Canadian ARMY Journal

VOL. XVI No. 2 1962

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. Reproductions of the text, in whole or in part, including quotations from the Journal are permitted only if readers are informed of this fact by suitable introductory or interpolated note.

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The 10th Battalion Royal Grenadiers (now The Royal Regiment of Canada) fight their famous engagement at Batoche in 1885 during the North-West Rebellion. See "The Royal Regiment of Canada Celebrates Centennial", page 53.

An Essay

The Qualities of Leadership

By

CAPTAIN M. RIOUX, RCA, CANADIAN ARMY SAFF COLLEGE,
FORT FRONTENAC, KINGSTON, ONTARIO *

God gave men dominion over the beasts and not over his fellow men unless they submit of their own free will. — Napoleon. [1]

Through his superior intellect man has proved his superiority over beasts and machines by subjugating the former, and by inventing the latter; among themselves, men have been created equal.

Diogenes, the Greek philosopher, used to walk the streets of Athens in daylight with a lighted lantern proclaiming: "I am looking for a man." Of course, Diogenes was looking for a man to whom others would entrust their destiny, a man who among all his qualities had a deep understanding of human nature.

Understanding of Human Nature

The beginning of leadership is a battle for the hearts and minds of men. — Montgomery. [2]

Human nature has not changed much since the dawn of the Greek civilization: man is still subject to fear and its main source, the unknown. Complete ignorance is practically eradicated, but this increase of knowledge has been more than nullified by the advance of science. Life is still a battle against death, and this battle makes man self centred in his own life, his family, and the ones he loves.

This constancy of human nature is reinforced by many factors which make every individual different. From his infancy every man has been subjected to many diverse influences: his family, his school, his church, his friends, his surroundings, etc. (These influences determine how each man might be led towards a common goal.)

This task of orienting men towards a desired goal might seem insurmountable unless it is realized that men is essentially a social animal filled with energies that demand release. To obtain the right to focus these energies in a given direction, the leader must possess certain attributes.

Should the leader be above reproach? To what degree should he possess in-

1. Raoul Brice, *The Riddle of Napoleon*, p. 7.
2. Field Marshal Viscount Montgomery of Alamein, *The Path of Leadership*, p. 10.

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tegrity, loyalty? Should he be a teetotaller, a non-smoker? These questions are riddles that could have belonged to the repertoire of the Sphinx of Thebes. Nelson was not loyal to his wife, Napoleon showed lack of integrity by his *Coup d'Etat* in 1799, Montgomery does not drink, and Churchill does. The answer may lie in the old Roman maxim: *"In medio stat virtus"*. The leader must stay away from extremes, he must not offend in any way the moral standard of his followers. Above all, the leader must be a man of honour. "All is lost save honour," Francis the First said at the battle of Pavia. The leader must develop a deep and sincere love for human nature. There is no man in the world who cannot teach us something, or who cannot capture our interest; there is no man who cannot be moved by honour, if given a sense of dignity.

The leader must be a strong disciplinarian without forsaking magnanimity; he must be just and indulgent; he must infuse ambition and professional pride in his followers. "It cannot be done" is a vacuum that must be replaced by a challenge; Napoleon had men manning a battery under fire by posting a sign at the guns: "The battery of men without fear." A soldier's, or any man's conduct is shaped by what is expected of him.[3] "Most people bear within themselves the seeds of good and evil, of courage and of cowardice;"[4] the leader must know how to touch the right cords of the human heart to obtain the desired accord.

To understand human nature, to know how to guide individuals along a certain path, is not sufficient to obtain results. The leader must persuade his man towards their goal. "The danger with most leaders, today, is that their appeal remains too intellectual, too reasoned, too much in the realm of ideas."[5]

Scientists have proved that the brain, and not the eyes, perceives the form of an object. This theory is also accepted by all philosophers who stipulate, however, that it is the imagination, and not the intelligence, which performs this operation, otherwise the animal would be an intelligent being. As all knowledge is acquired by the senses, it is evident that it must pass through the imagination. The process of bypassing the imagination often leads to a misunderstanding of the goal to be reached by the followers.

A leader can be successful only if he appeals to the imagination. Roosevelt did not expose his economic theories to the American people — he talked of his "New Deal." Even Christ, the personified Intelligence, always talked to His followers in parables, that is, by going through their imagination.

Knowledge

At the root of Alexander's victories one will always find Aristotle. — de Gaulle.[6]

That a leader must be endowed with a general culture is a truth of La Palice, a self-evident premise. To understand his men, their weaknesses and qualities, to appreciate how to move confidence lay much of his power to his followers, the leader must have

3. Charles McMoran, *The Anatomy of Courage*, p. 187.
4. Emil Ludwig, *Napoleon*, p. 541.
5. Ordway Tead, *The art of Leadership*, p. 91.
6. McMoran, *op. cit.*, p. 194.

knowledge. This knowledge of the leader must be varied so that his followers can recognize in him the example, the exponent of their own ideals.

The only way to create a sense of permanent interest, to develop loyalty in a group of individuals with diversified background is to teach them the aim of the organization and its principles of operation. It is imperative that the soldiers learn the basic concepts of the Western philosophies, the form of government they may be called to defend. The leader must study his country's constitution, its economy and its orientation in the family of nations, to inform and educate his soldiers.

The art of war is an evolving science that can be studied in peacetime only by using others' experience; it is therefore imperative to reflect on history and to assimilate the qualities of the great captains. Napoleon became one of the greatest commanders "by applying the lessons of Alexander, Hannibal and Caesar."[7] As Napoleon pointed out, the study of history is the only true philosophy,[8] for it is based on facts and not on theory.

The military leader must know how to use the tools of his profession; the same is expected of the mathematician, the economist, or the doctor. The art of war, however, is more complicated as it is nurtured by all spheres of technical and scientific discoveries. The battle commander must have a thorough knowledge of the organization of the forces at his disposal; he must understand the capabilities and limitations of his weapons.

The leader must train himself to use the tools at his disposal; he must also train his soldiers to be proficient in team work, in reacting to his orders under the most adverse conditions. The better leader will bring all aspects of his general and professional knowledge to bear upon his main drive; he will have an open mind on many fronts, and diverse interests which will serve to enrich his major one, that is, the highest efficiency in his professional career.

From his knowledge, the leader will acquire three fundamental qualities necessary to lead men: flexibility of mind, common sense, and confidence.

A flexible mind is the willingness to listen to others' advice, to keep an open mind; it is the capacity to conceive and absorb new ideas for further implementation; it is also the ability to change readily, remembering that the only organization that survives in this world is the one that adapts itself to circumstances.[9] The Roman Empire died, the British Empire lives in the Commonwealth.

Common sense is the assimilation of knowledge which expresses itself by the ability to compare, to discriminate, and to judge accurately. Nobody is born with it; it is acquired through experience, studies and readings. *Le sens du praticable* is the result of observation and reflection on acquired knowledge. Enough common sense is genius: Newton discovered the principle of gravity by observing the fall of an apple from a tree.

Knowledge is also the surest