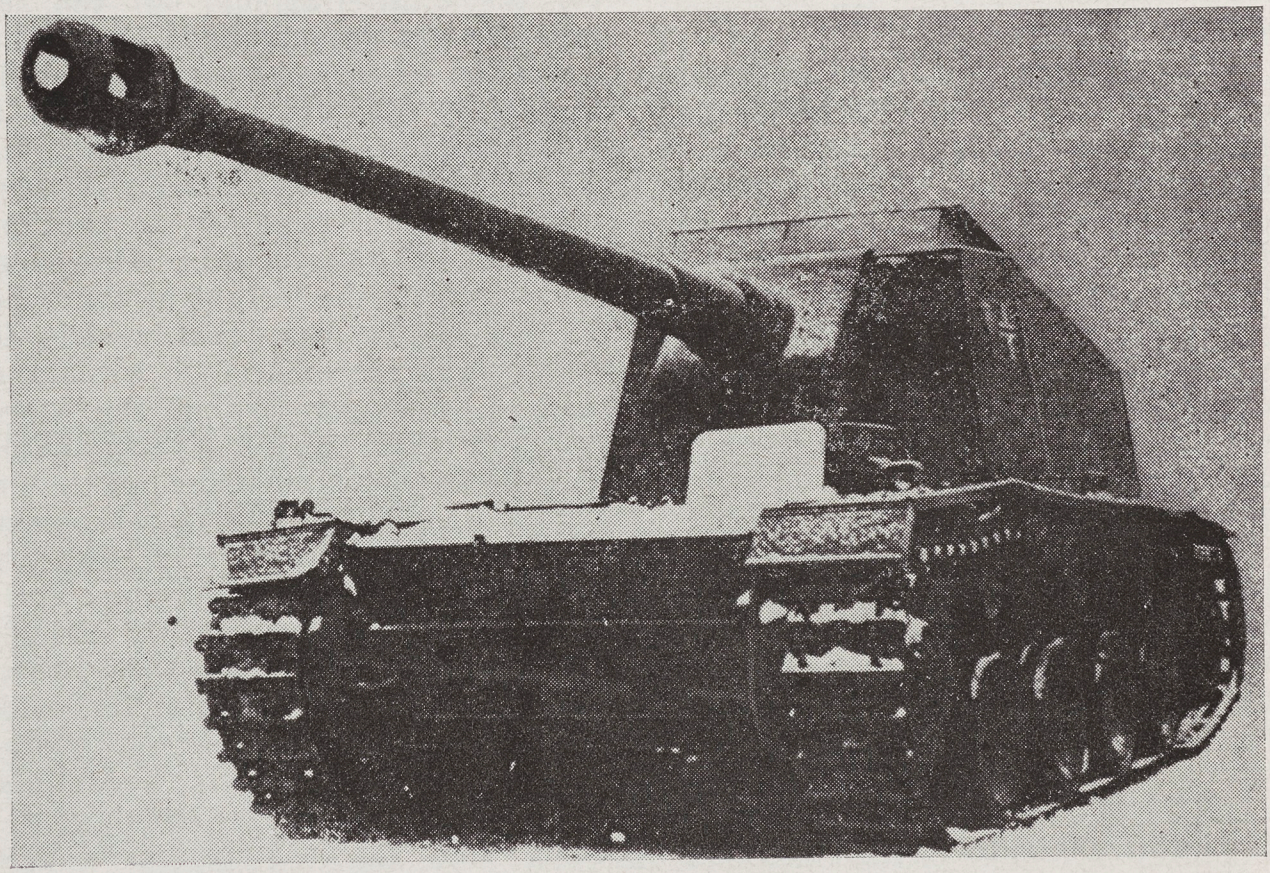
will be sited to engage approaching tanks from the flanks. Their destruction or neutralization by assaulting armour depends upon vigilance, mutual support within troops and the immediate application of high-explosive gun-fire or smoke.

In the final stages of the attack those tanks which accompany the assaulting infantry onto the objective will be confronted by the Infantry Anti-Tank Launcher RPG 2. This is a panzerfaust type of weapon. It fires an 82-mm. hollow charge projectile a distance of about 90 yards. The performance of its wartime German counterpart would indicate that the penetrating power of the RPG 2 is in the order of 200-mm.

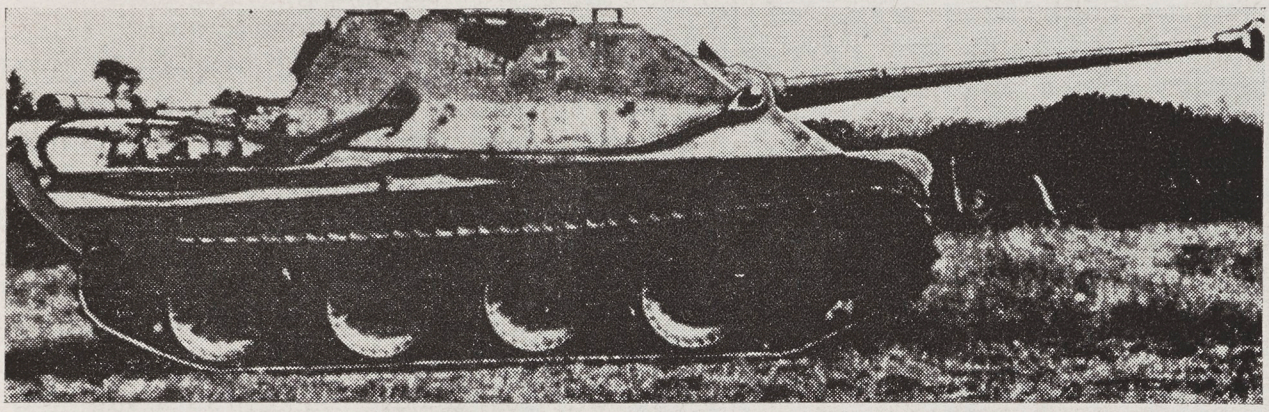
There are 27 RPG 2s in a motor rifle battalion. This permits allotment down to the section level. The short length of the launcher (four feet) facilitates its concealment. It also enables the operator to shelter the weapon below ground level when his position is under fire. With good discipline and fire control the RPG 2 operator cannot be expected to disclose his position until the attacking armour is well within range. His location and destruction is therefore a primary responsibility of the foot soldier.

Tactical and Equipment Implications

As we have noted, in conventional war all training, equipment and organization must be designed with one ultimate object in view, that is to enable the infantry to close with and destroy the enemy. There is no alternative. But, with the volume of fire that can be directed against them, this is an almost impossible task for the most resolute infantry, without the immediate close support



A self-propelled tank destroyer, the German Jagdtiger mounted a 128-mm. gun.



The self-propelled German Jagdpanther mounted an 88-mm. anti-tank gun.

of armour. Unless infantry can summon instantly the gunfire of supporting tanks, an attacking company can be halted in confusion by one well-concealed machine-gun, particularly if the gun is dug in and served by a determined enemy.

The question is, can the tank survive long enough on the modern battlefield to carry out the vital role of infantry support? In considering this problem it would be well to look once again at a Soviet division in the defence. In conventional war it is estimated that a forward division will occupy an area with a frontage and depth up to nine and five miles, respectively. In this 45 square miles may be found more than 680 anti-tank weapons, including tanks and self-propelled guns. This means that in each square mile of defended area, assaulting tanks will encounter an average of 15 weapons capable of penetrating armour at some range or another. From these figures it would appear that, unless there are improvements in our capacity to meet the anti-tank threat, the lot of armoured units in future operations will be hazardous, to say the least.

Tank Destroyers

The anti-tank equipment of the Soviet Army falls into two broad categories: that which is mounted in armoured fighting vehicles and that which is not. Perhaps the former presents the less difficult problem. In considering the T 54 Medium Tank, there is good reason for supposing that the latest versions of Western main battle tanks hold the advantage. However, at ranges under 1000 yards there are few, if indeed any tanks sufficiently armoured to withstand 100-mm. anti-tank gun-fire, especially if they are engaged from the flanks. Therefore, unless we are prepared to match the T 54 in numbers, some other means must be found for its destruction.

Much the same argument applies to the JS 3 and the heavy self-propelled guns, except that the JS 3 will be more difficut to destroy because of its heavy armour. In addition its 122-mm. gun presents a lethal threat at any range at which a tank engagement can occur.

The numerical superiority of the Soviet tank arm has long been recognized. One result has been the development of the guided anti-tank missile. These weapons have been produced by a number of countries. Their characteristics of weight, range and effectiveness vary considerably; they all possess a good degree of accuracy and the best can halt the heaviest tanks at more than 2000 yards. To date, these weapons

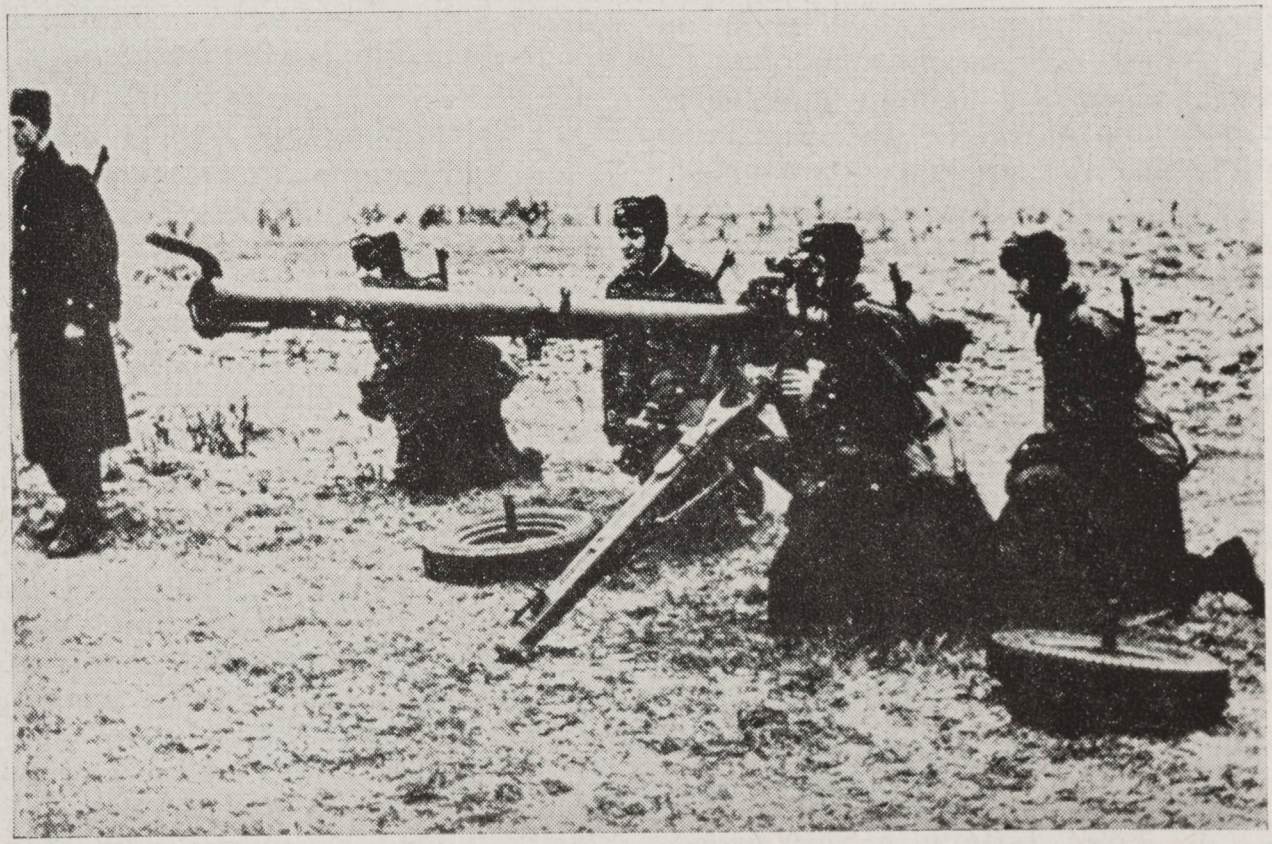
seem to have been relegated to a defensive role; yet they have potentialities which are well suited for offensive operations.

An obvious course is to launch these weapons from a tracked armoured vehicle fitted with overhead cover. To withstand fragments from artillery, mortar and rocket projectiles, it would be necessary to provide armour up to main battle tank standards. The absence of a turret would lessen the total weight of the vehicle besides lowering the silhouette. Organized into tank destroyer squadrons, such vehicles concentrate on the destruction of enemy tanks. Another possibility which merits consideration is that of launching anti-tank guided missiles from very low-flying helicopters. How effective this would be depends, of course, upon the efficiency of Soviet radar and anti-aircraft defences.

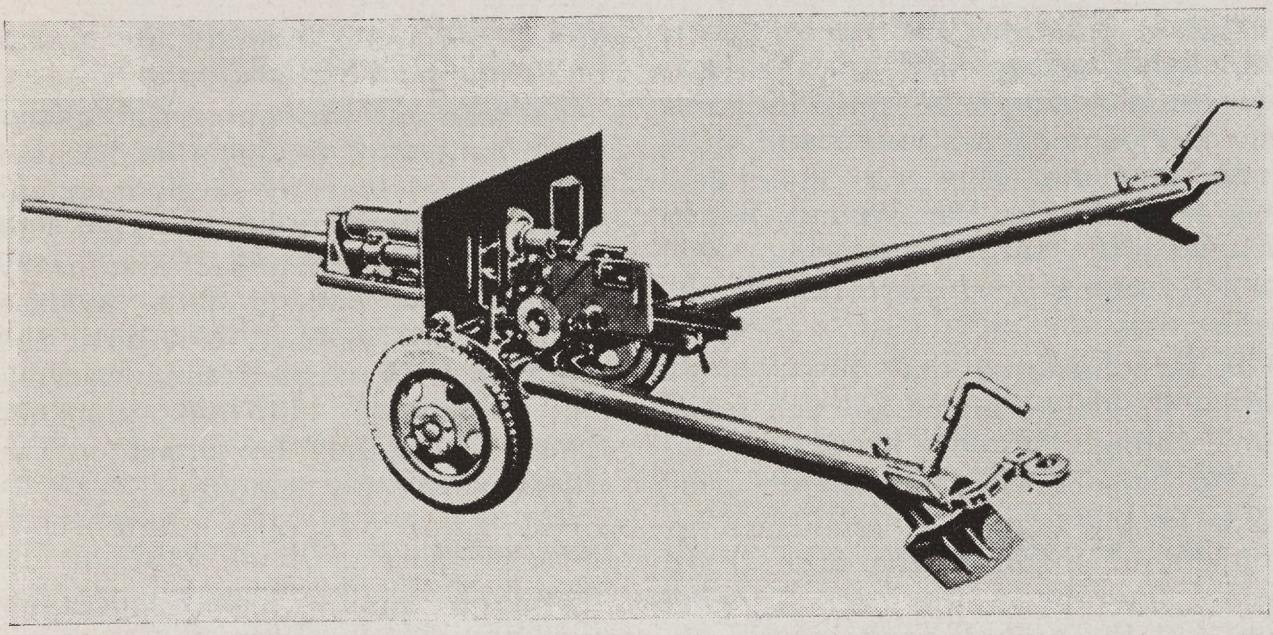
The Assault Tank

From the tank commander's point of view the static ground mounted anti-tank weapons probably constitute the more serious threat. They are usually well concealed; ranges and fields of fire have been carefully plotted beforehand; and by withholding their fire until the opportune moment the defenders have the advantage of devastating surprise. It is doubtful if there is an absolute solution to this problem. Nevertheless, certain measures can be introduced which would increase the tank commander's prospects of success in his task of supporting infantry. This would entail the adoption of an assault tank to supplement the fire of the tank troop.

Since the war tank designers have concentrated to a great extent upon the development of a standard battle tank which mounts a dual-



A view of the Soviet Army's 107-mm. recoilless anti-tank gun B-11 in action.



The 57-mm. anti-tank gun used by the Soviet Army.

purpose gun possessing armour penetrating and anti-personnel capabilties. There is much to be said for this policy. A diversity of vehicles increases costs, and when there is a general shortage of equipment it can add to the difficulties of command. This would be most evident in regrouping after an operation in which disproportionate casualties have been sustained by one particular type of vehicle. However, in pursuing the standard battle tank policy, the size and quality of the Soviet tank arm has dictated that the emphasis be placed on the armour penetrating requirements of the dual-purpose gun. For this reason the anti-personnel effectiveness of the tank gun falls short of that which could be produced by a gun of similar weight, designed specifically for the destruction of men occupying field defences.

Because of its high rate of fire, the anti-tank weapon must be subjected to smashing retaliatory fire the instant its position is revealed. This demands a high explosive shell of at least 120-mm. Such a projectile, possessing an air burst capability, is probably the minimum size of shell that could be expected to put both the anti-tank gun and its crew out of action in one round. Guns of this type could be mounted on the standard battle tank with relatively few alterations to the turret.

The feasibility of this proposal is apparent from a brief examination of the German 150-mm. Heavy Infantry Gun. The barrel of this gun was less than six feet in length; the total weight including wheels, trail and gun shield, etc., was less than 3400 pounds. It fired an 84-pound shell 5140 yards. In the turret of a tank, a gun of this type would require less space than existing dual-purpose tank guns.

The need to supplement the tank troop with equipment of this kind is again underlined when we consider the extraordinary demands which are made upon the mental and physical resources of the troop leader during an attack. He must read a map, send and receive messages over at least two radio channels, direct the movements of his troop, keep the infantry in sight,

respond to signals for fire support, direct his gunner and driver, and at the same time be constantly on the alert for enemy tanks and anti-tank weapons. This was an exacting task during the Second World War: in the future, opposing anti-tank forces will be more than doubled.

It is considered that two assault tanks should be added to each four-tank troop. Their primary role would be anti-tank weapon destruction. In the course of an attack in support of infantry the tank troop would operate in the normal fashion; but the assault tanks would always be in the immediate support of the leading tanks. They would bring down speculative fire on likely anti-tank gun positions and instantly engage those weapons firing at the leading tanks. In this manner tank troops could be supported until they and the infantry reached the enemy forward defended localities.

Because of the numerous short-range anti-tank weapons held at the motor rifle company level, it is unlikely that armour of any kind will be able to accompany the infantry in the final one or two hundred yards of the assault. Not until the infantry have cleared the intervening ground of anti-tank launcher crews would they be joined on the objective by the armour.

Conclusion

The problem of enemy anti-tank weapons will be a dominant factor in a future war. In the event of hostilities, armoured forces will be confronted by at least twice the number of anti-tank weapons met during operations of the Second World War. Furthermore, it is extremely likely that these weapons

The Soviet Army's 85-mm. auxiliary powered anti-tank gun.

will be encountered under much less favourable conditions than prevailed at that time. It is clearly impracticable to increase the tank's weight of armoured protection. Nor can any significant increase in speed or tactical mobility be achieved by reducing the weight of armoured protection without rendering the tank so vulnerable that its value in the infantry support role is nullified.

The only resource appears to be an increase in the quantity and effectiveness of fire power. The guided anti-tank missile, mounted in a tracked armoured vehicle could, to some extent, redress the handicap imposed by the potential enemy's numerical superiority in tanks and self-propelled guns. The launching of guided missiles from helicopters also has possibilities. But the ground mounted anti-tank weapon is a different matter. Without overwhelming air and artillery support these weapons can inflict unacceptable losses on attacking armour. If this fact is recognized, there seems no alternative but to strengthen the tank troop with vehicles and equipment designed for the specific function of destroying anti-tank weapons.

Accidents are Seldom Accidental

FROM AN ARTICLE BY WING COMMANDER T. T. SCOVILL IN THE MAY 1961 ISSUE OF *The Roundel* (RCAF)

The following points are intended to make you stop and evaluate your own driving habits. How many of them apply to you personally?

1. Male drivers between 16 and 24 years of age have a much higher accident rate than any other group, and pay a much higher insurance premium on their cars. Girls in the same age group are classed as normal as far as insurance risks go.

2. About three out of 10 drivers involved in fatal accidents were speeding. Is a few minutes saved worth it?

3. In 26 out of 100 fatal accidents a driver or adult pedestrian had been drinking. "The face that lingered so long in the mirror behind the bar does not fit so well behind the wheel."

4. Traffic laws set maximum speeds, but also state that you must not travel at any time at a speed which will endanger life or property. At 30 m.p.h. you need 81 feet to stop on dry concrete — 42 feet to make up your mind and 39 feet for actual braking. On a dry, icy surface at the same speed you need 180 feet, and if the ice is wet you need 300 feet. Every additional 10 m.p.h. over 30 increases your stopping distance by over 50 per cent. Do you always drive keeping the stopping factor in mind?

5. You need good visibility to drive a car safely. You cannot drive a car on instruments like you can an aeroplane, even if you are a green ticket pilot.

6. Every four hours a person is killed on Canadian roads—every 12 minutes someone is injured. Do you operate on the premise that "it can't happen to me"?

Patrolling

The battalion that is successful in patrolling will succeed in every other operation of war.—*The Infantry Journal (India).*

November Appointment

Maj.-Gen. Bernatchez to be VCGS

A STATEMENT BY THE HONOURABLE DOUGLAS S. HARKNESS, MINISTER OF NATIONAL DEFENCE

Major-General J. Paul-Emile Bernatchez, of Montmagny, Que., will be appointed Vice Chief of the General Staff at Army Headquarters in Ottawa next November.

Maj.-Gen. Bernatchez succeeds Maj.-Gen. J. V. Allard who will take command of the 4th Division, British Army of the Rhine in Germany, as announced last March.

An outstanding soldier with a distinguished record throughout the Second World War, Maj.-Gen. Bernatchez for the past three years has served as Chairman of the NATO Military Agency for Standardization in Europe. He was a wartime commander of the Royal 22e Régiment and commanded a brigade in battle in both Italy and Northwest Europe.

Prior to his present NATO appointment, Maj.-Gen. Bernatchez was General Officer Commanding Quebec Command in Montreal.

* * *

BIOGRAPHY

Maj.-Gen. J. P. E. Bernatchez was born in Montmagny, Que., 1 March 1911. He graduated from the Royal Military College in 1934 and was commissioned in the Royal 22e Régiment.

Following a period of regimental duty in Canada he went to the United Kingdom in April 1935, on exchange duty with the 1st Battalion, Royal Welsh Fusiliers. While in the United Kingdom he attended advanced courses in weapons and their employment. Just prior to the outbreak of the Second World War he

Maj.-Gen. Bernatchez

was Air Liaison Officer at the RCAF base at Trenton, Ont.

He returned to his regiment as a captain in September 1939, and went overseas a few months later. By October 1941, he had become Commanding Officer of the Royal 22e Régiment. He attended a senior officers' course in the United Kingdom and later as a lieutenant-colonel led his regiment through the fighting in Sicily and Italy.

In the spring of 1944, after the fierce fighting at Ortona, he was promoted to the rank of brigadier to command the 3rd Canadian Infantry Brigade. For his leadership of the "Van Doos", he was awarded the Distinguished Service Order. For services as Commander of the 3rd Brigade in Italy and Northwest Europe he was made a Commander of the Most Excellent Order of the British Empire. He also was awarded the French Legion d'Honneur, the Croix de Guerre avec Palme, and the United States Legion of Merit.

Following the war in Europe, Maj.-Gen. Bernatchez returned to Canada to prepare for the Pacific campaign and for 10 months was at Army Headquarters in Ottawa. In July 1946 he was appointed Commander, Eastern Quebec Area, at Quebec City, and two years later became General Officer Commanding Prairie Command at Winnipeg.

He vacated this appointment in September 1949 to attend the National Defence College at Kingston, Ont., and then went to Army Headquarters in Ottawa. Here, he held successively the posts of Deputy Chief of the General Staff and Director General of Military Training.

In August 1951, for a brief period, he commanded the Canadian Military Mission (Tokyo) in the Far East, and then returned to Canada where he was promoted to the rank of major-general and appointed General Officer Commanding Quebec Command with headquarters at Montreal. He retained this appointment until 13 December 1957.

He assumed his present appointment in December 1957.

Canadians Second in UNEF Shoot

CAMP RAFAH, Egypt: Canadian sharpshooters placed second in the seven-nation rifle competition held during March by the United Nations Emergency Force in the Gaza Strip.

The Canadian team, led by Captain A. S. Etter of The Pas, Man., captured the Bronze Medal position, closely behind the winning Swedish Army team. In the pistol and machine carbine competitions, both Canadian entries were third and fifth, respectively.

The Canadian rifle team included two international shooters, S/Sgt. M. W. Norman, of Regina, Sask., and Sgt. J. R. Hedger, of Hamilton, Ont., both of whom have competed in the Bisley, England, competitions. The match was fired with the No. 4 .303 rifles, the standard weapon in the UNEF.

The Canadians competed against contingents from Sweden, India, Yugoslavia, Brazil, Denmark and Norway.

Novel Situations Require New Rules

The success of a commander does not arise from following rules or models. It consists in an absolutely new comprehension of the dominant facts of the situation at the time, and all the forces at work. Every great operation of war is unique. What is wanted is a profound appreciation of the actual event. There is no surer road to disaster than to imitate the plans of bygone heroes and fit them to novel situations.—*Winston Churchill, "Life of Marlborough".*

Bisley Competition—1961

Canadian Takes The Queen's Prize

Established in 1860 and one of the highest awards in the world for individual marksmanship, the Queen's Prize, emblematic of the best shot in the Commonwealth, was won this year at the Bisley, England, competition by WO 2 Norman L. Beckett, 52, of Ancaster, Ont. This was the ninth time a Canadian has won the top prize.

Over 2000 of the best shots in the Commonwealth were pared down to the final 100 in this competition.

Sgt - Maj. Beckett, shooting with the Dominion of Canada Rifle Association team, also won the competition's silver medal by leading the 100 marksmen into the final stage with a record of 48 out of a possible 50.

Sgt-Maj. Beckett

This was the third time in six trips to Bisley that Sgt-Maj. Beckett, a member of the Royal Hamilton Light Infantry (Militia), had reached the finals, but the first time he had placed better than 30th. It also was the first time that the DCRA team had produced a Queen's Prize winner two years in succession. Sgt. Gunnar Westling, New Westminster, B.C., won the award in 1960.

Sgt-Maj. Beckett, winning a gold medal and £250, scored 284 points out of a possible 310. His nearest competitor, Flt-Lt. R. Chambers of the Royal Air Force, was six points behind.

The winner said "my heart sank into my boots" halfway through the last stage of the competition on the 1000-yard range. His shots had been going to the bullseye. Then he got a couple of "magpies".

"I thought I had lost it then," Beckett said afterwards. But he finished with three perfect shots.

A member of the DCRA Council, Sgt-Maj. Beckett accompanied the team to Bisley in 1938, 1950, 1951, 1956 and 1959. He qualified but was unable to accompany the team in 1940, 1948, 1952 and 1957.

He won the Imperial Tobacco Cup

THE ARMED FORCES IN GHANA TODAY

By

W. F. GUTTERIDGE, MBE, MA, SENIOR LECTURER IN MODERN SUBJECTS, ROYAL MILITARY ACADEMY, SANDHURST, AND REPRINTED FROM THE APRIL 1961 ISSUE OF THE BRITISH ARMY REVIEW BY PERMISSION OF THE CONTROLLER, HER MAJESTY'S STATIONARY OFFICE.

(The author is at present the holder of a Nuffield Foundation Home Civil Service Travelling Fellowship and is on an eight months study tour of Africa. He wishes to record his gratitude to the Foundation for their generosity and help.—The British Army Review).

During the first phases of the Congo crisis which began in July, 1960, the news from Leopoldville was rarely without some mention of the outstanding role played by units of the Ghana Army in establishing a measure of security for lives and property there. Observers from many nations reported these activities with approval; few of them stopped to ask how it was that this relatively small country on the west coast of Africa was able to provide a force, which, within the UN Command, was notable for its morale and efficiency. This fact, and, of course, the continued employment of a number of British personnel on loan, secondment or contract in the Ghana forces are sufficient in themselves to justify the publication in this Review of an examination of these forces in the context of Ghana today.

In the last ten years in Britain a great deal has been written and broadcast about what may be called for this purpose Gold Coast/Ghana. In that period this compact territory of about six million people and 90,000 square miles in area has progressed from being a colony with the bare elements of representative government to the position of a fully independent republic within the Commonwealth, in every respect equal in status with its fellow members of that association, including, of course, Britain herself. The continuing importance of the nationalist movement which brought about this constitutional change is even more apparent to the visitor to Ghana than it is to the observer from afar, and it is the nature of this movement which makes the armed forces in Ghana, as well as all other institutions of any importance, incapable of study in isolation.

The nationalist movement in the then Colony of the Gold Coast sprang to life in 1947-8 after the return to the country from America and Britain of Dr. Kwame Nkrumah. He returned as secretary of the old United Gold Coast Convention (UGCC) and shortly afterwards created his own political party—the Convention People's Party (CPP). This Party was originally organized

---

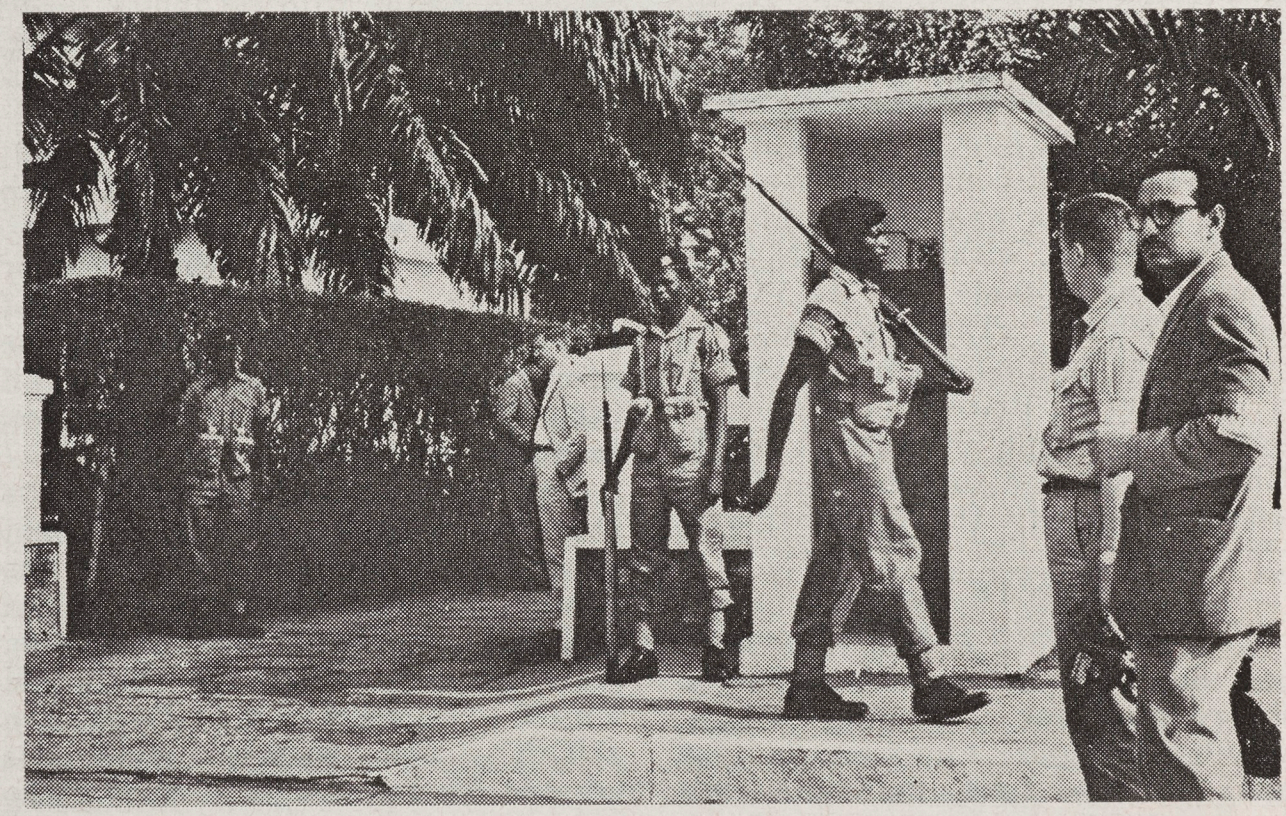
Queen's Prize

(Continued from preceding page)

and Southern Railways matches at Bisley and was a member of the winning Kolapore Cup team in 1938 and 1951. In 1939, 1947 and 1954 he won the Governor General's Match at Ottawa.

on what may perhaps be termed American lines, and, in a different highly developed form, now dominates the life of Ghana not only in the political sphere. In its early stages it relied heavily for support on discontented ex-servicemen discharged after serving Britain and the Commonwealth well in the 81st and 82nd West African divisions in Burma. There were fairly widespread riots in 1948 and the few casualties have acquired an aura of martyrdom, which is commemorated in the name "28th of February Road" and the Independence Arch in modern Accra. It is certainly historically true that these shortlived disorders set off a train of events which led to the election and recognition in February 1951 of the first CPP government with Dr. Nkrumah as Leader of Government Business and subsequently as Prime Minister.

From that date the Gold Coast made steady progress towards the achievement of independence as Ghana on 6 March 1957. The name Ghana, derived from an ancient West African Kingdom, was itself significant of a desire to accumulate tradition and to generate a distinctive personality for the new state. But, it must be emphasized, the intervening years were not without their hazards and this was in large measure due to the fact that Ghana, though in no real sense multi-racial, is not strictly homogeneous. Broadly speaking there were, and to a lesser extent remain, three main groups. So far the development of Ghana has been dominated by the people of the coastal region who have had several centuries of contact with the outside world. Further inland in the forest belt there are the Ashanti—a people who were militarily organized and the terror of the first group until



Ghana Information Services Photograph

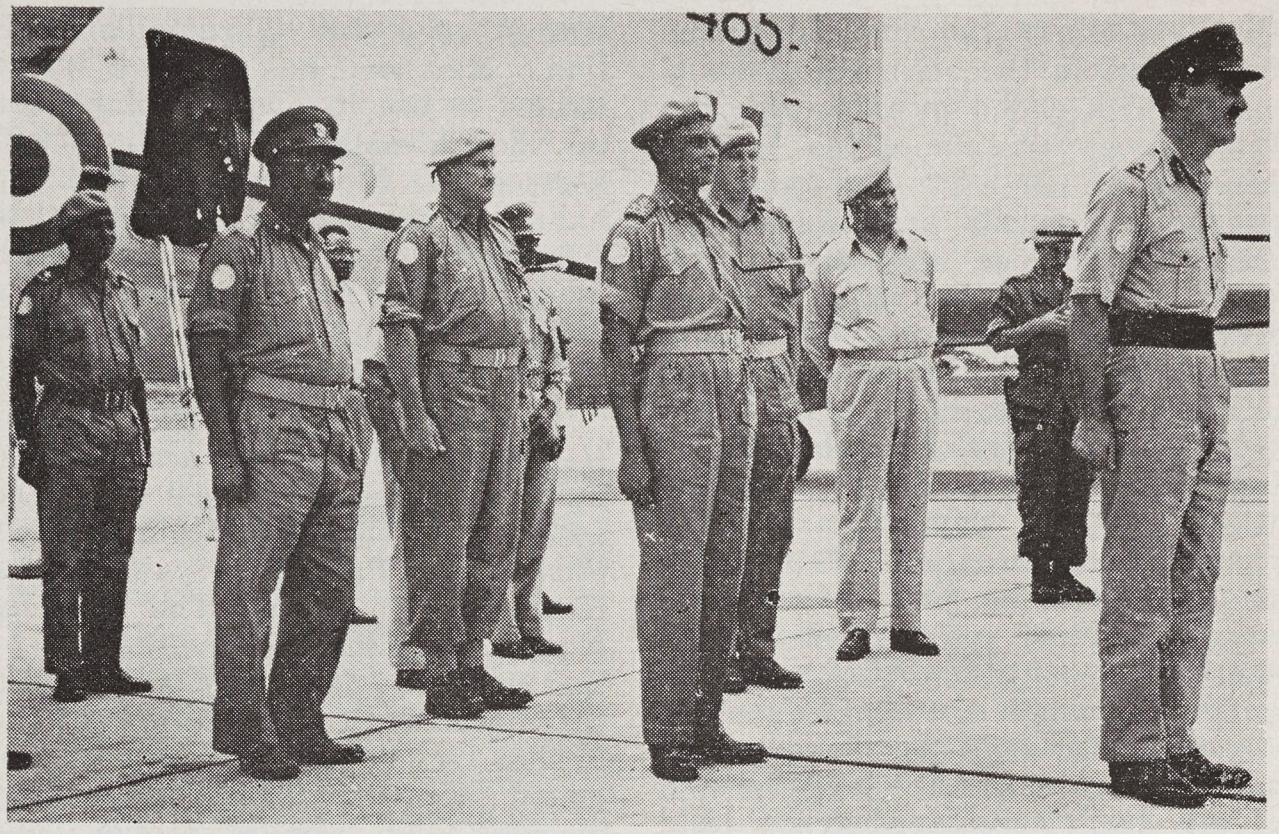
Outside Ghana Brigade Headquarters, Leopoldville.

the final elimination of their power by Britain in the series of Ashanti wars which ended in 1900 with the thirty-five-year exile of the Asantehene. In the north live less numerous people still firmly organized today on a tribal basis, with a tradition of independence perhaps deriving from a more austere way of life, the prevalence of the Islamic faith and a history of contact with the Arab world via the Western Sudan. Some opposition to a political authority based on the population of the coastal towns was, therefore, more or less inevitable. The situation was aggravated by other factors: of these the most noteworthy were discontent amongst the cocoa farmers, a pronounced clash between the new political forces and the power of the chiefs, and after independence, local Ewe nationalism in that part of former German Togoland, which had been added to Ghana as a result of a United Nations plebiscite. It is a measure of the success of the present regime that, by a variety of measures, the forces tending to the disintegration of the new state have been largely subdued. During 1960 this position was consolidated by the creation of several new regions which have given an impression of local administrative autonomy and may act as a focus of local loyalties. This is particularly important in the case of the separation of Brong-Ahafo from the Ashanti region.

These regional adjustments, however, must not be allowed to obscure the fact that there has been a progressive centralization of real power in Ghana. In terms of legal authority, the new constitution, under which he is, amongst other things, President—that is Head of State both formal and executive — and Commander-in-Chief, has immensely strengthened Dr. Nkrumah's position. He now has power, if he wishes to use it, over appointments to and dismissals from the Civil Service and the Armed Forces. He has been given the honorific title "Osageyfo" — an Akan word which is probably best interpreted as meaning "leader" or "victor" in the struggle for independence.

The elevation of Dr. Nkrumah as Head of State has been accompanied by a progressive extension of the activities of the Convention People's Party. The Party newspapers, The Ghanaian Times and The Evening News, proclaim the supremacy of the Party and its identification with the State. Such organizations as the Trades Unions are now closely associated with it. There are strong womens' and farmers' sections and many other party activities. Recently a youth organization known as the Young Pioneers has been established, aimed at the creation of patriotic consciousness and what is termed the "psychological mobilization" of the nation through cultural activities, handicrafts and skills. There is also the Builders' Brigade which is now about 12,000 strong. This was originally developed to provide some of those who had recently left school and were unemployed with an outlet for their energies, but has been now largely reoriented, on Israeli advice, in the direction of agricultural development aimed at increasing food production and the reclamation of previously unproductive land.

Such movements have facets which it is easy for the outsider to criticize, but there is little doubt that they are to a large extent inspired by what the President sees as a need for discipline in a new nation and for the recognition of the



Ghana Information Services Photograph

Major-General H. T. Alexander, accompanied by Brigadier J. E. Michel and Colonel J. A. Ankrah, arriving in Leopoldville.

Government's authority in all parts of the State. There is little need to go beyond his public speeches to understand the ultimate objective. This is the establishment of a modern state on a socialist pattern with a specifically African personality and thus capable of playing a major role in the final termination of colonial rule in the continent and in the creation of some sort of association of African states. It is no wonder in the circumstances that there should be competition from various sources for influence and trade in Ghana. At the same time an understanding of the declared political objectives goes a long way towards making intelligible the emphasis which is being placed on efficient armed forces for the sake both of prestige and of developing national consciousness and pride. In October 1960, on the occasion of the presentation of "wings" to the first ten Ghanaian Air Force pilots, Dr. Nkrumah appealed to the young men of the nation to come forward for service in the Armed Forces as a means of creating a sense of discipline and responsibility in the new generation.

In a small state such as Ghana the main purposes of establishing armed forces, apart from the prestige factor, are to maintain internal security in situations with which the police are unable to cope and to secure the frontiers when relations with neighbours are strained. As a result of the Congo crisis, however, the Ghana Army has, under United Nations Command, acquired important overseas experience. This, however, was not responsible for anything other than the timing of the

present expansion of the army. The creation of a second brigade had already been planned and was merely accelerated in response to the need to provide early reliefs for the three battalions dispatched to the Congo in July and August 1960. By the end of October the 2nd Infantry Battalion had already been relieved by an expanded Field Squadron in an infantry role and the 4th Battalion was in process of formation at Takoradi. The Ghana Army at present consists of four infantry battalions with two brigade headquarters, one in the Congo and the other in Ghana, the Field Squadron and a Reconnaissance Squadron. There are also all the necessary service units, though, because Ghanaian soldiers are not normally supplied with rations in kind, the Supply and Transport organization is on a reduced scale compared with that in the British Army. In short, the immediate aim in Ghana is to create two fully organized brigade groups. In addition to the operational units there are certain static establishments of which the most important are the Ghana Armed Forces Training Centre (GAFTC) at Kumasi and the Military Academy and Training School at Teshie near Accra. The Army headquarters, as well as the Naval and Air Force HQs, is integrated with the Minister of Defence. Maj-Gen. H. T. Alexander, CBE, DSO, is Chief of Defence staff and there is a Minister of Defence and a Parliamentary Secretary as well as a normal complement of civil servants.

At the end of 1960 the approximate strength of the Ghana Army was 7000 all ranks. Recruitment is carried out through a recruiting office at the GAFTC at Kumasi in Ashanti region, except for limited numbers of specialists who are now recruited directly by the units concerned. There is no shortage of recruits for general duties and as many as 2000 applications are received for the forty vacancies which are normally available at one time; of these perhaps 500 are put through a series of eliminating tests which are mainly medical and educational. An advertisement in the daily papers in September 1960 inviting the re-enlistment of ex-soldiers under 34 years of age resulted in 200 applicants appearing at the office of Officer i/c Records in Accra by nine o'clock the same morning.

The state of education in the different regions of Ghana has an important bearing on the composition of the Army. Schools have only recently begun to operate on a reasonable scale in the Northern and Upper regions. This means that the level of literacy in these areas is much lower than in the south. On the other hand, life in the north is more austere and opportunities for a livelihood correspondingly less. In the past, therefore, the bulk of infantry soldiers has been drawn from the Moslem north and practically all the tradesmen from Ashanti and the south. In the infantry battalions the percentage of Northerners today is between 60 and 70 per cent of the total and amongst warrant officers and NCOs the proportion is even higher. On the other hand, in the recent past recruiting procedure has resulted in a much higher number of Ashantis and coastal people joining the army but this is likely to be only a temporary phase. The internal security problem in Ghana is now diminished to such an extent that an ethnic balance within the Army is not immediately of any great importance. There is no quota

by regions, but the situation is kept under review.

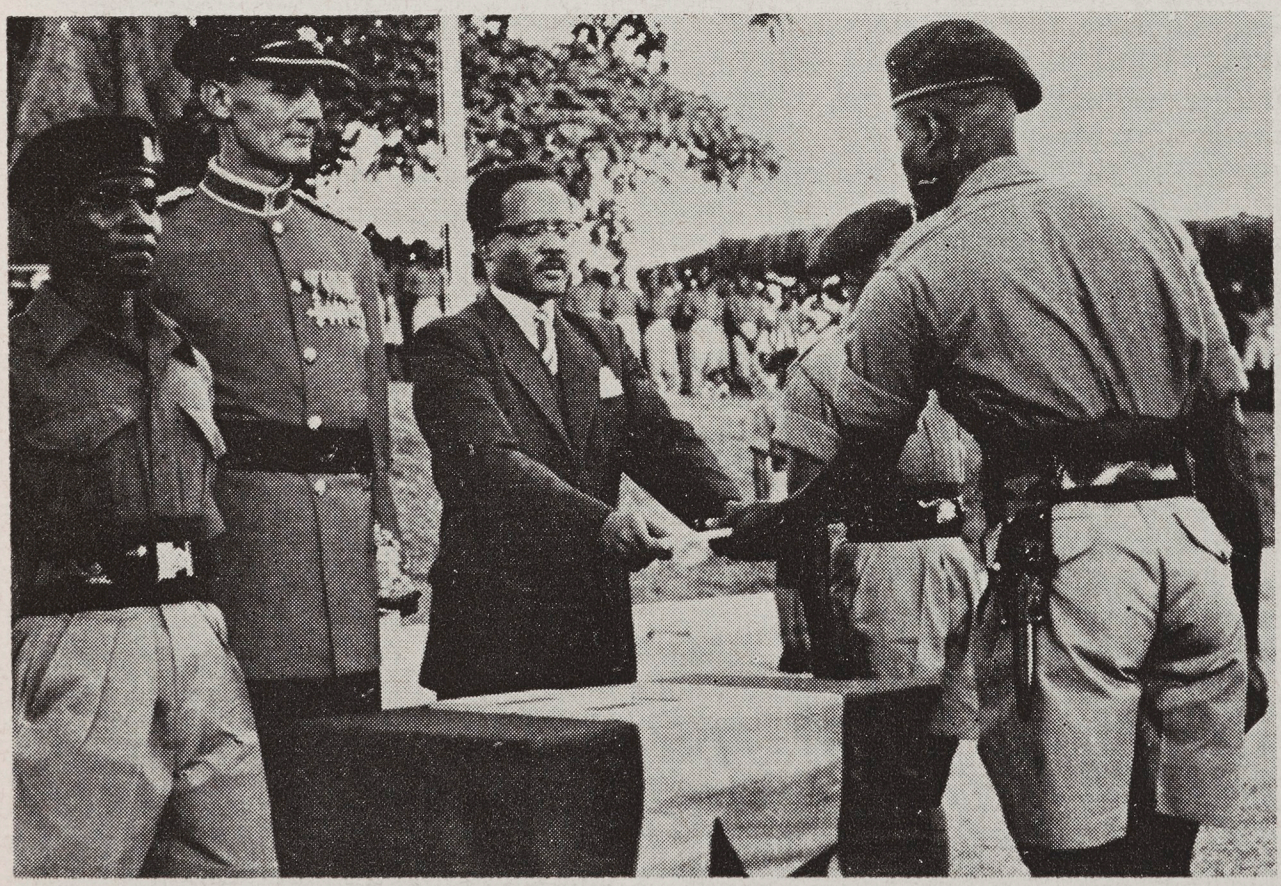
Basic training at the GAFTC lasts for 32 weeks in the case of general duties infantry soldiers and 24 for tradesmen with further reductions in some cases. The former period includes substantial blocks of educational instruction particularly in order to develop a reasonable knowledge of English. There are three stages in army education of which the lowest consists mainly of the ability to speak and understand simple English sentences. A complication here lies not only in the number of vernacular languages and dialects, but also in the fact that a proportion of recruits come from French-speaking territories. This, however, is likely to be a diminishing problem. At the GAFTC there is also a Junior Leaders Company which takes boys at 15 years and gives them three years' education and training, including some on "outward bound" lines. From this company it is hoped will come Junior NCOs, tradesmen and the occasional candidate for a commission.

Whereas only a relatively small number of British warrant officers and NCOS are still employed in the Ghana Army mostly in technical or specialist roles, many British officers are still employed throughout the Army. The programme for the commissioning of Ghanaian officers as it stood in the autumn of 1960 would bring about virtually complete Ghanaianization by 1965. This has been made possible by the establishment of the Ghana Military Academy at Teshie in April 1960 on the basis of an 18 months' course of education and training. An expansion of the Academy could bring about an acceleration in this programme, subject always to the availability of suitable candidates. The position with regard to Ghanaianization by rank, at the time of writing, is radically different from that which prevailed less than 12 months ago. One brigade commander and three out of four battalion commanders are Ghanaians: there are 40 majors and captains, and the total Ghanaian officer strength is about 120. Four of these have had staff training, but these necessarily tend to be employed in the higher command appointments. Of the most senior officers the majority originally received direct commissions from the Army Education Service, but there is a growing number who have been trained at RMA Sandhurst or at an officer cadet school in the United Kingdom.

As the morale and efficiency of an army undoubtedly depends on the quality and composition of its officer corps, the problem of the supply of Ghanaian officers is worth examining briefly. The intention is that the bulk of army officers should receive their training at the Military Academy at Teshie but that, out of each half yearly intake, four each should go to Sandhurst and the Indian Military Academy at Dehra Dun. (At the moment six are under training in Pakistan but there are no plans to continue this arrangement). The first term at Teshie devoted largely to basic training and education will also include candidates for the navy and air force. Training at the Academy is on very similar lines to that at Sandhurst with a balance between academic and military instruction. The former is under the direction of a Director of Studies on secondment from the Staff at Sandhurst. Originally he was assisted only by British education officers but recently two Ghanaian gradu-

ates from the University College at Legon have been commissioned directly into the Ghana Army Education Service and are teaching at the Academy. On the strictly military side too there is a combined Ghanaian and British staff. All those concerned with the Academy have the stimulating task of attempting to create a new tradition of service and after six months' operation appeared to have made remarkable headway.

The absence of a military tradition meant that in the early stages there was some reluctance on the part of young men to come forward for commissions in the Ghana Army. They were attracted by the Civil Service and to a lesser extent to commerce and industry where they felt that both the prestige and the rewards were greater. There was an initial ignorance and in some areas positive distrust of the Army to be overcome. The promotion of Ghanaians to senior rank, the frequent appearances of the Army on ceremonial occasions connected with presidential tours and so on, and the publicity stemming from the Congo operation have combined to elevate the soldier in the eyes of the people. He is now respected: his career prospects are reckoned to be good. For various reasons, the prospect of a commission has gained ground at the expense of an appointment in the Civil Service. Rates of pay and amenities, particularly housing, are beginning to compare well with those in other comparable walks of life. On the other hand, there are still inherent in the structure of



Ghana Information Services Photograph

Mr Awusu Afriyea, Regional Commissioner, Ashanti, presenting awards at a recruit passing-out parade at Accra.

West African society family pressures, both social and financial, which can militate against starting such a career or make the young officer's life difficult. On the whole, however, there seems good reason for optimism about recruitment. Seven of the leading secondary schools have cadet corps and more are to be established. There is little class consciousness in the European sense and applications come in freely from those with and without the educational qualifications. A pass in the West African school certificate with credits in English and three other subjects is expected as a preliminary: candidates then have to pass a written examination and appear before a selection board on the lines of a modified Regular Commissioners Board.

With officers as with other ranks, the regional differences play some part. Until recently there was only one secondary school, the Government Secondary School at Tamale, in the north. This limited the flow of potential officers from this area but the figure is now rising, as it is from amongst the Ewe people, from the Southern Volta Region in Eastern Ghana, who often show interest and aptitude in technical matters. It is still true that such is the desire of Ghanaians for higher education that potential sixth formers are reluctant to accept a career until they have assessed fully their academic chances, but educational opportunities in the Army will tend to mitigate this resistance. The position in the Ghana Army is such that, given suitable political circumstances, officers and men have a great contribution to make to the stability and international standing of the nation.

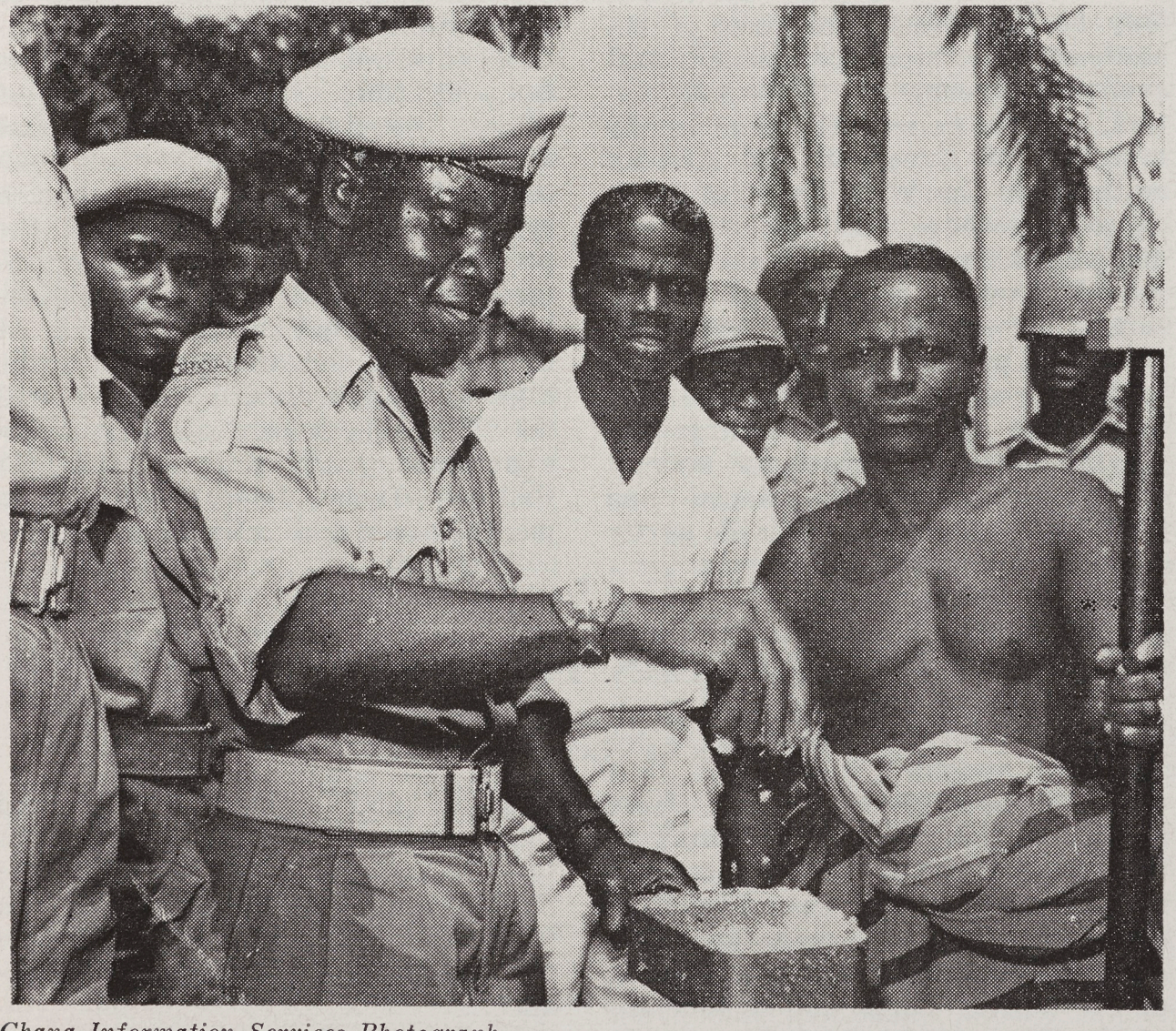
Most of the generalizations which are true in the Army in Ghana are also true of the Navy and Air Force: all three of the armed forces are important factors in creating a sense of nationhood. It may well be argued that small countries can ill-afford full-scale defence forces but the counter arguments prevail in Ghana. An efficient modern navy and air force, as well as an army, are the aim.

The Navy at present consists of two inshore minesweepers and the total Ghanaian strength is only about 50. Four potential officers are under training at RNC Dartmouth and a number of artificers are on a course at HMS *Fisgard*. The expansion of a Navy is necessarily slower than that of an Army due to the extent of the technical training required for the handling and maintenance of modern vessels and equipment. The ultimate aim is to produce a force of 50 officers and 500 men based on an installation to be constructed at Sekoni near Takoradi, with an appropriate number of ships. The desire to join the navy is such that the authorities are able to insist on every rating having a West African School Certificate except when he is to be enrolled, for example, as a cook for which such an education is obviously unnecessary. Basic training for all ratings is carried out along with that for the Army and Air Force at GAFTC, Kumasi.

The Ghana Air Force has only been in existence a short time, and recently the Government ordered 14 *Beaver* aircraft from Canada for an inter-communication and frontier patrol role. A Flying Training School was established at Accra Airport and is shortly to move to Takoradi. Originally, the Air Force was under the direction of an Indian officer and the flying and ground training in the charge of a team of

Israeli instructors. In October 1960, however, the decision was taken by the Ghana Government to transfer direction and training to the Royal Air Force. There a number of difficulties in building up an air force from scratch in a country where acquaintance with mechanical appliances is not widespread and where physical coordination to the extent required in piloting an aircraft has to be specially developed. These have been overcome to the extent that ten young officers and cadets left last autumn to undertake an advance flying course in Britain having successfully covered the basic pilot's course. Another batch of cadets, having completed six months at the Ghana Military Academy, is now undergoing flying training. It is worth noting that there is often marked family resistance to candidates seeking to join the Air Force, but there is every indication that the spread of education will produce a freer flow of candidates for commissions in this and other branches of the armed forces.

The armed forces in Ghana then have to be seen as not only serving



Ghana Information Services Photograph

RSM Edward Tetteh, Ghana Brigade Headquarters, receives his share of the rations.

the usual specific purposes, but as part of the process of nation building. Just as service in British colonial forces during the 1939-45 war was, by reason of the wider experience and contacts which it provided, a factor in creating nationalist movements in West Africa in the first instance, so service in the armed forces of recently independent states can greatly help in fostering national unity and solidarity. The feeling of being Ghanaian, as opposed to a Ga, an Ashanti, a Fra-Fra or an Ewe, can be developed in national armed forces more readily than elsewhere. In this way, too, it may be that fresh standards of behaviour and morality, which will eventually permeate the whole nation, can be generated. For in the mingling of European and African cultures on the West Coast of Africa, as elsewhere, the old codes and disciplines have been largely undermined. As an example of this, a sense of service and vocation amongst young Ghanaians beginning their careers is rare. The various wage and salary earning employments are weighed up strictly on their immediate material and prestige advantages. This is partly due to European example and certainly not in the best of interests of the nation. The morale of the armed forces in such circumstances and what we may term the "moral fibre" of the nation are likely to be closely linked.

It is too early as yet to speculate here on the effect of the Congo experience on the Ghana Army, and indeed on the armies of other recently independent states, but we know of the reputation they have earned in spite of the political complications. It is sufficient to conclude by referring to the stimulating challenge which this offers to the British officers who will continue to serve with the Ghana forces for some time. In the first place of course, constant recollection that they are serving a state other than their own is required and then a sympathetic understanding of the problems involved. Ghana has invited British assistance in establishing professional armed forces of high quality and, therefore, only the highest standards and example will do. For this reason alone it is an experience which many of the best British officers, from Sandhurst in particular, would relish and enjoy.

* * *

CANADIAN OFFICERS TO TRAIN GHANAIANS

FROM A STATEMENT BY THE HONOURABLE DOUGLAS S. HARKNESS, MINISTER OF NATIONAL DEFENCE

In response to a request from President Nkrumha [of Ghana] to the Prime Minister, the Rt. Hon. John G. Diefenbaker, the Canadian Government will provide up to 30 Canadian officers to assist in the training of the Officer Corps and technicians of the Ghanaian Armed Forces.

The Canadian "training team" will consist of officers from the Canadian Regular and Militia Forces and those selected will be attached to the Ghanaian Military Academy, the Armed Forces Training Centre, the Medical Services and the Air Force for the purpose of training assistance.

While the Canadian Government will be responsible for the Canadians' pay and allowances, the Government

of Ghana will be responsible for the costs of moving the officers and their families to and from Ghana and for such additional allowances, quarters and services as may be determined following consultations between the two Governments.

As part of this arrangement of military training assistance, the Government of Ghana has agreed that the Canadian personnel will not undertake any activity contrary to the Oath of Allegiance to her Majesty and will not be involved directly in aid to the Civil Power or in any military operations outside Ghana.

A senior officer from the Department of National Defence familiar with the necessary regulations will be assigned to the Canadian High Commissioner's Office in Accra to assist in working out the terms of service and employment for the Canadian personnel involved.

Commonwealth Defence

Standardization of equipment and weapons is one of the important ways in which cooperation can enhance the fighting power of the Commonwealth and of the free world. As far back as 1952 agreement was reached by the United Kingdom, Canada and the United States to combine their resources to produce and equip squadrons of *Sabre* jet fighters. The Canadian Army has been supplied with *Centurion* tanks from the United Kingdom, and, in the general field of standardization, there has for some time been a very close association between Canada, the United States and the United Kingdom. It has been announced that the Canadian *Beaver* aircraft has been chosen as Army liaison aircraft in the United Kingdom.

Most Commonwealth countries have now adopted the F.N. rifle, which is manufactured in Australia as well as in the United Kingdom. Australia is also producing *Avon* gas turbine aero engines for use in Australian-built *Canberra* jet bombers; it has bought from the United Kingdom *Centurion* tanks, as well as armoured vehicles such as *Ferrets* and *Saracens*, and it has recently decided to equip its anti-aircraft defences with the British *Bloodhound* guided missile. Conversely, the British Army is being equipped with the Australian *Malkara* anti-tank guided weapon. Most of New Zealand's requirements of military equipment come from the United Kingdom, and it buys the F.N. rifle from Australia. South Africa has also acquired arms and equipment from the United Kingdom. The United Kingdom has supplied India with much of its Service equipment, including *Centurion* tanks, *Canberra* bombers and *Hunter* fighter aircraft. On the engineering side, standard British equipment is in use. India is now manufacturing an increasing proportion of the equipment it needs, and the United Kingdom has been helping it to develop its own production on standardized lines. Ceylon, Ghana, the Federation of Malaya and the Federation of Rhodesia and Nyasaland have all continued to use British equipment for their armed forces.—*From "Commonwealth Defence Cooperation", United Kingdom Information Service (Canada).*

DRB PIONEERS MISSILE STUDY

A REPORT ISSUED BY THE DEFENCE RESEARCH BOARD,
DEPARTMENT OF NATIONAL DEFENCE, OTTAWA

Continuing cooperative interest by the United States in high velocity missile re-entry studies, pioneered at the Defence Research Board's Valcartier (Que.) establishment, Department of National Defence, is marked by the award of $609,000 to Bendix Systems Division, Ann Arbor, Mich., for further Canadian-U.S. investigations.

Announcement of the award by the U.S. Army Detroit Ordnance District was made in Washington. Directed by the Advanced Research Projects Agency (ARPA), the U.S. phases of the joint investigations are under the technical management of the Army Rocket and Guided Missile Agency (ARGMA).

The basic techniques and facilities employed in the studies were developed by a Canadian scientific and technical team at the Canadian Armament Research and Development Establishment (CARDE) which continues in its role as the technical agency concerned. Under the award, Bendix will extend its experimental research in cooperation with the Canadian scientists, at the same time employing many of the research facilities at Valcartier.

The research data obtained will be forwarded to Bendix for evaluation and processing and the result will be reported to ARGMA's research centre at Huntsville, Ala.

Among the CARDE research facilities employed are a series of hypervelocity ranges capable of simulating, and in some cases duplicating, ICBM re-entry conditions of defence interest. Projectiles ranging from an inch or less in diameter to 100 pounds in weight can be propelled at velocities of up to 20,000 feet per second to simulated altitudes approaching 500,000 feet.

U.S. interest in the Canadian techniques began several years ago when a group of scientific and technical visitors from the U.S. Army witnessed the employment of CARDE-built hypervelocity launchers. The visitors foresaw the possibilities of acquiring urgently needed scientific data relative to ICBM detection from an extension of CARDE's hypervelocity research.

Shortly afterwards, the U.S. Army proposed a joint Canadian-U.S. programme at the DRB establishment. The proposal was accepted and CARDE became the locale for the joint research.

If the U.S. succeeds in developing an ICBM detection system, DRB may well have contributed substantially through the scientific skills and techniques built up at CARDE during the past decade.

Listen and Accept

The statement "Take care of your men" is often heard in the military. What is not usually heard is that the leader should take care of his men in those matters that they feel are important. In order to accomplish this the leader must learn to listen and accept. Only then can he hope to truly accomplish his mission. —*From "Army" (U.S.).*

The Soviet Programme

Training With Chemical Weapons

REPRINTED FROM THE NOVEMBER-DECEMBER 1960 ISSUE OF THE Armed Forces Chemical Journal (U.S.) BY PERMISSION OF THE EDITOR

Chemical, Biological and Radiological (CBR) training in the USSR includes not only the military application of chemical weapons but civilian defence against these weapons as well.

Civilian defence training is given through the Voluntary Society for Cooperation with the Army, Navy and Air Force, and a civilian organization (DOSAAF) of pre-military age and adult civilians. Biological Warfare (BW) and Radiological training are lumped with Chemical Warfare (CW) defence, with emphasis on CW weapons. DOSAAF has an estimated 30 million members and places great emphasis on passive defence measures against air chemical attack.

Civilian training is the continuation of a Soviet policy on chemical weapons which has been carried on for 30 some years past. An extremely efficient civilian protective mask has been developed by the Soviets and it is offered for sale in local stores.

Military training in CBR begins with defensive CW training included in military courses given to students at all levels. This training is also given to members of school age paramilitary organizations. After induction into the Army this training continues.

Military Personnel

Enlisted personnel are taught use of the mask, anti-spray cape, and identification of agents by odour through the use of a sniff-kit. Protective mask training includes wearing the mask during duty hours and tactical exercises.

Soviet NCO's are trained in special schools with courses lasting from nine months to two years. Emphasis is on toxic agent reconnaissance, decontamination and preparation for CBR instruction. Specialist schools for other Arms and Services also give 90 to 100 hours for CBR training over a nine-month period.

Chemical Warfare officers in the Soviet Army are trained in CW Officer Candidate Schools, or commissioned from the graduates of institutes or universities where the students have received scientific and military training. Students in OCS are trained in offensive and defensive CBR, as well as in tactics and in basic and advanced chemical laboratory work.

Officers are given advanced training at the Vorochilov Military Academy of Chemical Warfare Defence in Moscow. The Frunze Military Academy (General Staff Academy), attended by battalion and regimental commanders for a three-year course, has CBR instructors and includes CBR tactics in its curriculum.

Soviet Troop Units

Troop units are given gas chamber exercises at least annually, and are drilled in replacement of defective gas mask components. Units in training observe special days when masks are worn continuously for in-

creased periods of time, reported to be as much as six hours.

Most Soviet troops are given explanatory instruction in radiological defence. They are told about dosimeters, servey meters, and contamination meters. In some organizations, these instruments are demonstrated. Specialists who are members of radiological reconnaissance teams are issued the instruments and trained in their use. Troops are told individual dosimeters will be issued if and when atomic war takes place.

The Soviet equivalent of our Chemical Corps is a large, well-trained organization. The USSR must be credited with an across-the-board capability in CW agents and weapons, including a persistent type nerve gas.

Toward the end of World War II, the Soviet troops captured German G-agent plants, complete with staff personnel. They have been producing a G-agent which they call Tabun, probably the original German product. Little can be said about their development of persistent type nerve gases, but they have produced a closely related insecticide.

The Soviets have shown a great interest in hydrogen cyanide, a gas used by California and other states in executions. They have indicated that it can be thickened and sprayed effectively from a plane at about 50 feet from the ground. The U.S. Army Chemical Corps is inclined to regard this agent as obsolete for military purposes.

Soviet Chemical Policy

Stated USSR policy has been to provide a chemical warfare potential for every suitable weapon on the ground. In World War II, they had shells for both mortars and artillery charged with chemical agents. The Soviet Army must be viewed with chemical weapons capable of attacking all tactical targets. Soviet aircraft and rockets provide a capability for attack on far strategic targets. The extensive civil defence training in the USSR indicates that long-range CW attacks are considered practical in their plans.

Soviet cluster bombs employ the principle of dispersion of frangible ampoules containing CW or BW agents. Air weapons would also include rockets for point targets, clusters for area targets, and spray tanks for direct attack on personnel with liquid agents.

In terms of quantity in stockpile and production at this time, the USSR probably has more mustard than any other agent. The fact that mustard is solid at low temperatures, which prevail over Russia during a large part of the year, has led them to develop a number of mixtures of mustard with other toxic agents, or chemicals to hold a liquid form. Persistent gases, too, last much longer in the field when the climate is cold.

Considerable emphasis has also been placed on so-called toxic smokes, vaporizing toxic agents or tear gas in smoke. Harassing effects or vomiting agents such as Adamsite are available, and it is possible that those agents could be employed with the idea that troops would be prevented from wearing masks under incapacitating conditions.

The protective mask of the Soviet Army, the Shelm Maska-1, a helmet mask, is characterized by virtually complete coverage of the head with soft rubber. This mask is considered one of the safest available. CW protective clothing is also adequate. De-

tection equipment and identification of agents includes the use of indicator papers, or silicon-gel packed tubes with reagents to colour reactions with CW agents. Larger equipments range in capability from detection and recognition of specific agents to complete coverage of CW, BW and sanitary laboratory work by larger units.

Individual decontamination kits are in use which neutralize mustard, Lewisite, or sulphur containing nerve agents. There is also equipment for personnel decontamination and steaming equipment for military clothing.

NOTE: *Information in this article was gathered from several sources. It is printed so the readers may have a better understanding of the Soviet position with CBR weapons.* —The Editor.

Saving Face

From the Memoirs of Field-Marshal Earl Alexander of Tunis, the following is reprinted from the 26 March 1961 issue of *The Sunday Times*, London:

Before the battle for Mandalay I went round the front to inspect our defences and was much impressed to see how cleverly this Chinese Fifth Army had dug in its field guns, which were well sited and carefully camouflaged. When contact had been gained with the advancing Japanese I again visited the front, and to my astonishment I found that all the artillery had disappeared.

When I asked the army commander what had happened to his guns he said that he had withdrawn them to safety.

"Then you mean," I said, "that they will take no part in the battle?"

"Exactly," he replied.

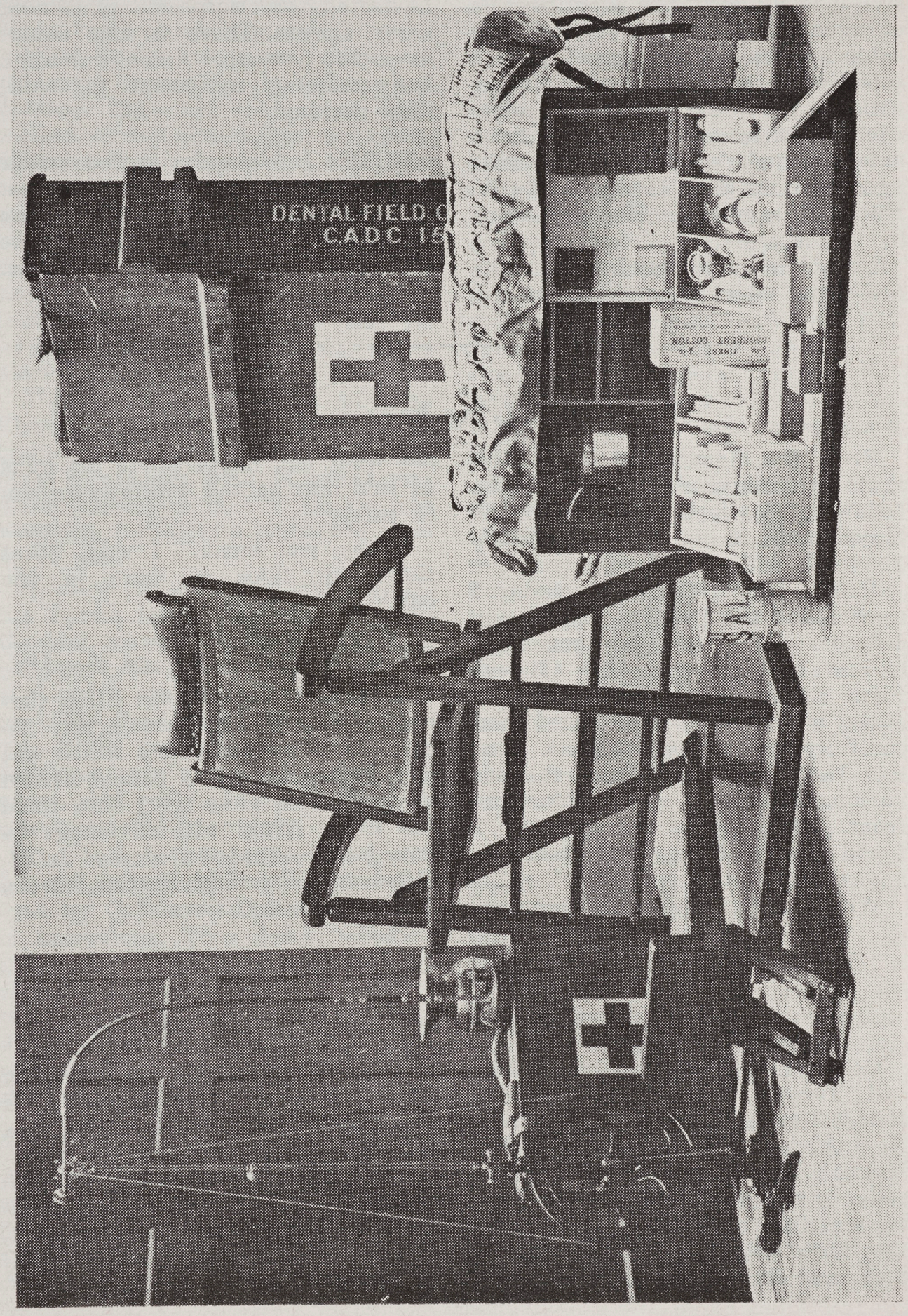
"But then what use are they?"

He said: "General, the Fifth Chinese Army is our best army, because it is the only one which has any field guns, and I cannot afford to risk those guns. If I lose them the Fifth Army will no longer be our best."—*Contributed by J. M. Hitsman, Historical Section, Army Headquarters, Ottawa.*

Canadian Equipment for Military Aircraft

Collins Radio Company of Canada, Ltd., Toronto, Ont., has announced a $900,000 order from Van Der Heem N. V. Elektronische Industrie of The Hague. The order is for airborne radio communication equipment to be installed in military aircraft of the Royal Netherlands, West German, and Belgian Air Forces.

The equipment in this sale, a development of Collins Canada, is designated the 618W-2. This is a type of airborne UHF radio transceiver capable of operating on 3,500 channels. The units, slated for manufacture in the Collins Toronto plant, will be installed in Lockheed F-104G jet interceptors.—*News Report.*


DENTAL FIELD
CADC 15

Flashback No. 35

Dental Services, 1918

NARRATIVE SUPPLIED BY THE HISTORICAL SECTION,
ARMY HEADQUARTERS, OTTAWA

If today's soldier still faces the prospect of a visit to the dentist with some disquiet, in spite of advances in dental science and equipment, it would appear from the picture on the opposite page that the veteran of the First World War had much more reason for apprehension.

The photograph illustrates the complete field equipment of a Canadian Army Dental Corps Detachment of 1918 and while it rendered efficient service, the comfort of the patient must have taken second place to utility. The tea kettle, salt tin and spirit stove seen in the large chest seem useful adjuncts to the foot-operated drill to the left of the chair.

The Canadian Army Dental Corps came into being early in 1915 to care for the dental needs of the soldiers of the Overseas Military Forces of Canada. At that time the British had no such organization. The Canadian dental service, in fact, served as a model for the British. "Their organization is one that we might copy to advantage", said a senior consultant with the British Army in 1918. Early in the war individual dentists had been attached to certain lines of communications units within the Canadian Corps, although their numbers were insufficient to cope adequately with the demand for their services. When the Dental Corps began operations in July 1915 there were 30 officers and 74 other ranks overseas to handle Canadian dental services in both England and France; by the end of the war this had increased to 223 officers and 459 other ranks.

In France, dental clinics were established at field ambulances, casualty clearing stations and general and stationary hospitals, while in England clinics were established at the various Canadian training centres, command and discharge depots, special hospitals and segregation camps.

From July 1915 until 31 December 1918, the number of treatments amounted to 2,225,442, including 96,713 operations performed on Imperial troops, who from casualty or from other causes, came within the sphere of the corps. This volume of work was accomplished by a comparatively small number of qualified dental officers and their assistants.

New Polaris Submarines

A ballistic missile submarine of the Lafayette class whose keel was laid last April will be named after Andrew Jackson, seventh president of the United States. A total of nine Polaris-carrying submarines have been authorized in the Lafayette class.

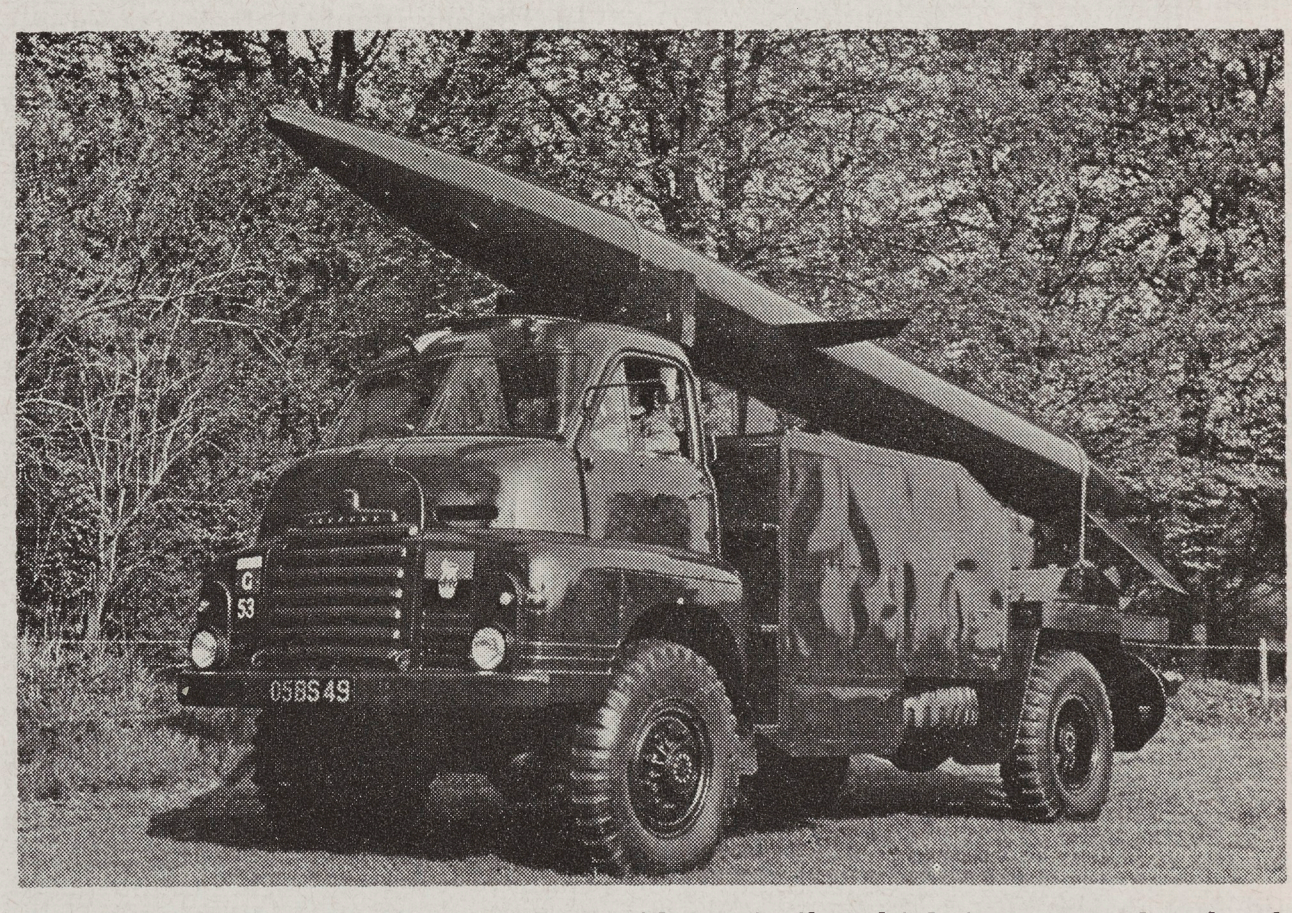
Nineteen nuclear-powered ballistic missile submarines are either building, have been launched or are in commission. Ten more have been requested in the 1962 budget.—*From the Army-Navy-Air Force Journal (U.S.).*

NEW GUIDED MISSILE SYSTEM

The English Electric Blue Water surface-to-surface tactical guided weapon system which is under development for the British Army was demonstrated for the first time in public at the 24th Salon International de L'Aeronautique at Paris from 26 May to 4 June. It was operated by a British Army detachment from the Royal Artillery.

Blue Water is a simple system which meets the NATO requirement for a replacement for the Corporal missile. It has full cross-country mobility and can be carried in the new Argosy transport aircraft.

With its solid fuel motor, Blue Water can be kept for long periods at instant readiness under cover, and be brought into action to engage a target with the response time of a gun, using normal artillery procedures. To engage a target, the Blue Water fire unit, consisting of a computer in a small Land Rover vehicle and a missile carried on a combined launcher and transporter mounted on a standard three-ton lorry, need be in the open for only 10 minutes. By the time the missile arrives on target, the firing position has been completely cleared and the computer has moved off to join up



The English Electric Blue Water guided missile which is now under development for the British Army, and which is designed as a replacement for the Corporal guided missile now used by the Army. It is powered by a solid propellant rocket motor and has highly accurate inertial guidance. Blue Water is very mobile and is carried on, and launched from, a standard three-ton lorry. It is also easily carried by air in current transport aircraft.

with another missile on its launcher, ready to engage a further target.

The original launcher may rapidly be sent back to be reloaded, a process which is carried out swiftly under cover by artillery personnel using the launcher only. This performance cannot be equalled by any other known system.

The missile uses inertial navigation methods which are independent of control from the ground and are immune to countermeasures by the enemy. The range of the missile is classified, but it can be stated that the Blue Water system provides a commander in the field with a weapon delivery system unique in its flexibility and accuracy.

The highly sophisticated guidance system is self-checking during the final check-out before launching, and is operated by artillery personnel who need only a minimum of special training. Repair in the field is by replacement of the faulty component, and this requires little equipment in addition to that normally fitted on the launcher.

The British Aircraft Corporation have had very considerable experience in designing, developing and producing mobile weapons which are rugged enough to stand up to the exacting requirements of operation in forward areas. Over the past years, the Corporation has been responsible for Thunderbird Mark I, Mark II and Vigilant, and the experience gained on these weapons is now being put to good advantage in Blue Water. The Royal Artillery are already equipped with the Thunderbird ground-to-air anti-aircraft missile system, and this has already proved its remarkable reliability in service. Blue Water is being developed in close cooperation with the War Office and the Ministry of Aviation.—*A report by the British Aircraft Corporation, United Kingdom.*

Plaque Dedicated to PPCLI "Mother"

Edmonton, Alta. — A dedication ceremony that meant much to veterans and serving members of the Princess Patricia's Canadian Light Infantry took place June 11 at Griesbach Barracks here.

A plaque commemorating the late Miss Jennie MacGregor Morris, popularly known as "the London mother" of the Patricias, was dedicated at a service in the Protestant chapel, Griesbach Barracks. About 100 all ranks of the 2nd Battalion of the regiment attended the service. Members of the Princess Patricia's Association also were present.

Miss Morris, who died at Gorleston, Norfolk, England, on 5 March 1960, was a direct descendant of Rob Roy MacGregor and during the First World War adopted the regiment when she made her private hotel in London a "home away from home" for members of the Patricias on leave from the fighting in France. During the Second World War her home in a London suburb was always open to members of the regiment.

The plaque was presented by the president of the PPCLI Association, Lt-Col. R. P. Clark, and the vice-president, Brig. J. A. DeLalanne.—*From a report by the Public Relations Officer, Headquarters Western Command.*

Learn from History

Those who will not learn from history, are condemned to repeat it. —*George Santayana.*

BATTERED MILITARY ORNAMENTS

An attempt (forlorn) to "accurize" military English

N. J. ANTHONY IN THE JUNE 1961 ISSUE OF *ARMY*, THE MONTHLY MAGAZINE OF THE ASSOCIATION OF THE UNITED STATES ARMY

In his article in the May issue [of *Army*] on fractured English as written in the Pentagon, Mr. Fred D. McHugh beat me to the deadline. For many years I have been jotting down what I came to call Battered Military Ornaments that come to us undiluted in the manuscripts of aspiring military writers.

In beating me to the deadline, Mr. McHugh did spur me on in my intention of composing a short essay in which this collection of military malapropisms would be so used as to resemble a piece of today's writing. This would be followed by a translation to show how ludicrous the military use of English has become.

It seems that instead of reaching for a dictionary or a book of synonyms, some military authors prefer to improve upon Webster by inventing new words, prefixes and suffixes, or applying astounding definitions. We have space for only a few examples.

First, *clichés.* It's too simple to say a gun *can fire.* Rather, say it is *capable of firing,* or *has the capability of firing.* Why are military writers reluctant to use the words *soldiers* and *troops?* They prefer *personnel, individuals,* or *bodies.* Soldiers, units and commanders never *fight;* they *operate. Headquarters* have become *echelons, methods* have become *techniques. Among companies and platoons* is too easily understood; make it *at company and platoon level. Units* or *outfits* are always *organizations.* A thing never is *ignored,* it is *paid lip service.* Still battling is that team of stalwarts: *area, problem, problem area* (whatever that is), *programme, provide, requirement, operation, situation, unique, criteria* and *data* (the last two always used in the singular sense).

Suffixes allow great use of the imagination. Never mind Webster: invent your own. If you must describe an application, simply add *ize: cannibalize, categorize, optimize, finalize*—even *dieselize* and *ruggedize.* Why not apply the *ry* in soldiery to your own uses, and come up with *riflery, weaponry, missilery, wantonry?* Past tenses need not bother you: *headquartered, costed, shorted, echeloned, routined, sentineled.* Add *wise* and you save much time: *intelligencewise, weatherwise, weaponwise, unitwise. Inductee, retiree* and *enlistee* are bad enough, but we've seen *afflictee, testee, briefee, invitee, interviewee,* and *coordinatee.*

Prefixes offer less trouble, probably because most can be easily used to indicate the negative. But how justify *debrief* for *interrogate, unestablish* for *discontinue, non-greasy* for *not greasy?* What are *non-German speaking people,* and what is a *non-existent road net?*

As for words incorrectly used, what is the ROTC cadet, who is majoring in English, to think when he hears his PMS speak of the *Army's exotic* (foreign) *weapons; items* (paragraphs) of equipment; *present* (current) *organization;* or *sophisticated* (worldy wise) *missiles?*

The list of inventions is long, and space allows only a few examples. We are told that rifles should be *accurized* before match competition. *Maintenance downtime rate* means, we think, the percentage of vehicles out of service because of needed repairs. In Finance jargon *the soldier's entitlement* means the *soldier's due.* To anyone but a military writer, *format* means the physical shape of a publication. *Natives* are *indigenous personnel* (isn't it bad enough to be called personnel without being classed as indigenous?). One outfit sank to the heights of *mediocracy.* Because we can't match the enemy's manpower, we must *out-technique* him. The *phony scientificalism* of Marxism. Artillery ammunition was in *short supply* (Winston Churchill once asked what's wrong with the good English word *scarce). Shortfall* is a classic. It means "the number we are short by." Lastly, we give you *the practice is considered aesthetically unattractive.* You figure out that one.

As for pomposity, we can top Mr. McHugh's examples. Long ago, this came out of Benning: "This semi-automatic, small caliber shoulder-fired weapon, because of mechanical derangement, ceased to function." All that means *the rifle jammed.*

NWHS Publication is Commendable Effort

The *Canadian Army Journal* has received a copy of the April 1961 issue of *The Counsellor,* a Northwest Highway System publication produced at Camp Takhini, Whitehorse, Y.T., by authority of Brigadier L. G. C. Lilley, DSO, CD, Commander, Northwest Highway System.

This number, prepared by members of the Army at Whitehorse during their off-duty hours, features the 15th anniversary of the hand-over of the Alaska Highway from the United States Army to the Canadian Army on 1 April 1946. The title of the article is "The Development of the Alaska Highway".

Editor-in-Chief of *The Counsellor* is Captain S. E. Sambrooke, Canadian Provost Corps, who is assisted by a staff of editors and other personnel engaged in the production of this commendable effort. Photographs are reproduced by multilith process, and the staff artist, Sgt. W. S. Statz, not only prepares a number of drawings to illustrate the cover and the various articles and news items dealing with the activties of the NWHS, but also produces the drawings and lettering for the advertisements.

This informative periodical keeps personnel posted on the activities of the NWHS; in addition, it does much to maintain the morale of soldiers and civilians responsible for the maintenance of the 1221-mile highway which stretches from Dawson Creek, B.C., in the south to the Yukon-Alaska border in the north.

Conceived and built by the United States Army during the Second World War as a defence measure after the Japanese attack on Pearl Harbour, the NWHS now is a vital communicating link serving the mineral-rich areas of Canada's northwest. — *Editor, Canadian Army Journal.*

ARMY SURVEYORS IN FAR NORTH

FROM A REPORT ISSUED BY THE DIRECTORATE OF PUBLIC RELATIONS, ARMY HEADQUARTERS, OTTAWA

Two far-ranging teams of soldier surveyors from the Ottawa-based Army Survey Establishment are again in the Arctic and sub-Arctic this summer getting the detail to fill in another 70,000 square miles of Canada's map.

Early in May a team of eight soldiers and seven civilian pilots and maintenance men flew to Resolute on Cornwallis Island in the high latitudes 2200 miles north-west of Ottawa for the Army's third season of field surveying in the Arctic islands.

In mid-June the second team of six soldiers flew from the Ottawa International Airport and headed for the barren islands in the District of Keewatin north-west of Fort Churchill, Man.

The teams will carry out topographical surveys by tellurometer traverse which will enable the Army to turn out accurate 1:250,000 scale (about four miles to the inch) maps of the areas. Use of the electronic tellurometer has greatly increased the amount of country that can be surveyed during the short summer season. The battery-powered microwave instrument was first used to measure distances in the field by Army survey teams three years ago.

The far north team at Resolute is commanded by Captain H. C. Honeyman, a British Army exchange officer from the Royal Engineers who is serving his second season in the Arctic. This survey of about 50,000 square miles will completely cover the islands of Cornwallis, Bathurst, Ammun Ringnes and Lougheed. Also surveyed will be Grinnell Peninsula, the western portion of Devon Island and some of the southern part of Ellef Ringnes Island.

Three helicopters and one light plane are being used to move members of the team and their equipment. They will operate from five field camps before the season ends about the end of August.

The team handling the Keewatin survey is under command of Captain D. M. Matheson of Ottawa who is on his third season of northern field work. His surveyors will operate out of Fort Churchill until about mid-July when the lakes are sufficiently ice-free for them to fly into the first of their two field camps about 150 miles north-west of Churchill. The surveyors will cover the bleak barrens in two helicopters and two light planes. By the end of August they will have surveyed about 20,000 square miles and ranged as far as 550 miles north-west of Fort Churchill.

In addition to the northern summer field work, the Army Survey Establishment has nine parties doing large-scale mapping of various cities across Canada, and the revising of maps of military camps, on a year-round basis.

A Proverb

Pain makes one think. Thought makes one wise. Wisdom makes life bearable.—*Okinawan Proverb published in the Australian Army Journal.*

Army Tests New Rocket Belt

Reprinted from the July-August 1961 Issue of "Ordnance" by Permission of the Editors.

For the first time man has used a rocket—carried on his back—to achieve controlled free flight over the ground, according to Bell Aerosystems Company which has built and flown an experimental rocket belt for the U.S. Army Transportation Research Command.

Bell test engineer Harold M. Graham has flown the small rocket lift device (SRLD) over the ground at distances up to 360 feet. Average altitude for distance tests has been from three to four feet but Graham also has flown to the top of 30-foot-high hills using the rocket belt. No attempts have been made to achieve maximum speed with the rocket belt, but the average speed on a test run was estimated at 20 miles an hour.

Although the current device is a feasibility model designed to prove that lightweight rocket power can lift a man and transport him over the ground in controlled flight, both the company and the Army have studied applications for operational units that may be developed under the SRLD programme. The most frequently mentioned military use of man-rockets would be to transport foot soldiers over surface obstacles such as streams, rivers, ravines, barbed wire, and minefields. Rocket belts may be employed during amphibious operations, permitting assault troops to fly from ship to shore. Rocket belts also could be used to reach the top of vertical obstacles such as cliffs and steep hills.

Hovering with rocket belt.

Basically, the Bell man-rocket consists of a twin-jet hydrogen-peroxide propulsion system mounted on a fibreglass corset which has been molded to fit the back and hips of the operator.

Metal control tubes extend forward on each side of the operator. A control stick on one tube permits the operator to change his flight direction. A motorcycle-type hand throttle mounted on the other tube allows him to regulate rocket thrust

levels, thus controlling his rate of climb and descent. The device has proved so stable in flight that pitch and roll are easily controlled by movements of the operator's body.

The SRLD rocket propulsion system is fully operable by the throttle. When activated by the pilot's controls, hydrogen peroxide is forced under pressure into a gas generator where it contacts a catalyst and decomposes into steam. The steam escapes through two rocket nozzles providing thrust.

AIR FORCE COLLEGE JOURNAL, 1961

The 1961 issue of the Air Force College Journal will be published in October this year. The publication is the former RCAF Staff College Journal re-named to be consistent with the introduction of the Air Force College in the RCAF.

The author list for this year will include such authorities as Dr. Bernard Brodie of the RAND Corporation; Melvin Conant of the Council of Foreign Relations (U.S.); Dr. Richard A. Preston of the Royal Military College of Canada; General Foulkes, the recently retired Chairman of the COS Committee; Commodore Hennessy of the Royal Canadian Navy; Colonel Wilson-Smith of the Canadian Army; A/V/M Heath, who is presently Comandant of the RAF Staff College; Dr. George Lindsey of the Defence Systems Analysis Group in Ottawa; A/C Bean of the RCAF; and Mr. John Gratwick of the C.N.R. Operational Research Group.

Books will be reviewed by J. I. Jackson of the Air Force College; James Eayrs of the University of Toronto; Peyton V. Lyon of the University of Western Ontario; John Gellner, a retired RCAF Wing Commander now well known as a military affairs commentator; and Colonel C. P. Stacey (the former Canadian Army Historian), now of the University of Toronto. Members of the Air Force College staff will round out an impressive array of worthwhile comment on recent books of considerable military significance.

An interesting development this year will be the introduction of an exchange of Prize-Winning Essays between the RAF and RCAF Colleges. It is also intended to start printing worthwhile Staff College student opinion expressed through the medium of the Course essay exercise "Hobby Horse". The prize-winning essay of the annual Journal Contest will be printed as well as a number of the better entries as a means of encouraging greater interest in this contest, and to bring to the attention of the Journal reader some of the worthwhile original opinion received. It is believed that this issue of the Journal will be of considerable value to the student of military affairs.

The price of the Journal is $1.00 per copy. Subscriptions should be forwarded direct to: The Editor, Air Force College Journal, Air Force College, Armour Heights, Toronto 12, Ontario. Payment may be forwarded with subscriptions or individuals may be invoiced when Journals are forwarded. Cheques should be made payable to the Air Force College Journal (including exchange).

Book Reviews

Two Forlorn Undertakings

Reviewed by Colonel G. W. L. Nicholson, CD,
Director of the Historical Section,
Army Headquarters, Ottawa

"The exact figures of how many men were killed and maimed at the Battle of the Somme will never be known—but the British dead and injured must have been over a quarter of a million; the heart of a whole generation. The reward was an advance of nowhere more than eight miles . . . ."

"Hong Kong was doomed from the start . . . . The British and Canadian governments . . . condemned 500 young Canadians to death as surely as if they had mown them down wtih machine-guns."

These quotations from the two books* here reviewed strike the keynote of both: futility. Both volumes are recent additions to the ever-growing "popular" bibliography of the two world wars. Each is an indictment against what its author considers to have been high-level blundering. In the First World War narrative the British High Command is condemned for its stubborn refusal to alter or abandon the disastrous tactics at the Somme to which its unimaginative planning had committed it. In the episode from the Second War the blame for the Hong Kong catastrophe is placed on "incompetency in high places; unpreparedness; complacency". In both cases the man who emerges as the hero is Tommy Atkins, the British common soldier.

In *The Big Push* Mr. Gardner (about whose background the publisher is singularly reticent) has given us a well-written critical analysis of the planning, preparation and attempted execution of Sir Douglas Haig's ill-fated offensive at the Somme in 1916. His narrative is vivid and authentic. He does for these operations what Leon Wolff has done for the Battle of Passchendaele in his book *In Flanders Fields* (reviewed in April 1959 issue of the *Journal*), making the same effective use of documentation from a comprehensive list of published sources. He holds up to ridicule the fulsome claim by Haig's admirers that the battle was "a great triumph for the genius of British military leadership", letting the grim sequence of events speak for themselves.

When as a result of the decisions reached at the Chantilly conference in December 1915 the British War Committee gave orders for the offensive on the Western front the following summer in the greatest possible strength, they left the details to General Joffre and Sir Douglas Haig (who had recently succeeded John French as C.-in-C., after having "campaigned ceaselessly for his chief's removal"). Haig wanted to attack in Flanders (a wish that he realized in the following year of Passchendaele), but Joffre insisted

---

**The Big Push.* By R. B. Gardner. Cassell & Company Ltd., London, 1961. Available through British Book Service (Canada) Ltd., 1068 Broadview Ave., Toronto 6. $5.00.

The Fall of Hong Kong. By Tim Carew. Anthony Blond Ltd., London, 1960. Available through Smithers & Bonellie Ltd., 266 King St. West, Toronto 2B. $5.00.

on the Somme sector, where the British and French armies had a common boundary and so could assault side by side. Winston Churchill's later description of the point selected for the offensive as "the strongest and most perfectly defended position in the world" was undoubtedly coloured by his strong anti-"Westerner" views; yet Joffre knew that the German defences at the Somme were so formidable that the Allied effort would almost certainly degenerate into a prolonged struggle of attrition. General Foch opposed the scheme, but was overruled. "His excuses", wrote Haig in his diary, "were very lame." Gardner correctly refutes the argument put forward by defenders of Haig that the Somme was fought to ease the German pressure at Verdun, reminding us that the Chantilly decision was made long before the enemy launched his Verdun offensive. He calls the "casual arbitrary way" in which the Somme offensive was decided on "one of the greatest horrors of the story of the battle".

From the disastrous opening day of the offensive, 1 July 1916, when of the more than 100,000 British troops that went over the top half had become casualties before night, the tragic tale unfolds. After the planned major break-through failed, G.H.Q. resorted to a series of "nibbling" attacks, each of which might see as many as ten thousand men directed against a wood, a farmhouse, a few yards of German trench. These continued through July and August with little result except casualties, and on 15 September Haig launched another major offensive, using the tank for the first time in battle, "to the fury of those who had invented it", writes Gardner. Despite their warnings and pleas not to waste the vital asset of surprise by unveiling the new weapon in action before it was available in sufficient quantities for a decisive blow—Churchill even went to the Prime Minister to beg that Haig be stopped before it was too late—the C.-in-C. employed in small packets the only forty-nine tanks that had reached France. "This priceless conception . . . " wrote Churchill, "was revealed to the Germans for the mere petty purpose

First World War History to Appear in 1962

The accompanying review by the Director of the Historical Section of the book on the Battle of the Somme points up the interest that is being maintained in the First World War. Readers of the *Journal* will recall Colonel Nicholson's reviews of other books on this conflict—"The Year of Passchendale" (April 1959 issue), and "The First of the Total Wars" (Spring 1960 issue).

Colonel Nicholson, an outstanding military historian, has completed a single-volume official history of the Canadian Army in the First World War. Entitled *Canadian Expeditionary Force, 1914-1919*, the book is scheduled to appear early in 1962.

The author was commissioned in the Prince Albert and Battleford Volunteers and served with the unit from its mobilization until 1943 when he joined the Army's Historical Section. He is retiring from the Army at the end of August after 19 years' service.—*Editor.*

of taking a few ruined villages".

One of these villages was Courcelette, which was taken by the 2nd Canadian Division on 15 September. The achievement is recorded by Mr. Gardner in half a dozen words. His sole other allusion to Canadian participation is almost as lean. "Most of the fighting [in October and November] took place around Le Sars and the Ancre Valley, and once more Canadians and Australians were heavily involved." That is all the recognition which *The Big Push* gives to the part played by the Canadian Corps, which had all its four divisions in action at the Somme and suffered more than 24,000 casualties there. The Australians (who have the advantage of having published an official history of their part in the war) do better, rating almost three pages.

How does Haig emerge from this book, which has been published in the centenary year of his birth? The author concedes that Haig's shortcomings as a military commander were less his fault than that of the society that put him where he was. But Mr. Gardner finds it hard to forgive Haig's "refusal to see his errors, his lack of contact with his fighting men, and his blind rush into the mud of Passchendaele in 1917 as if nothing but success had come from similar methods at the Somme".

History has not dealt kindly with the Field Marshal. Paradoxically his devoted supporters, seeking to refute the post-war charges levelled at him by Lloyd George and other detractors, worked so hard at portraying him as a great and inspired commander that they failed to be as convincing as if they had presented a figure somewhat less superhuman. Then, with the publication in 1952 of extracts from Haig's private papers came a self-revelation more damning than the attacks of his bitterest critics. Gardner thinks that Haig's defenders, realizing that "the present decade is a vital one in the final assessment of the man", are trying by the flow of their books and articles to win a favourable judgment that will be handed down to history. If such a verdict is reached, it will not be the fault of the author of *The Big Push.*

People in this country who read *The Fall of Hong Kong* will not be able to accuse the author of neglecting Canadians. Whether they will be pleased with what they read is another matter. Mr. Tim Carew (who has published four novels and an autobiography) tells the dramatic and depressing story of the hopeless battle which began on 8 December 1941, when the garrison and the civilian inhabitants of Hong Kong were "jolted from sybaritic security into a maelstrom of savagery", and ended with the surrender of the Colony to the Japanese on Christmas Day.

This reviewer is not familiar with any of Mr. Carew's earlier books, but after reading *The Fall of Hong Kong* he is prepared to acknowledge the author's skill as a novelist. We have here a gripping and colourful reconstruction of the events of those fateful seventeen days from the initial loss of the Shingmun Redoubt on the mainland to the final capitulation in the island's Stanley Peninsula. Mr. Crew writes in a breezy, at times earthy, style, and does not pull any punches, particularly when describing the Japanese atrocities on the island.

For the main events in the fighting the author acknowledges his indebtedness to the *Despatch* written by Major-General Maltby, the G.O.C. British Troops in China,

and to the volume of the British *Official History* dealing with the Hong Kong operation. His remaining published sources are few, and not particularly impressive. He seems to have missed reading the fully documented account of the operation which appeared in the Canadian Army's official volume entitled *Six Years of War* a full five years before he published his own book. The only source in his list of acknowledgements which looks as though it might deal with Canadian participation is the somewhat dubious one, "The Brigadier's Two-Gun Christmas", in *Combat Magazine*. Mr. Carew has liberally supplemented his published sources by interviewing many survivors of the battle—"from the G.O.C. to the Signalman 'Snickey' Allen, who was undergoing detention at the time". Their recollections and reminiscences, which in general make extremely colourful reading, fill a good part of the book.

It is a recognized fact that under the stress of fighting a losing battle against overwhelming odds men are prone to look for scapegoats on whom to blame impending defeat. It has been reported that after the capitulation of Hong Kong both the British and Canadian survivors in the Japanese prison camps began in self-justification to write their own accounts of the fighting, burying these for security until liberation came. In view of the bitter feelings that developed between the two groups of participants it is unfortunate that Mr. Carew's description of the Canadian contribution to the defence of Hong Kong must come largely from the not too impartial memories of British officers and other ranks who survived the battle. The author does not appear to have interviewed any Canadian survivors. In introducing to his story the two Canadian battalions (the Winnipeg Grenadiers and the Royal Rifles of Canada) the author notes that "through no fault of their own, these regiments added little to the lustre of Canada"; though he goes on to admit that "in fairness to the Canadians, it must be said that individual acts of extraordinary gallantry were many and frequent".

One such act of gallantry loses nothing in the telling. When Brigadier Lawson's headquarters at Wong Nei Chong Gap was overrun by the Japanese he telephoned General Maltby that he was "going outside to fight it out". No witness survived to tell the manner of his death. Mr. Carew, amending the Maltby *Despatch* to read "*shoot* it out", sees the parallel with General George Custer, "for both were cut down by hordes of their enemies with a smoking pistol held in each hand". It is difficult to find a basis for Mr. Carew's statement that "John Lawson had been given command of the Canadian contingent . . . as a result of a visit to Canada of Major-General Grasett". Indeed we are left with the erroneous impression that Ottawa took its decision to send troops solely as a result of the representations made by the former G.O.C. from Hong Kong, who so lulled the Canadian Government "into a false sense of security" by his "comforting assessment of conditions in Hong Kong", that it selected two battalions "not recommended for operational training". No mention is made of the cabled request from the War Office which formed the basis for Canadian action.

Mr. Carew informs us that Brigadier Lawson "was not a professional soldier at all", having been between the wars "a schoolmaster and an

executive of the Hudson Bay Company". Such an irresponsible statement about an officer who had served continually in the Permanent Force from 1919 and in 1941 was the Canadian Army's Director of Military Training makes the reader suspicious of every assertion in the book that he cannot confirm from personal knowledge.

Having established the inadequacies of what the book-jacket calls "the painfully raw Canadians", the author does not allow the reader to forget their alleged shortcomings. Thus, on the night of the Japanese landings on the island a corporal of the Royal Engineers recalls his encounter with two drunken Canadian soldiers at Lye Mun Passage. Another R. E. lance-sergeant regrets that with all the will in the world he could hardly take command of 150 men at Repulse Bay Hotel, where the "Commanding Officer, with one bottle of whisky inside him and a fresh one at his elbow, was buttressing the fortress with a spirited but off-key rendering of 'The Maple Leaf Forever'." We are told how a corporal of the 1st Middlesex Regiment "harangued, derided and cajoled" a depleted and dispirited company of the Royal Rifles of Canada into following him in a successful counter-attack at Stanley Mound. (Incidentally, the inclusion of one or two maps in the book would have been a boon to those readers who like to establish the geographical relationship of the various places named). It is a relief to read of the heroism of Sgt.-Maj. John Osborne of the Winnipeg Grenadiers in winning the V.C. at Mount Butler, even though his command consisted of "sixty-five raw young soldiers who, to a man, fervently wished themselves back in Jamaica".

If *The Fall of Hong Kong* is to be regarded as a "popular history", far greater emphasis must be placed on the word "popular" than "history". The publisher's blurb describes Mr. Carew as the "soldiers' author". This reviewer knows more than one Canadian soldier who served at Hong Kong who will be inclined to question the appropriateness of this title.

Thunder in Mysore

Written by Major Ashley Egarton, Royal Canadian Army Service Corps, as his first novel, the locale of the story is Southern India in the days of the East India Company*. The background concerns the Company's campaign against Typoo Sultan, the usurper of Mysore—the campaign in which Wellington, as commander of the company's troops, earned the sobriquet "the Sepoy General".

The novel possesses a great deal of historical fact about life in the "Pearl of the Orient" at the end of the 18th century.

Revealing his training in military writing, the author's style is somewhat terse and to the point. This has to some degree influenced the narrative, which lacks some of the colour which could have produced a more vivid picture. However, for those who like a fast-moving tale without long descriptive paragraphs, it makes interesting and exciting reading.—*Contributed by Major G. D. de Grandpré, Public Relations Officer, Quebec Command.*

**Thunder in Mysore.* By Major Ashley Egarton, RCASC. Vantage Press, 120 West 31st St., New York, N.Y. $3.50.

The Maginot Line

Reviewed by Lieut.-Colonel T. M. Hunter, CD, Historical Section, Army Headquarters, Ottawa

Fixed fortifications did not fare well in the Second World War. Winston Churchill described the fall of Singapore as "the worst disaster and largest capitulation of British history." The Gustav, Hitler and Gothic Lines could not withstand Allied pressure in Italy, while the Führer's much-vaunted Atlantic and West Walls crumbled in the face of combined Allied assaults.

Now a British journalist, Vivian Rowe, advances a contrary view, arguing that the Maginot Line, built by France to resist German aggression, succeeded admirably in its main purpose.* He concedes that the "Maginot mentality" was blamed for the French disaster in 1940; but maintains that "the scope of the Line was strictly confined in its inception to a single military purpose and that it fulfilled that purpose beyond all expectations." Since the Line remained virtually intact when the Franco-German armistice was signed on 25 June 1940, there would appear to be some justification for Rowe's thesis.

The fortifications bore the name of Sergeant André Maginot, a huge crippled soldier whose concentrated industry and indomitable will-power, as Minister of War, carried the project to completion. Others, however, including Paul Painlevé and Marshal Pétain, exerted powerful influence on the course of construction, and the French Army produced the design.

The Line was originally intended merely to protect Alsace and Lorraine from immediate attack; later extensions reflected political compromise. "We came to the conclusion," said Edouard Daladier, "that for reasons perhaps more psychological than military and for weighty international considerations, it was essential to vote the credits for fortifying the northern area." This decision, according to the author of the present book, "helped to delude the French into believing in the mythical solid wall of defence against the Germans" while convincing the Belgians that, "as the French had undertaken to build fortresses along the Franco-Belgian frontier, France no longer anticipated coming to the aid of Belgium in case of German aggression."

In 1914 the task of holding the frontier, while the French Army concentrated, had been performed by *troupes de couverture*, such as Foch's 20th Corps in Lorraine. The works begun in 1929 were designed to achieve the same object by holding back the enemy for three weeks, while the Army mobilized and moved into previously selected sectors.

A pattern of "Fortified Regions", rather than a continuous defensive system, was adopted. In a typical sector, the defences were arranged in depth, extending between four and five miles behind the frontier. Where the latter followed the course of a river, bridges were mined and a screen of fortified houses *(Maisons Fortes)* and anti-tank barriers provided a safeguard against surprise attacks. About two miles behind

*_The Great Wall of France: The Triumph of the Maginot Line._ By Vivian Rowe. Published by Putnam, London, 1959. Available from McClelland and Stewart Ltd., Toronto 16. Ont. $6.00.

this screen the main defences began with a series of concrete blocks (*Avant-postes)* armed with 47- or 65-millimetre guns and automatic weapons. These commanded all principal approaches to the heavier fortifications, which were also guarded by extensive minefields, anti-tank and anti-personnel defences.

The main fortifications comprised casemates and fortresses *(ouvrages)*. "In general, the line was a succession of casemates; along the Rhine no other form was used. Elsewhere, these casemates were reinforced every 3-5 miles by very powerful fortresses." These static installations were supplemented by a mobile defence, consisting of "Interval Troops", equipped with field artillery. The casemates were generally built into natural contours; they were constructed of two floors (with sleeping quarters and ammunition on the bottom level) and their upper portions were protected by concrete varying in thickness from five to twelve feet. Their principal weakness arose directly from the problem of observation: periscopes located in armoured turrets proved very fragile and easy targets for snipers.

By comparison with the casemates, the fortresses were immense works. The largest held garrisons of over a thousand men, almost equally divided among artillery, infantry and engineers. Fortresses were constructed in two sections, separated by as much as one and a quarter miles, and no two layouts were the same. "The only parts normally visible above the hill or mound were the turrets, some retractable and rotating, some fixed, and all heavily armoured, serving as gun turrets or observation posts." Infantry manned the anti-tank guns and artillery fought the heavier pieces, with calibres ranging from 75- to 135-millimetres. The Fortress Commandant operated from an underground command post, communication being by deeply buried telephone lines. This complex system was virtually self-contained with its own powerhouse, kitchens, forced ventilation, water supply and sanitary arrangements.

The Germans never succeeded in breaching the main defences of this formidable system — although they launched heavy assaults against it in the last days of the 1940 campaign. For their part, the defenders were clearly puzzled and chagrined by the order from the French High Command to lay down their arms. They have an ardent champion in Rowe, who insists that the results proved "the triumph of the Maginot Line." But was it not a Pyrrhic victory? While the garrisons of the Line went calmly about their duties, the enemy was flowing past their unguarded flanks and occupying the entire northern (industrial) half of France. In these circumstances Hitler could have ignored the Line entirely, for its ultimate surrender was inevitable.

If the vast expenditure of money and effort lavished on the Maginot Line had been used to equip De Gaulle, and similarly-minded commanders, with a larger mobile armoured force, it is at least conceivable that Hitler's *Panzer* divisions would never have reached the Channel. Viewed in this light, Rowe's interesting thesis does not seem very convincing.

Two other criticisms may be directed at the book. At times the author appears to rely mainly upon contemporary journalistic accounts, and one suspects a shortage of prim-

Monty's Latest

REVIEWED BY J. MACKAY HITSMAN, HISTORICAL SECTION,
ARMY HEADQUARTERS, OTTAWA

This reviewer thoroughly enjoyed *The Path of Leadership* by Field-Marshal The Viscount Montgomery of Alamein.* What he has to say is interesting, provocative and seems to make good sense. Recent events, for example, have tended to bear out his contention that President Charles De Gaulle is "the greatest political leader in the Western world, and is indispensable to France and to Europe".

The only other present-day European that Lord Montgomery considers to be a great leader is Marshal Tito of Yugoslavia. In the east Montgomery gives top marks to Nehru of India and Mao Tse-tung of China. Readers may disagree with all or any of his choices, despite the arguments he has marshalled, and really it would be dreadful if everyone did agree with him. There can be little argument, however, about his contention that Christ, Mohammed and Buddha are the greatest leaders of all time.

In the opening chapter, defining "what is leadership", Montgomery suggests that leaders are made rather than born. He considers that the fundamental elements are "the man, his sincerity and selflessness, his ability to grasp the conditions of a problem, and then to make the right decision". Courage goes without saying. Indeed the author, who probably ranks next to Marlborough and Wellington as the British Army's greatest field commander, is a brave man to have written a book of this nature: a merely foolhardy one would have dropped such a project far short of completion. "The subject is, of course, difficult to handle", the Field Marshal admits, "but difficult or not, I decided to have a shot at it".

He arrived at his conclusions only after long thought and, for the most part, personal contacts with the leaders he singles out for analysis. The military and political leaders in the West—as well as one English industrialist (Lord Nuffield) — he has associated with quite informally. It was necessary, however, to make special visits to Tito, Khrushchev, Mao Tse-tung and Nehru, even though these visits were to earn him a bad press at the time. He went to the bible and history for his other

**The Path of Leadership,* By Field-Marshal The Viscount Montgomery of Alamein, K. G. Collins, London, 1961. (In Canada: Collins, 10 Dyas Road, Don Mills, Ont.) $4.25.

The Maginot Line

(Continued from preceding page)

ary source material. Again, the latter portion of the book is chiefly devoted to long commentaries on the mobile operations which undoubtedly decided the campaign, but which do not appear to have been much influenced by the existence of the Maginot Line.

One final shot: the author repeatedly states that "a Canadian Division" reached the Continent in 1940—although, as is well known, only the 1st Infantry Brigade of that formation set foot on French soil.

subjects, including Moses, Alfred the Great, Cromwell and Abraham Lincoln, whose achievements he studied and analysed.

Undoubtedly the most interesting chapters are those dealing with military leaders and leadership. Had the author concentrated on such a theme, the result would have joined the late Field-Marshal Wavell's lectures on "Generals and Generalship" as a *must* on military reading lists. According to Montgomery, for example, there are three types of commanders in the higher ranks:

"1. Those who have faith and inspiration but lack the infinite capacity for taking pains and preparing for foreseeable contingencies—which is the foundation of success in war. These fail.

"2. Those who possess the last-named quality to a degree amounting to genius. Wellington is a perfect example of this type.

"3. Those who, possessing this quality [the infinite capacity for taking pains], are inspired by a faith and conviction which enables them, when they have done everything possible in the way of preparation and when the situation favours boldness, to throw their bonnet over the moon. There are moments in war when, to win all, one has to act thus. Nelson was the perfect example of this—when he broke the line at St. Vincent, when he went straight in to the attack at the Nile under the fire of the shore batteries and with night falling, and at the crucial moment at Trafalgar."

Field-Marshal Montgomery did, however, get around more than the average British soldier and this is his justification for this larger study of leadership. "In October 1948 I ceased to serve the British Government only," he writes, "and became an international soldier serving fifteen governments. I then learnt to look at every problem from an international point of view, and not from a purely British one; the political and military problems of the free world looked very different when viewed in this way. I also learnt that we British are very difficult people to deal with—stubborn, and thinking we are always right and others always wrong. . . . And I would add that to get a clear view of British Government policy and diplomacy one has to go and live abroad for a while".

Time Magazine suggested that much of Montgomery's book is Lord Baden-Powell's *Scouting For Boys* brought up to date. The founder of the Boy Scouts also made sense, however, and only in less important matters was he "off the beam" by present standards. Some of Lord Montgomery's remarks about leadership of youth may seem condescending, and even trite, but mostly they are merely frank statements of truths we have to accept but would rather not think about.

This reviewer has, however, gone far enough. Why not read the book and form your own opinions? It won't take long, and there are numerous passages that readers of this *Journal* will want to ponder and reread.

Prejudice Sign of Immaturity

Prejudice is a sign of immaturity. A person is scarcely civilized, let alone cultured, who cannot listen to both sides of an argument. You may not excuse an error, but you are too genial to condemn the man who voices it. He may not be wicked, but only mistaken.

A Radical Imperialist

Reviewed by Major D. J. Goodspeed, CD, Historical Section, Army Headquarters, Ottawa

For some reason, many Canadians appear to be more familiar with the history of France, Germany, Italy or Spain than with that of Australia or New Zealand. Although speaking a not dissimilar language and possessing the same political institutions, these sister Dominions seem —in many ways other than purely geographical — antipodal to us — remote, exotic and outlandish places, as improbable as the Kangaroo in Pogo. This Canadian view tends to see Australasia as a mythical outback, where tiffin, billabongs, boomerangs, and swagmen share a delightfully illogical existence with the Jumblies and pobbles of Edward Lear.

Those who are sufficiently dissatisfied with this somewhat provincial attitude to read the 650-odd pages of a recent book* by a Professor J. Rutherford, of Auckland University, New Zealand, will find ample reason to modify their opinions. True, *Sir George Grey: A Study in Colonial Government* is a biography, but it is a biography of a man whose life was very closely identified with the history of Australia and New Zealand in their formative years. To a lesser extent, this book also provides valuable insights into the colonial administration of Cape Colony.

The son of a British lieutenant-colonel who was killed at Badajoz, Grey began his career in the public service as an army officer in Ireland, where he was so outraged by the brutal treatment of the Irish that he ever afterwards retained decidedly radical views on a range of subjects. Strangely enough, this rather romantic radicalism seems to have been superimposed on a nature which was essentially conservative, autocratic and practical. Nevertheless, the radicalism was real enough, and on his eightieth birthday Grey could still express his credo unrepentantly:

". . . I thought that a new world should be called into existence, a world freed from established churches, from great inequalities of landed possessions, and of rank— with no standing armies, with equal political rights, and with facilities for affording to all a complete education. . ."

A British public servant who resolutely held such views throughout the Victorian era could be assured of an interesting career.

Grey first came to Australia in 1837, and was promptly wounded in a fight with the aborigines. A second disastrous expedition in 1839 saw him ship-wrecked and forced to make his way back to Perth on foot. In 1840 he was appointed Governor of South Australia, which he ruled for the next four years with competent despotism. As Lieutenant-Governor of New Zealand from 1845-1854, Grey energetically tackled the problems facing the Colony and rescued the country from disorder. These years were filled with conflict—with the Maoris, for whom Grey had a real affection; with missionary land speculators, for whom he had no affection whatsoever; with the New

**Sir George Grey, K.C.B., 1812-1898: A Study in Colonial Government.* By J. Rutherford. Published by Cassell & Company, London, 1961. (Canadian agent: British Book Service (Canada) Ltd., Kingswood House 1068 Broadview Ave., Toronto 6, Ont.). $17.00.

Zealand Company and the Canterbury Association; with the British generals who were fighting the Maori wars; and, often enough, with the officials of the Colonial Office in London.

Although sincere in his views, Grey's predilection for personal power and his unquestioning belief in the absolute rightness of his own opinions frequently led him to overstate his case and to commit errors in policy which he obstinately refused to admit. These faults were perhaps more noticeable during his second tenure as Governor of New Zealand, from 1861 to 1868. It seems likely, for instance, that he was unjust in his famous "blood and money" letter to Gladstone concerning the huge land-grants being given to Church of England missionaries. During this unfortunate quarrel, Grey said in part:

". . . Her Majesty's Government may also rest satisfied that these individuals [the missionaries] cannot be put in possession of these tracts of land without a large expenditure of British blood and money . . .

"I have only to state that I have neither read in history nor met in real life with a case such as the present, in which a few individuals who were sent out to a country at the expense of pious people, in order that they might spread the truths of the gospel, have acquired such large tracts of land from ignorant savages over whom they had acquired a religious influence, and who, being themselves missionaries, have then assailed with such violence and obloquy a person who has endeavoured to protect the rights of the suffering and complaining natives."

This was dangerous eloquence, and the moral indignation was at least in part misplaced, but it was typical of Grey. Typical too, was the fact that, when Grey's asservations proved unfair to individuals, he steadfastly refused to make public amends.

The years between 1854 and 1861, when he was Governor of Cape Colony and High Commissioner of South Africa, were for these reasons very largely a failure. In an impossibly short space of time he had hoped to unify South Africa, civilize the Kafirs, and humanize the European frontiersmen, but his romanticism led him to underestimate the difficulties and his high-handedness undermined the confidence of the British Government in his capacity. Between 1879 and 1887 he served as Prime Minister of New Zealand, but thereafter he lingered on to an advanced age, a pathetic but indomitable figure and a perfect example of the colonial administrator who had been born before his time.

Professor Rutherford's book is an immensely scholarly work, written over a period of ten years and obviously the result of intensive research. On the whole, the picture drawn of Grey is unsympathetic, and the reader cannot help wondering whether the virtues of the man are shown as impartially as are his undoubted vices. However, besides being the record of a most remarkable individual, this book is a fascinating account of the growth and development of Australia and New Zealand, and to a lesser extent of South Africa. It is also an intriguing exposition of an imperial political system which, although ephemeral and transitory, appeared to contemporaries as the manifest unfolding of destiny.

"Worthy"

Reviewed by Captain A. L. Disher, Historical Section,
Army Headquarters, Ottawa

Take a water-boy from a Mexican gold mine; a stoker; a deck seaman; a revolutionary and counter-revolutionary; a four-times decorated veteran of 1914-18 and stir very vigorously with lots of pepper—result, of all things a Canadian general! But don't try the recipe too often because the chance of producing a second Major-General Frederic Worthington, CB, MC, MM, CD, is very rare indeed.

We have waited (in the spate of post-war books) for a long time to read about one of our Canadian generals. It has been almost worth the wait, for now we have *"Worthy"*,* the life-story of a man by his wife. It is a small, well prepared volume of the most pleasant reading we have seen for some time. Mrs. Worthington tells a tender story of a stormy military figure, and while sharing not a few of the frustrations and disruptions of army life, records them with patience and good humour.

As all the army knows, Worthy is the "Father of the Armoured Corps", but few of us know the long, uphill grind convincing officialdom of the need for modernizing the army in the years between the wars. General Worthington saw his grail on the battlefields of 1918 and he never lost sight of it through the following years when his imagination, inventiveness and persistence carried him through to the development of a Canadian school of armoured warfare with its seat (as it still is) on the dusty plain of Camp Borden. Don't get the idea that this is the story of a crank with a good idea that just happened to pay off in the event, for as the author explains, there were many long years of study and hard work at Lulworth, Bovington, Woolwich and Salisbury Plain in company with other "Dangerous Young Men" who, with their ideas and ideals, found their paths difficult. At any rate, by 1938 Worthington's rank of Captain, Brevet-Major, Acting Lieutenant-Colonel reflected the permanency of his employment.

At the age of thirteen Worthy, in self-defence, clobbered a drunken Mexican thief to the point of death. At sixteen he experienced the San Francisco Earthquake. Two years later he was "rolled" on the New York waterfront and survived his next voyage only by defending himself against a Greek sailor with a heavy wrench during a stoke-hold brawl. But this was the same youth who loved to read whatever came his way, who tinkered with engines and machinery and who later delighted in P. G. Wodehouse, Mack Sennett and the antics of Olsen and Johnston. And the same man who twice won the Military Medal and after receiving his commission was twice awarded the Military Cross.

Veterans of the 4th Canadian Armoured Division will be interested in hearing of Worthington's work in raising and equipping the force and will share his disappointment in having lost command (because of his age) before the day of action. Those who served in Pacific Command will recall the General bustling

*"*Worthy*". By [Mrs.] Larry Worthington. Macmillan (Toronto) 1961. pp 236. $5.00.

Petrol Company

Reviewed by Major G. R. Laing, CD, RCASC, Directorate of Movements, Army Headquarters, Ottawa

We often hear of "Joe Bleaux" complaining that books on the war deal with the big broad concepts of allied strategy and the tactics of certain big-name Generals. Such is not the case with this timely story of the New Zealand Army Service Corps' Petrol Company.* The reader gets the feeling of being "right with the boys" of the Expeditionary Force as the story of their workaday life, individual exploits of bravery and buffoonery in the Mediterranean Theatre unfolds in 347 delightful pages.

The dust cover lists 34 other volumes already published by the War History Branch of the New Zealand Department of Internal Affairs, and *Petrol Company* appears to wrap up a very commendable project — a history of every unit. This book is liberally illustrated with pictures and maps covering the campaigns in which The Petrol Company, New Zealand Army Service Corps, frequently of necessity provided more than just logistic support.

The NZASC traces its parentage to the Commissariat Transport Corps of the Maori wars where they used canoes and bullock drays. In 1939 they started out with 287 all ranks, over half of whom were in Territorial Army Service Corps units, and 86 motor vehicles of all types.

The author draws heavily from letters written home and personal diaries of Petrol Company members in addition to the official sources of information.

In Egypt, that "land of sin, sand and syphilis", they started their desert training. British-built vehicles arrived "on wheels" ready to roll, whereas the U.S.-built equipments came crated. Later in Italy they praised the Americans who had the "gen" on traffic control.

The campaign in Greece finds the

**Petrol Company.* By A. L. Kidson, War History Branch, New Zealand Department of Internal Affairs, Wellington, N.Z. 25 sh.

"Worthy"

(Continued from preceding page)

up and down the coast organizing and reorganizing what defences he had. What he did not have he created.

His fellow workers in Civil Defence will better understand the man who pushed himself to near exhaustion as their Federal Coordinator.

Mrs. Worthington tells us in the foreword of her book that her husband refused to read her work prior to publication, though he helped with the "military vernacular". The author has a keen ear. Worthy would never tolerate "1,500 weight truck" in print. His knowledge of Spanish would probably have helped when she describes the military headquarters in San Francisco as the "Praesidium", and he may have suggested a few photographs to illuminate the text. But these are small points.

Get this book and read it, then give it to your wife or anyone with whom you intend to share the military life. You will both benefit from the experience.

Greek first line transport composed entirely of ox wagons and pack animals, and Petrol Company drivers in a non-stop flurry of activity that culminated in a withdrawal to Crete. Major-General Bernard Freyberg (later Lieutenant General and now Deputy Constable and Lieutenant Governor of Windsor Castle) in his foreword pays high tribute to the work of the NZASC. General Freyberg, who commanded the New Zealand Expeditionary Force from its inception, was in command for the defence of Crete. Here "Petrol Company (with no trucks) was decanted and rebottled as part of an Infantry Battalion" at Ay Marina. A few days later, in this fast-moving defensive battle, this NZASC battalion was disbanded and attached to 5 Brigade. On 4 May it became part of Oakes Force and on 15 May it was "again reshuffled and redealt as part of 10 Brigade's composite Battalion." Commander 10 Brigade praised the steadfastness of the sturdy Petrol Company who in a last ditch defensive stand "had no bayonets and were 5 rifles short of their numerical strength."

The Crete story of Petrol Company NZASC can be summed up: 25 killed or died of wounds, 62 wounded and evacuated, 120 prisoners of war; one officer and 49 men returned to North Africa and equipped with all new vehicles went on to equally daring exploits through North Africa with Montgomery's 8th Army and thence the Italian campaign.

Canadians are mentioned twice under awkward circumstances: "held up north of ATESSA by Cdn Airborne Brigade strung out along the road" and "another Cdn Bde moving up the route supposed to be used for southbound only."

Finally, Trevor Sims, a 6½-year veteran drove the last Petrol Company truck to Assissi and those not eligible for repatriation home were "marched out" to 19 NZASC and service in Japan.

To Criticize is Not Enough

The man who is content to sit back and pass judgment on ideas submitted to him is not qualified for today's executive function. It is true that the man at the top must possess judicial ability in a marked degree, but he also needs imagination and enterprise if he is to survive. He must be able to deal with complexity, and this necessitates skill in thorough-going and patient analysis.

The man in management today will grasp quickly the essentials of a problem, apply his imaginative mind to finding a solution, decide swiftly and surely what is to be done, make it clear to all concerned what he expects of them, and then see that his subordinates get on with the job. The management man will have vision, and will find it quite unthinkable that he should follow outworn paths, content merely to criticize.—*An extract from an article "Planning for Efficiency" in the Royal Bank of Canada Monthly Letter.*

Military objectives must always correspond to the forces and other means available for their attainment. From a purely tactical point of view it is not enough simply to reach an objective: consolidation upon the objective is also essential.

The Lonely Land

Reviewed by Major-General J. M. Rockingham, CB, CBE, DSO, ED,
General Officer Commanding Quebec Command

This grand adventure of canoeing on the wild Churchill River is an account of one of the trips of the modern voyageurs by canoe over 500 miles of wilderness.* The author is the "Bourgeois" (as the commander of each brigade of voyageurs was called in the fur trading days) of a party of men all prominent in Canada and all over the age of forty. Their trip is exciting and strenuous. Besides being one of the most accomplished white men in a canoe in North America, the author is obviously a scholar. Although I have paddled with the voyageurs, I have never travelled with Sigurd Olson, but have heard of his skill as a canoeman for some years. I now realize after reading this book that he has been the inspiration behind the modern voyageurs' fascinating and fairly dangerous trips.

There is interest for psychologists, lovers of flowers and animals, as well as those who just love canoeing and the outdoors. Students of the early days of the western fur trade will be carried back to the exploits of those great pioneers of Western Canada—Alexander Mackenzie, Peter Pond, George Simpson and David Thompson. The story is simply steeped in the drama of exploration and trade.

The book is so full of accounts of the running of the white water of the Churchill River and fighting strong headwinds that one can almost feel the spray from them as the journey progresses. For those who have never run a fast rapid in a canoe, I can do no better to describe it than to use one of the quotations liberally scattered through the book; this one accredited to Sir William Francis Butter (1872) puts in words what so many feel:

"It is difficult to find in life any event which so effectually condenses intense nervous sensation into the shortest possible space of time as does the work of shooting or running an immense rapid. There is no toil, no heartbreaking labour about it, but as much coolness, dexterity and skill as man can throw into the work of hand, eye and head; knowledge of when to strike and how to do it, knowledge of water and rock and of the one hundred combinations which water and rock can assume—for these two things, rock and water taken in the abstract, fail as completely to convey any idea of their fierce embracings in the throes of a rapid as the fire burning quietly in a drawing room fireplace fails to convey the idea of a house wrapped and sheeted in flames."

The route of the early voyageurs was so much travelled that it was then the trans-Canada highway. Now the Crees, the Chipewyans, Yellow Knives are the main travellers and not too frequently. It is a wild and lonely country as the name of the book implies, and it is interesting and encouraging to see diplomats, generals, scientists, businessmen and historians of the modern day willing and capable of carrying out exploits for which one would expect that they are neither trained nor fit. The country has not changed much since the fur trading

*_The Lonely Land._ By Sigurd F. Olson. Published by McLelland and Stewart Ltd., 25 Hollinger Rd., Toronto, Ont. $4.95.

days and the equipment is only slightly better. Dehydrated foods have lightened the burden for portaging, but still each foot of the five hundred miles can only be accomplished by physical effort. Their predecessors over the route were fighting the problem of weather, time and space—with the need for each brigade to complete its portion of the journey: East with furs, West with trading goods, in the short intervals between the breakup of the ice and the freezeup. They travelled longer days and carried heavier burdens than Olson and his companions, but then they were conditioned to it.

I predict there will be a stirring of the spirit of adventure as the reader runs the rapids, fights the winds and waves on big lakes, carries over the portages, fishes, sets up camp on the Canadian Shield, cooks the evening meal and joins the voyageurs around the fire at night to discuss the day's adventures. Perhaps there will even be converts to this sport as a result of reading the book. The author, incidentally, was a professor and dean in an American university before abandoning the academy for the wilderness. He is now a member of the boards or councils of the Wilderness Society, Isaak Walton League of America, and the White Water Association and Consultant to the President's Quetico-Superior Wilderness committee.

I found it a completely fascinating book.

67,000 Cadets Send Greetings

Ottawa — Happy birthday greetings from the 67,000 members of the Royal Canadian Army Cadets to their Colonel-in-Chief, Prince Philip, Duke of Edinburgh on his 40th anniversary on June 10 has been graciously acknowledged by His Royal Highness.

Prince Philip was appointed Colonel-in-Chief of the Royal Canadian Army Cadets in June 1953 by Her Majesty, Queen Elizabeth II, just a week after her coronation.

He first reviewed his Army Cadets in Canada at a Tri-Service cadet parade in Vancouver when he was there for the opening of the British Empire Games in the summer of 1954.

Two years ago, during the cross-Canada tour of the Queen and her consort, Prince Philip inspected Army Cadets at the National Cadet Camp at Banff, Alta., and at the Western Command Cadet Camps at Vernon, B.C., and Dundurn, Sask.

Cooks and Washermen—1864

97 Years Ago: One man of the company should be selected by the commander as cook. He should possess some qualifications for the position, and might be some man who could be easily spared from drill. One man should be washerman. His duty is to wash every man's underclothes during the week, and to receive therefor from the company fund 15 cents for each suit. These men . . . must be armed and equipped and appear on every inspection. —*From the files of the Army-Navy-Air Force Journal (U.S.).*

Absurd Campaign

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

Readers brought up on *Chums Annual* will remember stories of how efforts to put an end to Western Civilization were foiled by English public school boys who penetrated secret headquarters in a Tibetan lamasery to foil assorted rotters. By 1903 British Military Intelligence had evolved an equally absurd plot: Russian agents were controlling the Dalai Lama and Russian officers were training the Tibetan Army, which was equipped with Russian rifles. What happened in consequence is the subject of an intriguing and historically sound book by explorer-soldier-writer Peter Fleming.*

During the 1930's Peter Fleming travelled widely in Central Asia as a special correspondent for *The Times* and then found a wider public for his published experiences with "the plateaux and the mountains, the lamaseries and the salt lakes, the bitter winds, the shaggy ponies, the rough people, the rumours round the yak-dung fire". During the Second World War he served in Norway, Greece and South-East Asia with the British Army, reaching the rank of lieutenant-colonel. Thus he knew how to interpret properly the unpublished material in the Indian Office Archives, War Office and Public Record Office, and the private papers of Sir Francis Younghusband who headed the expedition to Lhasa in 1904.

Repeated violations of India's north-east frontier by Tibetan tribesmen had convinced the authorities in New Delhi that a Tibet Frontier Commission should be sent to reach an understanding with Tibetan and Chinese authorities. By suggesting that this was just a further obvious move in the "Great Game" which England and Russia had been playing for years in Central Asia, the Viceroy of India, Lord Curzon, was able to obtain permission from the Government in London.

Britain's period of "splendid isolation" was, however, now at an end. Fear of the Triple Alliance had brought *rapprochement* with France, and friendlier relations with Russia were going to become inevitable. This changing trend in foreign policy was, however, not apparent to the British administration in India and could not have yet become painfully obvious to the politicians and civil servants in Whitehall.

Major Francis Edward Younghusband was exactly 40 years of age when appointed head of the Tibet Frontier Commission in May 1903, with the local rank of colonel. Most of his military service had been as a political officer, where he had shone to greater advantage than in the smart cavalry regiment which was a bit too expensive for his means. He was well thought of, personally known to Lord Curzon, and a sound man for the task. The Commander of the accompanying military force was not. Colonel J. R. L. Macdonald, R.E., lacked the necessary drive and persistence for an expedition of this sort. Indeed he seems to have possessed none of the attributes mentioned by Field-

**Bayonets to Lhasa:* The First Full Account of the British Invasion of Tibet in 1904. By Peter Fleming. Rupert Hart-Davis. London, 1961 (British Book Service (Canada) Ltd., Kingswood House, 1068 Broadview Ave., Toronto 6, Ontario). $7.00.

Marshal Montgomery in *The Path of Leadership* (reviewed elsewhere in this issue). Initially Younghusband thought Macdonald to be a "sound, solid fellow" and reported that "we shall get on capitally". Being a generous minded person, Younghusband then proved slow to complain officially that Macdonald's previously displayed and well known predilection for childish insistence on being "boss man" was causing unnecessary delays. The authorities should, of course, have provided clearly defined terms of reference for the political and military leaders of this project.

The telegraph line erected as the force advanced slowly, or halted for weeks on end, was a mixed blessing. Neither in London nor in New Delhi was it understood that Tibetans did not practise the traditional western diplomatic ritual of negotiating treaties. Like the men now in the Kremlin, the emissaries from Lhasa insisted on starting their harangue all over again from the beginning at each meeting with Younghusband. This was very time consuming and frustrating for the man on the spot, who could not get clear instructions as to what he should do — march directly on Lhasa and force a showdown with the Dalai Lama, or give up and go back to India. Unknown to him, of course, the new political head of the India Office in London, Mr. St. John Brodrick, was developing an intense dislike for his erstwhile friend, Lord Curzon, and ready to discredit any of his pet projects.

There were grounds for not continuing the advance during the winter of 1903-1904, since the troops were poorly equipped by modern standards for winter warfare. Clothing was not windproof and was too bulky to permit easy movement. Coming from Southern India, the detachment of Madras Sappers and Miners was particularly vulnerable to the cold and soon had to be sent back. "However carefully oil was wiped off them, rifle-bolts froze into the breeches. The Maxims were even more prone to stoppages from this cause, and Haddow, the subaltern in charge of them, used to remove the blocks at night (when the cold was greatest) and take them to bed with him. The rifles of the Mounted Infantry froze to the bottom of their buckets* so firmly that both hands had to be used to extricate them."

The opposition en route was ludicrous — ancient smoothbore muskets versus Lee-Metfords and Maxims in the hands of trained Sepoys and Tommies. Nor were any arsenals of Russian arms and equipment found when the expedition finally reached Lhasa. And quite obviously the Tibetan tribesmen had not been trained by Russian drill instructors. As has been so often the case, before and since, Military Intelligence had sifted and digested its reports so as to produce the desired answers.

Despite the flight of the Dalai Lama, and to the great surprise of the pessimists in London, Younghusband did manage to conclude a satisfactory treaty before the approach of winter forced him to leave Lhasa. It was not perfect, and by using his own initiative when proper instructions had not been furnished in reply to his telegrams, he aroused the ire of the Secretary of State for India. In consequence, Younghusband got no official welcome in London and only the lesser K.C.I.E. instead of the customary K.C.B. His career was also stopped, although he returned to India in 1906 and had

"Buckets" were the leather cases fastened to the saddle in which the cavalry of the period carried their carbines.

four pleasant years as Resident in Kashmir before being retired. The only employment that could be found for him during the 1914-1918 War was in what would now be called Public Relations.

As Peter Fleming points out in an epilogue, the acceptable portion of Younghusband's treaty worked reasonably well until 1951, when Communist China seized control of Tibet. During the past decade, as readers are well aware, there have been serious frontier incidents. Whether President Nehru of the Republic of India will be able to obtain as satisfactory an arrangement with the new rulers of Tibet seems, however, to be very unlikely.

Human Relations

In your intercourse with those over whom you have authority you will find the ancient motto *noblesse oblige* vital. You have a position which requires you to deal with them generously, not merely justly. Whoever is under your power is also under your protection...

Probably foremost among the techniques of handling men is the building of morale through praise and encouragement. Commendation by a superior is of great consequence. It breeds loyalty and it inspires the worker to follow through.

So take time to recognize the interest your men show in their jobs. Be positive. Qualify praise as the facts warrant, but never let it be faint. Look first of all for the part of the job that is well done, and compliment the worker; then show up the badly done part by contrast and explain how it can be brought up to the standard the worker has set in the good part.

Give credit where it is due. To take credit for a job that one of your men did destroys his initiative and lowers you in his eyes and in the eyes of his associates. The credit due to you comes from your building of an able staff.

Be constructive. Make it clear by your actions that you are not going around all day seeking faults in your staff, but to make their jobs better. Show that your reprimand is really a compliment, because it means that the worker has something that is worth bringing out. To allow a fault to go uncorrected, you will point out, is to say that the individual is not worth bothering about...

If a complaint is obviously (to you) unjustified or a paltry gripe, give yourself time to cool off and become master of your emotions before you start talking. Is it worth getting angry about? This is one of the tests of your ability to be a manager of men. You must be capable of controlling yourself if you are to control a group of other people...

It is often vital to exert persuasion horizontally on colleagues of equal rank. You should seek, then, to lay the proper foundation. Take for granted that your supervisory associates are intellectually honest . . . and versed in the techniques of their own departments. Then go out of your way to express compliments, to proffer cooperation and information. . .

Sound administration is the sum total of mature imagination, mature perception, mature judgment, and mature humanism.

CANADIAN ARMY ORDERS

Listed below is a resumé of Canadian Army Orders for the information of military personnel. Details of these Orders are available in all Army Units.

CAO 5-1

Allotment and Rules of Occupancy of Married Quarters and Allotment of Garages

(Issued: 26 Jun 61)

This revision clarifies the division of responsibility between the occupant and the Army Works Service for installing and removing storm sashes and screens and for cleaning windows in MQ accommodation.

CAO 51-9

Registration of Births for Canadian Citizenship and Retention of Canadian Citizenship — Dependents of Service Personnel Serving Abroad

(Issued: 15 May 61)

This revision clarifies the distinction between a certificate of birth registration and a birth certificate for children born abroad.

CAO 93-6

Maintenance of Telecommunication Equipment—Division of Responsibility

(Issued: 26 Jun 61)

This amendment provides that unit repairs to signal communications equipment fitted in army aircraft will be a RCEME responsibility.

CAO 93-12

Purchase by Cash of Vehicle Spares by RCEME Militia Servicing Sections

(Issued: 29 May 61)

This new order provides for the purchase by cash, of small items of vehicle spare parts by RCEME militia servicing sections.

CAO 99-2

Estate Tax

(Issued: 26 Jun 61)

This revision brings the order in line with an amendment to the Federal Estate Tax Act which provides a measure of tax relief by permitting the revaluation of certain assets of an estate, including a pension or annual allowance payable to a widow, and an amendment to the Ontario Succession Duty Act which provides that pension or annuity benefits are now taxable.

CAO 128-36

United Nations Medal

(Issued: 26 Jun 61)

This amendment designates the Organisation des Nations Unies au Congo as a UN formation in respect of service for which the UN Medal shall be awarded and the qualifying period is 3 months.

CAO 136-10

Income Tax—Province of Quebec

(Issued: 15 May 61)

This amendment notifies the

changes in exemptions allowed under the Quebec Income Tax Act and the introduction of new taxable allowances for Medical and Dental Officers.

CAO 143-8

Military Museums
(Issued: 10 Jul 61)

This amendment specifies safety precautions and maintenance responsibilities for ammunition and explosive exhibits on charge to military museums.

CAO 174-2

Physical Standards and Instructions
(Issued: 10 Jul 61)

This amendment changes the name of the "Geographical and Environmental" Factor to "Climatic and Environmental" and it is intended to more clearly indicate the actual meaning of the Factor.

CAO 212-50

Separated Family's Allowance — Reserves on Special Duty

(Issued: 15 May 61)

This revision brings the order in line with amendments to QR (Army) 205.20 and 205.25 which raises the age limit of a "dependent child" from 18 to 21 years and provides that when SFA is claimed on behalf of a dependent child the child must normally reside with the member.

CAO 219-24

Powers—Calling Out on Service in an Emergency

(Issued: 15 May 61)

Officers commanding commands and area commanders are empowered to call out the Reserves located within the geographical limits of their respective command in an emergency in the event that they are unable to communicate with higher authority.

CAO 256-3

Terms of Service—Officers of the Canadian Army (Regular)

(Issued: 24 Jul 61)

These amendments prescribe:

a. New terms of service for nursing sisters which permit:

(1) automatic promotion to lieutenant on enrolment;
(2) promotion to captain after six years;
(3) enrolment on short service commission of two, three, four or five years with provision to convert to regular commission; and

b. Notifies the list of courses for which a minimum period of service must be performed before an officer may retire voluntarily.

CAO 262-4

Quality of Milk Supplied to the Canadian Forces in Canada

(Issued: 24 Jul 61)

This revision raises the standards for the quality of milk supplied to the Canadian Forces in Canada, and conforms with Canadian Government Specifications Board specifications for milk.

CAO 271-4

Postings, Attachments and Courses in the United States

(Issued: 15 May 61)

This revision sets forth the cur-

rent procedures to be followed when members proceed on posting, attachment, or course to the USA, and incorporates tri-service policy for the movement of DFE on such tours of duty.

CAO 271-7

Establishments in Northern Canada: Selection and Posting

(Issued: 12 Jun 61)

These amendments define the meaning of Northern Canada and require that members posted to establishments in Northern Canada who wear spectacles are in possession of two pairs of spectacles and that they have a record of their eyeglass prescription in their documents. It also requires that dependents who wear spectacles have the prescription recorded.

CAO 273-2

Claims Arising from the Movement of Dependents, Furniture and Effects

(Issued: 24 Jul 61)

This revision embodies recent amendments to QR(Army) Chapter 209, which provide for the transfer and storage of dependents' personal baggage; "economy class" transportation for travel by air when "tourist class" transportation is not operated; and the addition of a new article QR(Army) 209.881 which limits the amount of reimbursement for the movement of furniture and effects into, out of, or between furnished married quarters.

Battle Honours Awarded

Supplements to Canadian Army Orders issued at Army Headquarters, Ottawa, contain the Battle Honours awarded to the undermentioned regiment by Command of Her Majesty the Queen. The Battle Honours which have been selected to be borne on Colours or Appointments are printed in heavy type.—Editor.

LE REGIMENT DE MAISONNEUVE, RCIC

(PERPETUATED THROUGH 41ST BATTALION, CEF)

The First World War

"Mount Sorrel", **"Somme, 1916"**, **"Arras, 1917"**, **"Hill 70"**, "Ypres, 1917", **"Amiens"**.

Chemical Fire-Fighter

A new chemical compound, considered to be twice as effective as any other extinguishing agent against liquid fuel and electrical fires, has been adopted for emergency use at Army installations. Developed by Army Engineer Research and Development Laboratories, Fort Belvoir, Va., the new agent can be used in temperatures as low as 65 degrees below zero and will be particularly helpful in the Arctic, where fire is a crucial problem. Non-toxic and non-corrosive, it also can be used safely in homes.—*"Ordnance" (U.S.)*.

THE ROYAL CANADIAN CORPS OF SIGNALS

LINE LAYING BY HELICOPTER

A REPORT BY 2 SIGNAL SQUADRON AND 2 AIRBORNE SIGNAL TROOP IN CORPS INFORMATION LETTER NO. 12 (ROYAL CANADIAN CORPS OF SIGNALS)

During Exercise Cold Spear I held in the Bonnechere-Camp Petawawa area 14-21 January 1961, 12 miles of field telephone cable were laid by helicopter.

The battalion being exercised, the 2nd Battalion, The Royal Canadian Regiment, established a concentration area 20 miles from the assault base at Bonnechere airfield. There was a requirement for the two points to be linked by telephone, as well as by high frequency (safety and control) and very high frequency (command) radio circuits.

The ground between the two locations was rocky, very hilly, heavily wooded and, for the most part, without roads. It was possible to lay the first eight miles to the site planned for a radio relay station by vehicle and this was done. The remaining 12 miles could have been laid from the ground by a trail party using toboggans but only at a great price in man-hours and effort. Therefore, it was decided to seek the cooperation of the Royal Canadian Air Force in laying the cable from a helicopter.

The RCAF aircraft supplied was a Sikorsky H-34 flown by a detachment of a RCAF Rescue Unit employed for the exercise. The DWD-1 TT cable used was in dispensers which had been spliced together in groups of five and stacked in crates in the aircraft before take-off. Thus, if the need arose to jettison the cable, no more than five dispensers would need to be thrown out. The helicopter hovered while splices were made between the groups of five.

The only obstacle encountered was a railway line with a poled telegraph route. The helicopter landed beside the tracks, the cable was cut and pulled under the telegraph line and railway, spliced and the helicopter took off again.

The 12 miles of line were laid in approximately 25 minutes at speeds of 60 knots. As the cable was located in the tree-tops off to the side of the battalion's route, there was no interference with the line. Telephone communication was maintained without interruption throughout the period that 2 RCR was in the concentration area.

"Shooting" the Voice

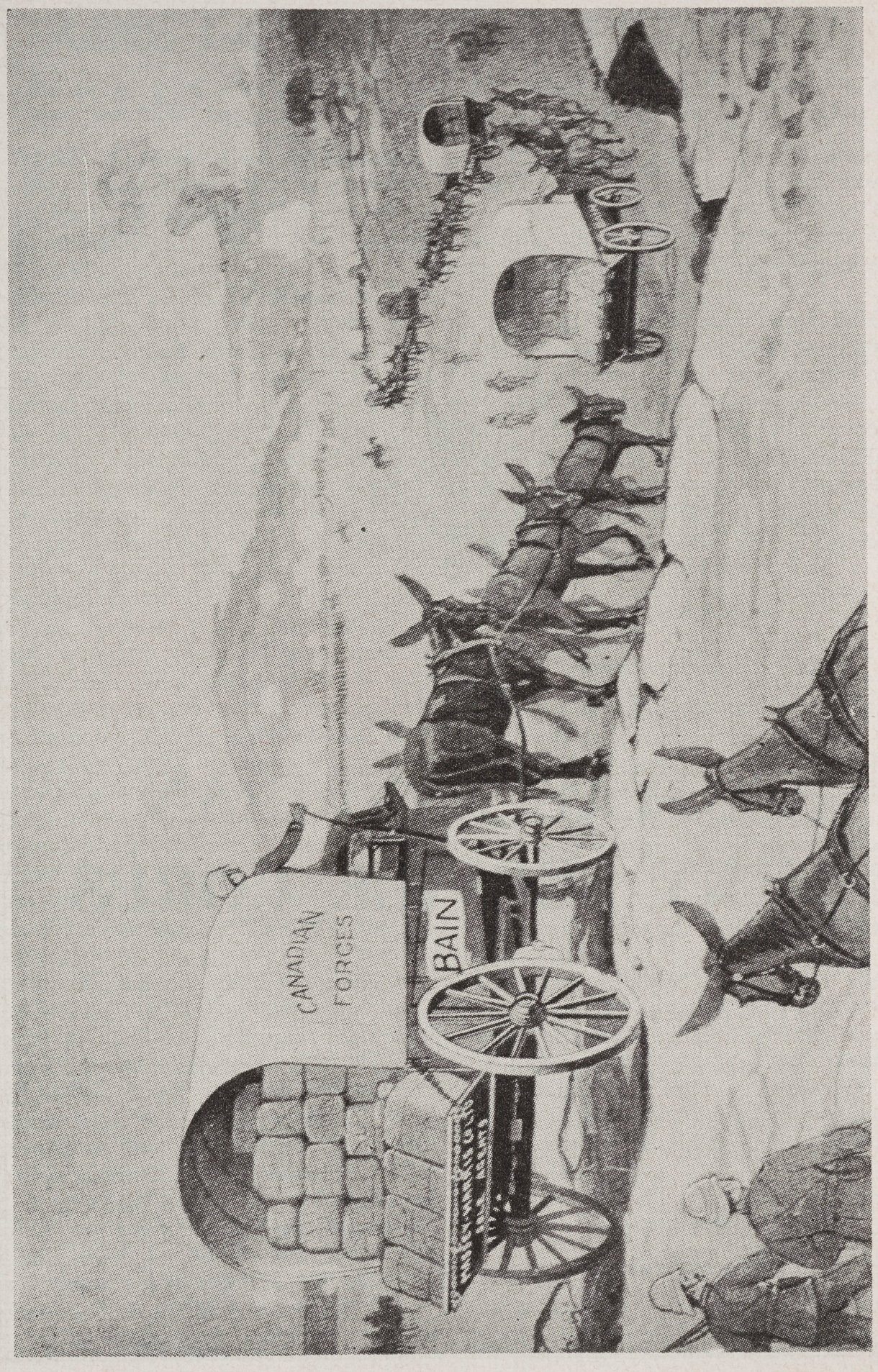
Infrared Industries Inc., Waltham, Mass., has demonstrated its new Infraphone, a device the size of a home-movie camera which sends and receives voice sounds via infrared beams. The gun-like gadget could be used for ship-to-shore and ship-to-ship communications or by Civil Defence workers, firemen and police.

It can "shoot" voices 500 yards. It weighs 26 ounces, is powered by two standard flashlight batteries, and an ordinary flashlight bulb is the source of infrared energy for the device. — *Corps Information Letter (Royal Canadian Corps of Signals).*

Imagination

Imagination is more important than knowledge.—*Albert Einstein.*

THE ROYAL CANADIAN ARMY SERVICE CORPS



Courtesy Massey-Ferguson

RCASC Reminiscences

The Bain Wagon

By

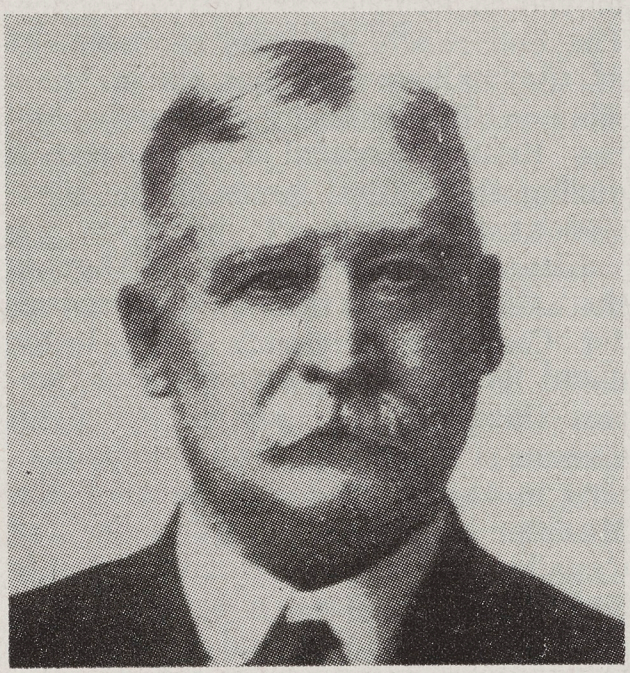
MAJOR G. R. LAING, CD (RCASC), DIRECTORATE OF MOVEMENTS, ARMY HEADQUARTERS, OTTAWA

On the opposite page is a drawing of a Bain wagon used by the Canadian forces during the South African War. This illustration is by an artist of the time, and is his conception of its use at the front.

The history of this vehicle is one of praise and controversy. Known to Canadians as The Bain Wagon, its official military title was catalogued as "Wagons, General Service, Militia Department, Mark One", abbreviated to "Wagons, GS MD Mk 1".

Into the farm machinery organization the world knew as Massey-Harris (now Massey - Ferguson) went the inventive genius of many of Canada's most rugged and foresighted pioneers — Daniel Massey (1798-1856), Alanson Harris (1816-1894), and Peter Patterson (1825-1904), who were known principally for their contributions to harvesting equipment; W. H. Verity (1830-1892), tillage tools and a plow which bears his name; W. S. Wisner (1839-1919), cultivating machinery; and the inventor of the stout and sturdy wagons, John A. Bain (1852-1933), founder of the Bain Wagon Company of Woodstock, Ont., a subsidiary of Massey-Harris from 1895.

The Canadian Permanent Army Service Corps was equipped with the Bain Wagon from 1901 and the Canadian Army Service Corps element of the Canadian Expeditionary Force took these horse-drawn wagons from their home stations to Salisbury Plains in 1914. The light Bain wagon was generally known as an Officers' Mess Cart. The medium Bain was used by the CASC to haul supplies, stores, baggage and when fitted as an ambulance was capable of carrying four patients lying down or twelve sitting up. The heavy Bain wagon was designed and used principally to haul ammunition. Merrill Denison in *Harvest Triumph* wrote "large numbers of transport wagons were also produced at the Bain Wagon Works for the Canadian and British Armies as well as special woods equipment for Canadian Forestry Battalions".



John A. Bain (1852-1933), founder of the Bain Company. This photograph appeared in Merrill Denison's book *Harvest Triumph* and is reproduced here by courtesy of the publishers, McClelland and Stewart Ltd., Toronto.

The Bain wagon controversy started on Salisbury Plains in England and ended on the floor of the Canadian House of Commons in Ottawa. It originated during the final inspection of units of the Canadian Expeditionary Force when the 1st Canadian Division was ordered to be moved to France for Active Service. The end result was the replacement of the Bain wagon, as far as possible within existing resources, by the British general service wagon during those final hours of the Division at Salisbury.

Lieut.-General E. A. H. Alderson, the General Officer Commanding 1st Canadian Division, in a letter dated 28 March 1915 to Colonel Carson (later Major General Sir John Carson and the special representative in the United Kingdom of the Minister of Militia and Defence for Canada, General the Honourable Sir Sam Hughes) gives a brief resume of the situation for and against the Bain wagon as compared to the British general service wagon:

Shortcomings of the Bain: It is not so strong; it does not carry as much; no spare wheels or other parts will be available in France; sides tend to spread under a heavy load giving rise to the theory that they were made of unseasoned wood.

Points in Favour of the Bain: It is much lighter; provides greater manoeuvrability; turns in a smaller circle; it makes less noise on hard roads; wheel assembly so made that when it encounters a stone it tends to run off rather than meet it plumb; has given long and faithful service to Canadian farmers, many of whom are now soldiers.

General Sir Sam Hughes was a stout defender of the Bain wagon and its capabilities. He spoke feelingly many times to fellow members of the House of Commons and some of his remarks on these occasions are worthy of note:

". . . our little Canadian two-horse wagons in South Africa would carry a heavier load than the British wagon with four horses. We could out-distance and out-travel them. In the Northwest Rebellion the ordinary farm wagons (manufactured by Bain) travelled more miles up to their axles in mud than the heavier British GS wagon did on the good roads of France."

"I may say many of our wagons were running after many of those taken to the front from England were thrown out".

". . . our wagons [the Bain] turn in 31 feet 9 inches while theirs take 35 feet and, as I have already pointed out, our wagon has proved better and outlasted theirs".

When asked by an Opposition member how much the change-over from the Bain wagon to the British GS wagon had cost the Canadian taxpayers, Sir Sam quipped "I forget, we were so mad we never totalled up the cost."

Horse-drawn wagons saw active service to the end of the First World War with the Canadian Expeditionary Force, and it is interesting to read that in his Operation Order of 7 August 1918, Lt-Col. A. S. Donaldson, DSO, Canadian Army Medical Corps, the Commanding Officer of No. 3 Canadian Field Ambulance, stated:

"Horse ambulance wagons will be used as far forward as possible and clear casualties from Collecting Posts to Advance Dressing Stations. Motor ambulances will clear from ADS to Corps Main Dressing Station."

How many Bain wagons were used by the Canadian Army Service Corps

will never be accurately known, but sufficeth it to say that 1170 Bain wagons (all types) were put aboard the 33 ships which took the CEF from the Port of Quebec to England in 1914. While most were left behind at Salisbury for training purposes, 140 were taken to France with the 1st Canadian Division. Who knows but that there may still be in the service of a farmer in France a faithful old Bain wagon, left behind when the CEF finally came home from the war, despite an opinion of a staff officer of the War Office, who said, in 1915, that in comparision to the British GS wagon the Bain lacked "the go" for active service.

Whether or not this Canadian farm wagon was better than the British general service wagon must now forever remain in the realm of speculative controversy. Notwithstanding all the talk, official reports, demi-official letters and House of Commons debates, the argument will never be resolved conclusively to anyone's satisfaction, but the Bain wagon served the Army Service Corps as its prime mover in those early days. As the motor lorry replaced the horse and wagon, an important era passed into history: an important era in the RCASC story — never to return.

REFERENCES

Col. A. Fortescue Duguid, *Official History of the Canadian Forces in the Great War, 1914-1919.*

Col. A. E. Snell, CMG, DSO, BA, MB, RCAMC, *The Canadian Army Medical Corps with the Canadian Corps During the Last Hundred Days of the Great War.*

Merrill Denison, *Harvest Triumph: The Story of Massey-Harris.*

Arthur Pound, *The Turning Wheel: The Story of General Motors through Twenty-Five Years, 1908-1933.*

Col. H. M. Cathcart, OBE, ED, CD, *A History of Valcartier.*

Hansard for the House of Commons (principally as quoted by Col. Duguid).

Battle Zone Telephone

A newly-developed front-line telephone system without wire lines or cables now is under procurement with the award of a $10,935,410 contract by the U.S. Army Signal Supply Agency, Fort Monmouth, New Jersey.

The system is designed to provide switched radio service to battle areas very much like conventional telephone service. The radio central will be mounted in a weapons carrier on a three-quarter-ton truck and "subscriber" stations, transmitters and receivers will be installed in one-quarter-ton or armoured personnel carriers.

A single sideband provides added channels of information and more communications system in a given zone.—*From the Army Information Digest (U.S.).*

The Unknown Leader

Let us add one more altar—to the unknown leader—that is, to the good company, platoon or section leader who carries forward his men or holds his post, and often falls unknown. It is these who in the end do most to win wars.—*Field Marshal Lord Wavell.*

THE IMAGE OF THE COMMANDER

FROM AN ARTICLE BY ELIHU ROSE ENTITLED "THE VIEW FROM THE BOTTOM" IN THE NOVEMBER 1960 ISSUE OF MILITARY REVIEW (U.S.)

Like theatrical audiences, the military formation must be approached by way of the mass personality. The commander's success in establishing rapport will, thus, depend upon the *image* of himself he is able to create in the large number rather than on the personal impression he conveys to the comparative few. There is no formula for image; it varies as people themselves vary. Some commanders, for example, have used crude language in establishing the personality of a "regular guy", while others have attempted the same thing with a startling lack of success.

An Order of the Day or a spirited phrase spoken on the eve of battle might carry with it all the grandeur of Nelson's signal at Trafalgar, but often the same words from a different mouth fall flat. The lone word "Nuts!" spoken by General McAuliffe at Bastogne has entered the history books not because of its simplicity or magnificence, but because, whatever qualities it had, it apparently had them at just the right time and from the right person.

Considering the many ways by which this emotional relationship can be established, the one common denominator is the concept of recognition. During World War II Field Marshal Sir William Slim once addressed some troops saying:

I was in the ranks myself once, and in those days I was always being shoved around by people I never saw and about whose sanity I had the gravest doubts. Well, I want you to know what I look like, not because I think I'm any oil painting, but because I think you ought to know the bloke issuing the orders. Then you'll know who to blame for them.

Today, such a thought hardly seems unusual, but it represents a remarkable step forward since the First World War when senior officers were not always so accessible. Field Marshal Montgomery states in his *Memoirs* that during his entire service as a junior officer on the Western Front he never once saw the British Army Commanders, Generals French or Haig.

By World War II the rule that a commander should be known by his men had become an axiom. The satisfactory state of morale existing on the eve of the Normandy Invasion was undoubtedly due in large measure to the continual troop inspections carried out by all the senior commanders. These clearly indicated to the troops the interest and concern of their leaders and proved well worth the enormous expenditure of time.

A recently published history of Major-General Frank D. Merrill's *Marauders* relates a minor incident which, nevertheless, emphasizes this aspect of troop psychology. A body of troops approached General Stilwell's headquarters after an arduous 140-mile march, anticipating the honour of exchanging salutes with their theatre commander. Stilwell's failure to appear was doubtless an oversight, but it was noted by the troops and in the words of one of them, "the chance of an inexpensive gesture that would have repaid him in the days to come."

(Continued on page 120)

THE ROYAL CANADIAN ARMY MEDICAL CORPS

Nuclear Battle Drill

NATO Field Ambulance Exercise

FROM A REPORT ISSUED BY THE DIRECTORATE OF PUBLIC RELATIONS (ARMY)

The role of Canadian NATO medical men in nuclear battle was realistically tested last May in a 24-hour casualty clearing exercise which featured massive care and treatment following a theoretical atomic catastrophe.

Witnessed by high-ranking observers from the armies of Britain, Australia and Germany and closely umpired by British Army medical officers, about 100 members of 1st Field Ambulance, Royal Canadian Army Medical Corps, handled more than 1000 realistic casualties in a three-phase training scheme.

Exercise Mill Hand VI was not a paper exercise. More than 500 soldiers from three of 4th Canadian Infantry Brigade Group's major

Canadian Army Photograph

A detector is ued to determine whether a "casualty" has been exposed to radiation during Exercise Mill Hand VI in which major units of 4th Canadian Infantry Group in Germany participated last spring.

units were used to simulate real casualties. Before arrival at the emergency clearing station, the "casualties" were diagnosed, tagged, bandaged and actually required to play the part of walking wounded or stretcher cases.

Then, as they were fed into the evacuation stream, five medical and two dental officers and about 80 medical other rank specialists carried out all wartime treatments short of actually puncturing the patient's skin.

Where intravenous injections were required, patients had bottles of fluid hung over their stretchers and tubes taped to their arms. All types of emergency operations were played out, with doctors calling for instruments and issuing instructions. Tetanus and antibiotic injections were "administered", seriously wounded were confined to stretchers for three to six hours, patients were fed where they lay or sat, and medical officers and assistants provided full medical and nursing services around the clock.

According to the Field Ambulance's commanding officer, Lt.-Col. R. A. Smillie, Exercise Mill Hand VI was a severe but successful test of sudden, massive-handling emer-

Canadian Army Photograph

Mock surgery is performed by Major Maurice LaFlamme of 1st Field Ambulance, Royal Canadian Army Medical Corps, during the nuclear attack exercise held by Canadian troops in Germany.

gency care and onward dispatch of battle wounded. He said: "In the first phase we sent our casualties further back as quickly as possible. In the second phase we had to hold some while others were evacuated. In the third phase, following theoretical destruction of roads by another nuclear attack, we had to hold and treat all who came to us."

The unit's second-in-command, Major Frank Evans, revealed some of the exercise figures. During the peak period 500 wounded were handled in four hours and a total of 1052 intravenous feedings of dextran, saline or glucose were given.

Realism was carried out to the extent of actually cutting off clothing before surgery.

The Qualities of Leadership

The military leader needs to possess certain essential qualities which enable him to exercise his functions truly and well. The qualities of leadership emerge as the group sets itself to solve some problem, and leadership is indicated in the individual who provides a workable solution to problems as they arise.

A healthy morale state is, without doubt, the essential requirement for the efficacy of any military group. The outstanding fact here is that a high level of internal cohesiveness, the absence of divisive frictions, adaptability to change, and steadfastness of purpose are essentials for the spirit of fellowship and mutual cooperation.—*Journal of the United Service Institution of India.*

Cut Off The Enemy's Tail

A ship at sea is self-contained for a number of months. An aeroplane returns to its main base to be re-supplied, but soldiers remain isolated and scattered in inaccessible parts of the world without being able to carry with them more than a few days' food or ammunition. The problem of land warfare is mainly a problem of logistics, and the introduction of modern weapons has made this problem even more difficult. The easiest way to kill an army is not to attack its teeth and claws in front, but to cut off its tail; and modern weapons have made the means of cutting off the tail much more speedy and effective. —*Lt-Gen. Sir John G. Cowley, British Army.*

Mind Device

A small doughnut-shaped electronic "neuron" which artificially duplicates portions of the human nervous system and carries out learning processes, has been developed by Aeronutronic, a division of Ford Motor Company, Newport Beach, California.

The artificial neuron was developed as part of a research programme sponsored partially by the [U.S.] Department of Defence to build machines that can duplicate some of the activity and reliability of the human nervous system.

The device has been named MIND (Magnetic Integrator Neuron Duplicator).—*From the Army-Navy-Air Force Journal (U.S.).*

THE CANADIAN PROVOST CORPS

PROVOST ARE WATCHDOGS FOR CANADIANS IN NATO

By

CAPTAIN W. J. DABROS, AREA PROVOST MARSHAL AND DETACHMENT COMMANDER, CENTRAL ONTARIO AREA, TORONTO, ONT.*

The twenty-first anniversary of the Canadian Provost Corps (21 June 1961) marked the completion of almost a decade of service for its members in Europe. These services include military operations as well as normal detachment police work, and demand that the Service Policeman performs the tasks of traffic expert, sign-painter, investigator, driving examiner, soldier, diplomat, police official, and even nursemaid, among others.

The Primary Role

Nestled in the picturesque Province of North Rhine-Westphalia of the industrial Ruhr valley, 4 Canadian Infantry Brigade Group maintains its vigil against aggression as part of the NATO Shield. Within this framework, 4 Provost Platoon provides the necessary provost resources to enable this highly mobile striking force to perform its task.

To maintain its fighting efficiency, training within the Brigade Group is continual. Commencing with individual sub-unit and unit training, and culminating in three complete Brigade Group or NATO concentrations and exercises in the late summer and early fall each year, the soldiers of 4 Provost Platoon are constantly called upon to perform their functions. These tasks include route reconnaissance, signing and manning, all in co-operation with the other military and civilian police forces in the areas of operations.

This is the primary role—Operations.

The Secondary but Major Role

Stretching about 30 miles throughout the land of "Dambuster" fame is what the German population affectionately refer to as "Klein Canada" or "Little Canada". Herein lies the secondary, but major task of 4 Provost Platoon—law enforcement.

It is appreciated that law observance is far better than law enforcement. Law observance is the exercise of a desire and willingness from within to comply with established rules, whereas law enforcement is the exercise of a power from without, and generally against the will of the individual. There can be true law observance only if all citizens of "Little Canada" are awake to their responsibilities to fulfil their obligations to Canada of good soldiers and citizens.

There are approximately 15,400 soldiers, dependents and sponsored civilians living in this area in Canadian permanent married quarters and German housing, located in the three towns of Soest, Werl and Hemer. These soldiers and civilians operate more than 3000 privately-owned motor vehicles. They are provided with all the facilities found in a comparable community in Canada.

**The author was commander of No. 4 Provost Platoon with headquarters at Fort Henry in Brandholz, near Soest, Germany, when he wrote this article.*—Editor.

From their arrival until departure from Germany, they depend on the capable Service Policemen for the provision of all police services, for the Provost Platoon bears full responsibility for maintaining law and order in each community of "Little Canada".

The provision of police services in the communities of "Little Canada" is a constant requirement since all soldiers and Canadian civilians do not accompany the Brigade Group on training exercises. To this end, 4 Provost Platoon has been augmented with an additional 26 Service Policemen and 32 interpreters, typists and others who remain in "home locations" to provide this essential service. Conversely, when members of the Platoon are not required for military operations they are dispersed among the detachments in each community and Platoon Headquarters to assist in "municipal" police work.

The coordination of all provost resources is done at Fort Henry, Brandholz, in the office of Major J. M. Walsh, CD, the Assistant Provost Marshal and Commanding Officer. With a policy of "enforcement, with assistance and cooperation", major strides have been made in the past year to improve the services and efficiency of the local

Canadian Army Photograph

Brigadier C. B. Ware, DSO, CD, commanding 4th Canadian Infantry Brigade Group, inspects 4 Provost Platoon. In the left foreground is Captain G. F. Conroy.

Canadian Police force. This is borne out by the fact that local German authorities have never exercised their right to demand primary jurisdiction in cases involving Canadians. The keynote to these successes is devotion to duty and excellent co-operation with the German Civilian Police. Some of the problems, accomplishments, and endeavours of 4 Provost Platoon in this theatre are discussed below.

Registration of Vehicles

On 1 March 1959, 4 Canadian Infantry Brigade Group, by agreement with the British Army On The Rhine, assumed the responsibility for the registration of privately-owned vehicles of all Canadian military personnel, dependents, sponsored civilians and organizations in the Federal Republic of Germany. The supervision, operation, and control of this registry office, known as the British Forces Germany (Canadian) Licence Office, was subsequently made the responsibility of 4 Provost Platoon. Vehicles had to be certified roadworthy and be insured for third party risks before registration; approved Canadian-type licence

Canadian Army Photograph

Colonel A. L. Brady, DSO, CD, Provost Marshal, shakes hands with a member of 4 Platoon, Canadian Provost Corps, during his visit to 4th Canadian Infantry Brigade Group in Germany last fall. On the extreme left is Captain Dabros, author of the accompanying article, and immediately behind the Provost Marshal is Lieut. (now Captain) D. L. Stone.

plates were issued; and persons were issued with driving permits if in possession of valid Canadian permits.

As the number of vehicles increased, so did traffic offences and accidents. It soon became apparent that Canadian drivers were not familiar with international traffic signs, rules of the road, and driving on narrow, cobblestone roads. A better system was required whereby drivers would be tested before being issued with a permit, and potential "road-killers" would be removed from the wheel and educated before they become involved in serious accidents.

Thus began a period of eight months' trials, frustrations, errors, recommendations and conferences, culminating in the production of regulations detailing everything that a Canadian driver or car owner need know for the operation of his car in the European theatre. Regulations are printed in booklet form and issued to all individual drivers and car owners. The job of producing this booklet was given to Captain Dabros, the author of this article, in conjunction with legal officers.

Some innovations of interest in the new "book of rules" are the adoption of a 12-point demerit system similar to that in Ontario; practical and written tests for driver applicants at a Central Testing Bureau; a Safety Council to review individual cases and recommend action; and a Traffic Offender's Clinic to teach and assess those drivers who have had a license suspended, or who have been advised by the Safety Council to attend the clinic.

The inauguration of the "new system" was acclaimed by Canadian and German police and press as "the greatest single step towards saving life on our highways".

Driver Testing and Education

"The greatest single step towards saving life on our highways" is only as good as its enforcement. This "step" was, therefore, supplemented with the establishment of a Traffic Section within 4 Provost Platoon under the direction of Captain J. G. Conroy. Their immediate tasks were the establishment of the Central Testing Bureau and Traffic Offender's Clinic. In preparation for their tasks, personnel were trained at the U.S. Military Police Traffic School at Oberammergau in Southern Germany.

Within a short time, written and practical tests were established to examine potential drivers on rules of the road, common sense application of basic driving principles, recognition of international traffic signs, sight, depth perception, field of vision, colour, coordination and reaction time.

Provided with the most modern equipment and training aids, a course in driving techniques, rules of the road, driver courtesy and attitude was designed for the traffic offender. The aim, of course, is to educate and return the worthy driver to the road, and to permanently "ground" the incorrigibles.

Now the programme had required depth. As the Central Testing Bureau swung into operation, the results were staggering. Sixty per cent of all applicants failed to qualify as drivers! The news spread quickly throughout the area—4 Provost Platoon will not allow an unsafe driver on the road. Senior German police officials from the surrounding counties and the Safety Committee of the Soest County Council flocked to the Platoon to examine this latest venture of the Canadian Service Police. Their verdicts were summed up by Polizeihauptkom-

Canadian Army Photograph

A German police officer and a Belgian MP discuss with L/Cpl. J. A. Cowick, Canadian Provost Corps, the final details at a traffic point, preparatory to a combined move of Canadian and Belgian convoys.

missar Hackbarth of Soest—"Excellent!"

With the adult driving problems seemingly in check, Canada's future drivers were next to receive attention. Armed with bicycles, tricycles and scooters, thousands of Canadian school children are daily exposed to the hazards of traffic. They, too, require knowledge of traffic signs, rules of the road, police and mechanical signals. Can this be done in such a way so that they will absorb the knowledge?

The solution came unexpectedly. While visiting the Iserlohn Chief of Police, Captain Dabros was informed of a mobile "Traffic Garden" consisting of pedal-cars, scooters, bicycles and traffic signs, designed for the instruction of children, and owned by Iserlohn County Police. A request—an agreement—and another example of cooperation came to pass, as the Iserlohn Traffic Garden rumbled towards the Canadian schools at Soest, Werl and Hemer.

After a short lecture to each class, students moved out into the schoolyard where a miniature "down town" area had been laid out, complete with roads, traffic signs and lights. Under Provost supervision, students applied their classroom knowledge to practice. Groups of students moved around the course in vehicles provided, while others, employed as policemen, directed traffic and issued "tickets" to erring drivers.

Was it a success? This question is best answered by a quotation

Canadian Army Photograph

L/Cpl. M. J. P. Harris receives instructions from his Section Sgt. E. H. Woolley, CD, on establishing a Traffic Post during NATO Exercise "Holdfast".

from a German newspaper, the *Westfalenpost*: "The question whether the boys and girls absorbed and enjoyed the traffic school can be spared . . . It would be appreciated very much if the Iserlohn Youth Traffic Garden would give a 'performance' at the German schools in Soest in the near future."

Enforcing the Law

Although German law provides that a vehicle must be certified roadworthy and be insured for third party risks prior to registration, and these prerequisites are, in fact, met by Canadians who receive a safety sticker, at time of registration, there are always some irresponsible individuals who, shortly after registration, allow their vehicles to deteriorate into hazards, or cancel insurance. In addition, easily accessible German beer along the highways increases the driving problem.

An obvious remedy is preventive police action and, once again the Traffic Section swung into action. The German police admitted that they had similar problems with their civilians and agreed to venture with 4 Provost Platoon into this new project — traffic check points. In very little time the project was in operation. Codewords were allotted acceptable points throughout "Little Canada" and lighting plants as required were

obtained through Brigade resources. Now, a 'phoned codeword by either police force would cause a check point to be established within hours, consisting of two Service policemen and two German policemen.

News spreads quickly in this community and it became apparent that check points have a psychological effect on drivers. "Crocks" disappeared, insurance policies were renewed, registration documents were put in order and, most important, the incidence of impaired driving dropped very noticeably. It is difficult to estimate how many accidents are prevented through the establishment of check points, but statistics show that they are having a good effect. By the combined efforts of 4 Provost Platoon and the German police, potential "killers" cannot develop.

Safe Driving Week

"Little Canada" now boasted one of the lowest accident rates of comparable communities under similar circumstances and it appeared that the Provost Platoon was employing all conceivable means to keep it this way. However, Major Walsh was not satisfied. "There are still too many foolish accidents being caused by poor driving habits," he stated. "Although driver examinations make every reasonable attempt to determine driver qualifications, they do not make any prediction as to what the driver will do after he gets his licence. Some drivers are irresponsible and will not drive safely. Others will deteriorate in ability with advanced age, or for other reasons. Therefore there is a need to deal with the driver who cannot, or will not, drive safely."

As a result, April 23-29 was proclaimed Safe Driving Week by Brigadier Cameron B. Ware, for all privately-owned motor vehicles within the Brigade. In his remarks to officially open the programme, Brigadier Ware defined the aim: "To demonstrate to ourselves and others that we can prevent unnecessary accidents."

Once again, 4 Provost Platoon "took to the road" to enforce the programme and, once again, the German police offered their assistance. The strength of the Traffic Section was greatly increased to ensure constant coverage of all roads by patrols.

Various safety leaflets were printed and distributed daily to all Canadian drivers as reminders of their responsibility.

Each day a driver was selected from each community (Soest, Werl, Hemer) and awarded DM 50 as "Driver of the Day". Selections were made by Provost and German police through the use of a standard check list. Drivers who attained high marks and were likely to win awards were stopped, and their cars were examined for safety and roadworthiness. All drivers were stopped and warned of their shortcomings.

At the end of the week, the results spoke for the success of the programme. Decreases in traffic accidents included 9% in major accidents, 18% in minor accidents, 36% in impaired driving and 40% in minor offences. How did the public react? Acclaimed throughout the German press as "The Canadian's Relentless Battle Against Apathy", they summed up the week's activities with: "It is hoped that the indifference towards death and destruction was broken down, and an awareness developed of the individual responsibility each has in the prevention of highway accidents."

Encouraged by what was accomplished by providing incentive and

reminders to citizens, a permanent Safe Driving Programme was instituted by 4 Provost Platoon. A Safe Driving mascot "Fritzi Fox", was adopted and has become synonymous with safe driving. Through messages by Fritzi Fox and the unit news column The Watchdog Beat, which appear in the Brigade newspaper, The Beaver, citizens are constantly reminded of their responsibilities in traffic. Safe driving days have been named throughout the year and plans are now being made to provide trophies, pennants, and pins monthly to units and individuals for accident-free driving in an effort to keep the roads of "Little Canada" safe.

Investigations

Despite the efficiency, preventive policing, and cooperation of police forces, and the efforts and cooperation of citizens, every community has a degree of crime. Although the crime rate in "Little Canada" is especially low, crime does exist.

To cope with all criminal cases of a special or technical nature, a Special Investigation Detachment is organized at Platoon Headquarters. This compares to a "Detective Branch" within a civilian police organization. The case load in Europe is very diversified and varies from those triable under the National Defence Act to those under the Criminal Code of Canada. In addition, the conduct of crime prevention surveys is the responsibility of the SID.

Canadian Army Photograph

L/Cpl. F. L. Campbell and Polizeimeister Lauterbach of the German police sort out a "vehicle accident" during traffic safety training for children of Canadian servicemen.

Since most cases involve German nationals as well as Canadians, co-operation with German police must be of the highest order. SID personnel work very closely with their opposite numbers in the KRIPO, which is the German Special Investigation Branch. Scientific aids to investigations which are not available at 4 Provost Platoon and expert opinions, i.e., paint analysis, etc., are obtained through the USMP Crime Laboratory at Frankfurt, who give freely of their time and personnel when assistance is requested.

SID personnel work in teams, each with their own highly qualified interpreters. Through a policy of cooperation, and a theme of "5% inspiration, 95% perspiration" in investigative work, they are frequently acclaimed in the German press for the successful completion of their cases.

Liaison with
Other Police Forces

If it would be necessary to select one factor that contributes most to the successful completion of tasks of 4 Provost Platoon, it would be liaison with other police forces. Whether the tasks entail military or "municipal" police work, this spirit of cooperation and friendship prevails.

Contrary to some beliefs, liaision is done at all levels and the friendship that it fosters is not restricted to duty. A recent example of this

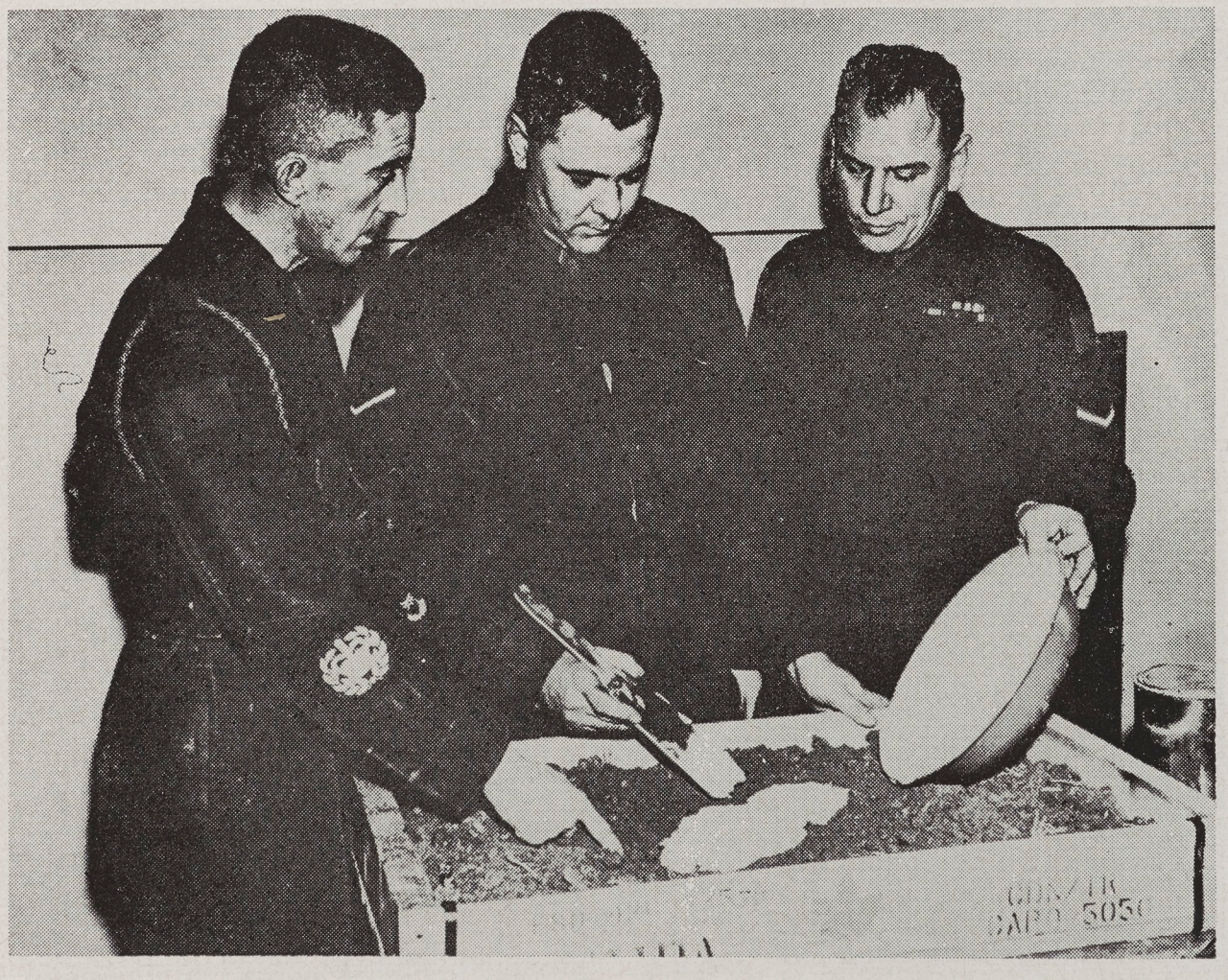
Canadian Army Photograph

L/Cpls. R. Barraclough and R. F. J. Bitovich compare check lists with German police to select a "Driver of the Day" during Safe Driving Week.

fact is provided by L/Cpl. G. R. Henderson prior to his departure from 4 Provost Platoon to Canada. Honoured at a party organized by the German police "rank and file", this Service policeman was presented with a hand-made souvenir shield for "wunderbare Kameradschaft" (wonderful comradeship) and "gute Zusammenarbeit" (good cooperation) while enforcing law and order in the area of Soest. The fifteen-inch shield bearing a hand-wrought key which is the town crest, and a German policeman's hat badge mounted in a mahogany base, was presented by two German police constables who blistered their hands filing the key crests out of sheet metal. The remarks at the presentation are significant: "You symbolize the close fraternity which has developed between our two forces".

Community Activities

The unheralded undertakings of any police force are generally its contributions to the welfare of the community. From locating lost children to organizing youth activities, policemen give unselfishly of their time and effort. Their aim is to provide facilities for the youth to expend their energies, and to foster



Canadian Army Photograph

WO 2 M. L. Shantz, CD, left, gives points to L/Cpls D. Farrington, centre, and R. F. J. Bitovich on the plaster moulding of footprints during a pre-examination course in crime detection conducted by the Canadian Provost Corps in Germany.

good relations between the youth of the community and the police force. Their only reward is a feeling of accomplishment for the welfare of community.

Such is the case in "Little Canada". Members of 4 Provost Platoon volunteer their spare time to organize and supervise such pursuits as Little League Hockey, baseball, Scouts, Cubs, swimming classes, etc. Contributions to three major projects are discussed below.

Scouting: Shortly after his arrival as a member of 4 Provost Platoon, Sgt. J. R. Wilson became Regional Commissioner of Boy Scouts for the Brigade in Europe. He is the highest qualified Scouter in the Brigade and is responsible for the training of leaders and Group Committees. One of his first tasks was to reorganize the Brigade area into a region of three districts, thus improving liaison between the Scout organization in Europe and the National Council in Canada. The Organization now boasts a membership of 550 Cubs, 220 Scouts and 77 Scouters.

Little League Hockey: The 1960-61 season saw 183 potential hockey "greats" in action in the Soest area. Between 8 to 14 years of age, these

Canadian Army Photograph

L/Cpl. W. O. Leverington receives a Brigade plaque from Major J. M. Walsh, CD, Assistant Provost Marshal, for driving 10,000 accident-free miles in the Safe Driving Competitions sponsored by 4th Canadian Brigade Group.

mighty mites entertained both German and Canadian spectators alike with their prowess and knowledge of the world's fastest game. Teaching these youngsters is the voluntary task of L/Sgt. H. D. MacKenzie, 4 Provost Platoon, who is head coach of the circuit.

Swimming Classes: As applications for membership to the various youth organizations were received, it became quite obvious that a large majority of children could not swim. Volunteering to rectify this situation, Sgt Bill Woolley and L/Cpl. Henderson organized weekly swimming classes at the Soest City Pool during the early evening hours. Attendance varies between 40 to 50 boys at each class, ranging in age from 8 to 10 years. All boys were non-swimmers when they started training, and some of them had an absolute fear of the water. To date, 15 boys have "graduated", being able to swim the length of the Olympic-type pool in various ways. "Graduates" usually remain with classes to assist in teaching other boys.

Inter-Unit Activities

Although the major efforts of 4 Provost Platoon were directed to providing the most efficient services possible for the Brigade and its communities, internal unit activities during this period were not left dormant. On the contrary, Service Policemen of 4 Provost Platoon were frequently called upon to fulfil their primary functions as soldiers, in the forms of parades, inspections and training, and it was necessary to keep the internal organization abreast of new developments and techniques in the maintenance of law and order.

A basic requirement for preventive policing is a police force which is conspicuous by its presence throughout the community. This acts as a deterrent to the commission of crime and encourages citizens to report incidents that may come to their attention. To this end, the Provost Platoon succeeded in obtaining specially painted and marked vehicles, two-way radios, and blue flasher lights installed on vehicles for emergency use. This enables the Platoon to provide constant police coverage and to communicate rapidly between communities and with German police as required.

During a liaison visit late last year, Colonel A.L. Brady, DSO, CD, Provost Marshal of the Canadian Forces, toured the Brigade and inspected 4 Provost Platoon Detachments at Soest, Werl and Hemer. After dealing with the police aspects of the unit and meeting German police officials, Colonel Brady spent several days observing Provost operations in the field during a NATO exercise, prior to returning to Canada.

For the first time in the history of the C PRO C, Service Police Group 3 Trades Tests were authorized to provisionally qualify personnel for the higher trade until they could attend and pass the qualifying course in Canada. In January 1961, 31 Service policemen of 4 Provost Platoon underwent six days of written and practical examinations, following a two-week preparatory course, with higher trades pay as an incentive for success. The fact that only nine candidates were successful speaks well for the high degree of military, technical and police ability and skill expected of a Service policeman.

In conjunction with its primary role of maintaining its fighting ef-

ficiency, not only must the unit be trained for war but its stores, weapons and equipment must be of the highest standard. To this end, and in order to meet the members of the various units, a series of inspections are conducted by the Brigade Commander, Brigadier Ware. In a brief address, Brigadier Ware expressed his pride "in having such a unit as 4 Provost Platoon under my command".

Conclusion

Such are the tasks and accomplishments of 4 Provost Platoon in Europe. Theirs is a dual role — soldiers first, and policemen second. As soldiers, they stand ready with 4 Canadian Infantry Brigade Group as guardians of the peace, prepared to move this force into battle, and to fight if necessary. As policemen, they are exposed to a panorama of human troubles, worries and sufferings through which they feel the pulse of the community, and the men who devote their lives to this duty must necessarily be as human as those with whom they deal. They are truly the "Watchdogs" for Canadians and Canada's NATO Brigade in Europe.

Adequate Reserves

It is an accepted principle of tactical doctrine that commanders at all levels must have adequate reserves to deal with unforeseen contingencies, and to exploit success. Not only that—reserves once committed must be replaced or recreated. The application of this tactical doctrine in practice has invariably resulted in the formulation of stereotyped tactical plans retaining immense reserves, from the overall point of view, thus resulting in tremendous wastage of resources with respect to bayonet strength. Unexpected situations will always arise in war, and hence the vital importance of earmarking adequate reserves. But the point of issue is "how much reserves, and at what level".—*The Infantry Journal (India).*

Paying the Padre

The following is an extract from the review "The Services from Parliament" by Anthony Kershaw, MC, MP, in the January 1961 issue of *The Army Quarterly and Defence Journal* (United Kingdom). Referring to the Debate in the House of Commons on the Discipline of the British Army, the writer states:

"In his day he (Mr. George Wiggs (Dudley)) said padres used to draw a capitation rate for church services, and, therefore, there would be a complaint from the padre if the church parade state was low, so in a unit under strength it meant church every Sunday in order to pay the padres!"—*Contributed by Lieut.-Colonel P. R. Layard, DQMG (Development and Design), Army Headquarters, Ottawa.*

Communist China's Strength

In the light of the emphasis which Red China has placed on the use of force to attain its ends, we would do well to recognize that we cannot wisely afford to ignore its steady developing military posture.—*Secretary of the Army Elvis J. Stahr, Jr. (U.S.).*

Napoleon's Colourful Commander

The Finest Hour of Marshal Ney

By

MAJ-GEN. H. ESSAME, BRITISH ARMY (RETIRED), IN THE OCTOBER 1960 ISSUE OF THE MILITARY REVIEW (U.S.). REPRODUCED BY COURTESY OF THE EDITOR OF THAT PUBLICATION.*

Military history is replete with inspiring stories. Marshal Ney's superb character and excellent qualities of leadership aided in sustaining the morale of the French soldier during the retreat from Moscow.—Editor, Military Review.

Great artists, writers, and musicians have seen something elemental in Napoleon's retreat from Moscow. I can handle Marshal Ney's role in it during a brief nine-day period only from a military viewpoint. Of all of Napoleon's well-known commanders, Ney was, perhaps, the most colourful.

Two men, both fighting soldiers in the neighborhood at the time, have left accounts of the retreat which ring true: one on the French side, the gallant and flamboyant Baron de Marbot, commanding the 23d Chasseurs; the other General Sir Robert Wilson, the British Commissioner at the headquarters of Marshal Kutuzov, the Russian Army commander.

Marbot, after serving in most of Napoleon's campaigns from 1797 onward, eventually rose to the rank of lieutenant-general and knew Ney well.

Wilson was typical of that amazingly self-assured and hard-bitten generation of British commanders whose portraits look down from the walls of the London military clubs with jovial arrogance. The British subsidized the Russians. Wilson's job was to see that his government received value for its money. This he did with remarkable efficiency and, indeed, effrontery. He intervened personally in the operations, intrigued against and engaged in abusive arguments with Marshal Kutuzov, and even bullied the czar.

His book, *The Invasion of Russia*, was completed in 1825. Despite its grandiloquent and tortuous English, it reveals the outlook of an honest, straightforward, and simple soldier.

To reconcile the accounts of these two writers, both of whom had vast battle experience, is remarkably easy. The brief narrative which follows is what Marbot and Wilson say happened to Ney's rear guard between 12 and 21 November 1812.

Mid-November 1812 found the Grand Army reduced to approximately 50,000 effectives. When it started to withdraw to Orsha on 12 November it consisted of the units shown in the chart on the following page.

Napoleon and the Guard left Smolensk on 15 November. Eugene's corps, Davout's corps, and Ney's corps, the rear guard, were to follow in that order.

At this time Platov and his 26

Maj.-Gen. H. Essame is a lecturer in military studies under the auspices of the Universities of Oxford, Exeter, and Southampton. Commissioned in 1915, he served in an infantry battalion in the First World War, and commanded an infantry brigade from Normandy to the Baltic during the Second World War. He retired from the service in 1949. He presently is a member of the Institute of Strategic Studies.—Editor.

regiments of Cossacks were in close contact with Ney at Smolensk. Miloradovich's corps and Kutuzov's army were moving south of Napoleon's axis on Krasnoye.

On approaching this town, Napoleon and the Guard found that Miloradovich had reached the road just ahead of them. They, therefore, fought their way through.

The next day Eugene with his corps struck the same roadblocks and succeeded in joining Napoleon but only after losing about 40 per cent of his command.

Napoleon's situation on the morning of 17 November was desperate because the corps of Davout and Ney were just clearing Smolensk. Kutuzov, now southeast of Krasnoye, was in a position to fall with overwhelming numbers either on Napoleon or on Davout and Ney.

As Kutuzov's leading troops apprached Krasnoye from the southeast, Napoleon promptly flung the young Guard at them. This diversion enabled Davout's corps to evade Miloradovich and rejoin Napoleon. Kutuzov now moved his army westward around the outskirts of Krasnoye, thus threatening Napoleon's line of withdrawal.

Napoleon had no alternative but to abandon Ney and fall back on Orsha. Kutuzov, accordingly, much to Wilson's annoyance, decided to call off his attempt to surround Napoleon and to wipe out Ney instead.

Miloradovich's Roadblock

Ney blew up the ramparts and abandoned Smolensk on 16 November. Platov's Cossacks at once closed in on his flanks, front and rear, and a running fight developed.

About five miles east of Krasnoye the road entered a deep ravine. On emerging from it at about 1500 on 18 November, Ney's leading troops found themselves faced by a stretch of open country, flanked by thick woods. A frost fog, indicating a slight thaw, was beginning to form.

Almost at once Ney's forces were swept off their feet by an appalling blast of grape from 40 guns. They had hit Miloradovich's entire corps, 12,000 strong, in a formidable defensive position on commanding ground with a good field of fire and secure flanks.

Faced with this situation, Ney, none the less, decided to force the passage and ordered the 48th Regiment of the Line to assault the posi-

Guard	16,000	(French)
1st Corps (Davout)	10,000	(French)
3d Corps (Ney)	6,000	(French)
4th Corps (Eugene)	5,000	(Italian)
5th Corps (Poniatowski)	800	(Poles)
8th Corps (Junot)	700	(German)
Cavalry	3,500	
Artillery and engineers	7,000	

tion with bayonets. The French soldiers—tired, hungry, and numb with cold—sprang forward at the sound of Ney's voice and carried the batteries.

The Russian infantry almost immediately counter - attacked with fixed bayonets and drove the French back into the ravine. At the same time, the Hulans of the czar's Guard swept through the shattered ranks and captured the *eagle*.

Of the 650 men of the 48th Regiment only 100 returned. The brow and sides of the hill were covered with dead and dying. The wounded, as they lay bleeding and shivering on the snow, begged to be put out of their misery.

Ney now ordered Colonel Bouvier, supported by his remaining 12 guns from the height above the ravine, to renew the assault on the Russian batteries with several companies of sappers and miners. As this attack went in it was met head-on by the Grenadiers of Pawlask and repulsed. Ney then withdrew the remnants of his force into the wood.

Situation—18 November

Night closed in—a Russian night of more than usual bitterness. Ney was in deep forest, in an unknown country, with no food, no inhabitant to give information, and no guide. The vast number of wounded added to the general misery and confusion.

All hope of the rear guard rejoining the rest of the army seemed to have gone. Nevertheless, Ney decided to make the attempt by placing the Dnieper between himself and the Russians. The river was reported to be freezing. The problem was how to find the way there.

At this moment, Miloradovich sent a colonel to Ney bearing a flag of truce, calling on him to capitulate and promising to spare their lives. Ney's indignant reply is historic. "A Marshal of France does not surrender."

As the Russian colonel bore no written orders, Ney, with good reason, refused to consider him as a trucemaker but as a spy and made it quite clear to him that he would be bayoneted if he did not guide them to the nearest point on the Dnieper.

Accordingly, the wounded and baggage were abandoned and the column, guided by the Russian colonel under duress, moved off in silence following a stream which led to the river. The lights of the bivouacs of Denisoff's Cossacks half a mile away helped them to maintain direction, and after four hours of marching they reached the Dnieper. It had begun to snow.

The Dnieper Crossing

They found the river frozen but not hard enough to bear the weight of the column at all points. The first gun placed on it disappeared through the ice. The troops had to abandon all their remaining guns and vehicles. There were many cracks, and in some places the ice was so thin that it gave way when several men crossed at once. Ney had his men cross one by one. While they were doing so, the Cossacks closed in on the men waiting on the near bank and killed about 300.

By dawn, after this nightmare crossing in which many men vanished through the ice, Ney was able to muster 3000 men on the far bank. They were close to a large bivouac of Cossacks. These they evaded, but soon afterward Platov himself appeared in strength on the plain ahead and opened fire on the column.

Ney moved into wooded country

which ran roughly parallel to the Dnieper. The march, harried by the Cossacks, continued all day. That night the survivors reached a village which afforded a little shelter and some food.

Withdrawal on 20-21 November

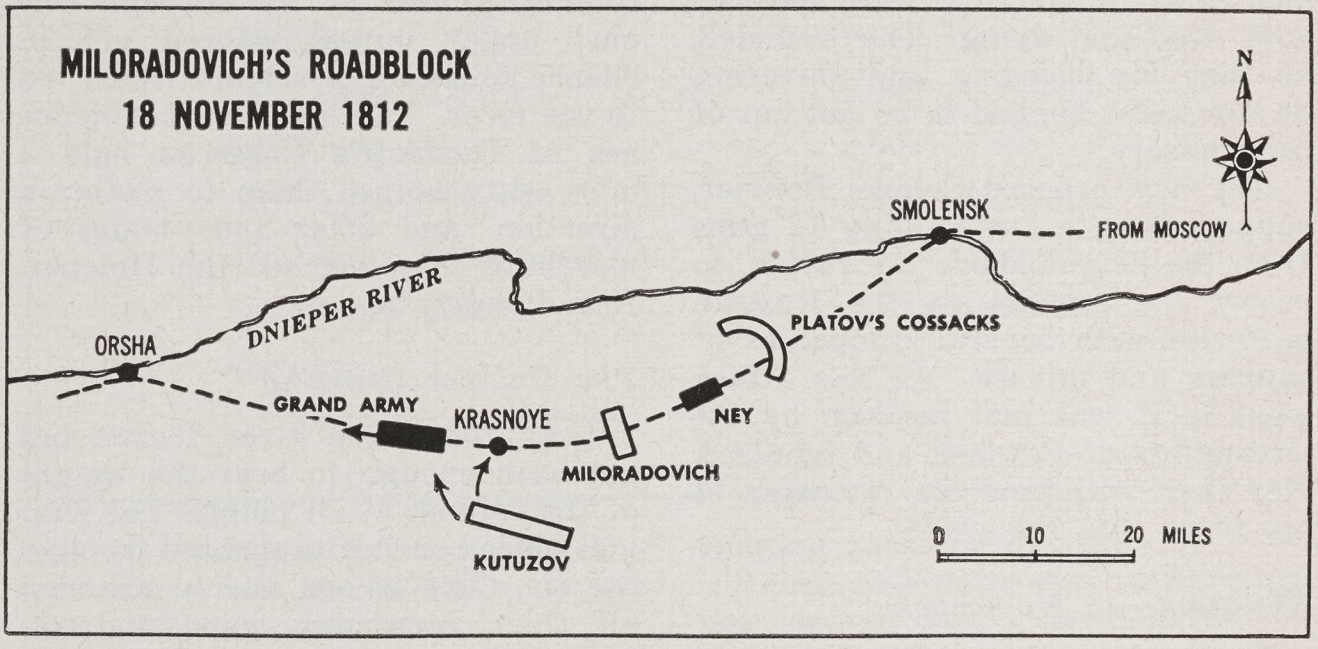
Ney resumed his march through the forest at daybreak. Whenever his men attempted to move in the open the Cossacks fell upon them.

At 1500 they reached a point 25 miles from Orsha. Here the protection afforded by the forest ceased. There were reports of strong Russian infantry forces barring the way across the open country ahead. Two Polish officers now volunteered to go forward to tell Napoleon that the rear guard still existed and was fighting its way back.

Ney moved off again at nightfall. A thick fog reduced movement almost to a crawl. To add to the difficulties of the exhausted men, the track climbed up a steep hill. At last they reached the crest to see to their horror a long line of bivouac fires stretching across the plain. It was indisputably a Russian corps established to cut them off once and for all.

To even the boldest, it seemed that the game was up—but not to Ney. His orders have a classic simplicity. According to Wilson they were: "To advance in speechless silence, and then to make a resolute onset in which, if they perished, their enemies might long remember that they had lived."

The column moved on. When the men reached charging distance of the bivouac fires, there was no one there. The fires were a Russian strategem which had failed.



Rear Guard Rejoins Grand Army

Meanwhile, one of the Polish officers reached Orsha. Napoleon already had left the town, but Eugene and Davout still were there. They set out at once and fought their way through to Ney.

Of the original 6000 who had left Smolensk with Ney, barely 900 men survived. General Wilson, who was an eye-witness on the Russian side, says of Ney:

It is impossible to eulogize too highly the spirit, energy, and constancy exhibited by Ney through so many trials of these qualities. The whole achievement confers honor not only on Ney and his meritorious comrades, but on the military profession at large, which derives general luster from such transcendent exertions and exemplary valor.

When Napoleon, on hearing of Ney's safe return, exclaimed, "I have 200 millions in the vaults of the Tuileries. I would give them all for Ney's safety," he must have meant what he said.

Conclusion

The military history of nations other than France includes similar inspiring stories. The main value of this report lies in the light it casts on the morale of the French soldier under inspired leadership in the Napoleonic Wars.

In this instance the 48th Regiment of the Line suffered 70 per cent casualties in one assault but the remnant still were prepared to fight on. Three days later, after appalling suffering from hunger and cold, continuously harassed by a ruthless and more mobile enemy, the rear guard, although reduced to one-sixth of its original strength, was still a fighting entity, obedient to the orders of its commander.

The factors on which the high morale of the French soldier was based at this time merit discussion. They were six in number.

First, he was in no doubt of what would happen to him if he fell into enemy hands. He knew only too well that he would be stripped of his clothing and, in all probability, murdered.

Second, he marched. The Guard had gone all the way on foot from Paris to Moscow and was now on its way back. Each day's move demanded an effort of will and endurance. He accepted physical suffering as part of the nature of things.

Third, he was inured to a life on short rations. French arrangements for supply were haphazard and inadequate. The soldier learned to shift for himself. This, paradoxically, was bad for discipline but good for morale. He learned to use his individual initiative — if he did not, he starved.

Fourth, he had *égalité*. This he interpreted as meaning not an equal sharing of all comforts and miseries, but as the chance for every soldier, if good enough, to rise to the highest rank.

Fifth, he had blind faith in the military genius of Napoleon. He felt he was fighting for a cause—in his case vaguely embodied in the mystic word France—the concept which undoubtedy inspired De Gaulle when he made his great decision in 1940 and which is still a source of strength today.

Finally, he had confidence in and respect for his officers. Long war had ensured the emergence at all levels of men who could rise to the occasion on the battlefield itself. These leaders were acutely conscious not only of their privileges and status in society, but also of their obligations. The supreme example is Ney himself. When called upon to surrender he—a onetime non-commissioned officer — automatically rose to the level of his rank. "A Marshal of France does not surrender."

These factors do not necessarily provide a formula for the maintenance of morale in future wars. They do, however, provide a challenge to all who have to study the subject.

Image of the Commander

(Continued from page 96)

Nothing is more damaging to the morale of combat troops than the impression that a critical event in their lives is regarded with indifference by the very leaders responsible for their safety.

Many commanders have found that distinguishing trademarks have aided in establishing both recognition and rapport. The custom probably is as old as warfare itself. A sprig of broom worn in the helmet of Geoffrey of Anjou gave the name "Plantagenet" to an entire line of English kings.

In World War II the sight of General Patton's ivory-handled revolver became so well known that he is reputed to have told a soldier, "If I were seen without this gun, no one would know me. I might just as well go without my . . . pants!" But the use of the trade-mark is not without its pitfalls. It must be judicious or it would be degraded into a caricature.

Field Marshal Montgomery's use of a double-badged tanker's beret is a classic example of the more successful military signature. His memoirs make clear the deliberation with which he set out to find an appropriate symbol—first using an Australian hat, then changing to a tank beret, and later adding an extra cap device as a final distinctive touch. In his own words he set out to be "not only a master but a mascot."

Although the essence of morale is emotion, General Montgomery analyzed it intellectually, first recognizing the need and then fulfilling it. That his personality is also particularly well-suited to this approach in no way detracts from the basic soundness of his attitude, and the restoration of morale to the shattered Eighth Army on the eve of the Battles of Alam Halfa and El Alamein will rank as one of the finest military achievements.

Oil Strike in Negeb

The Israeli Government has announced discovery of a second oil field in the Negeb desert area. An earlier strike known as the Heletz oil field is now producing about 10,000 tons of oil per month or approximately eight per cent of Israel's crude oil requirement.—*News Item.*

Leadership in This Era

The importance to military strength of leadership of uncompromising quality is not by any means lessened by the advances in technology which have taken place. On the contrary, the importance of such leadership has been greatly magnified. These technological advances mean that war in this era could take forms and reach intensities which differ from anything in human experience. In addition to absorbing the great emotional and psychological shock of combat, men must now overcome the instinctive human dread of the unknown. The responsibility to imbue them with the determination and courage to do so rests squarely upon their leaders. This responsibility has increased in direct proportion to the intensity of the pressures which must be withstood.—General Lyman L. Lemnitzer in the Military Review (U.S.)

THE QUEENS PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1961

H.Q.4521-C-3
18.725-8-61-(989)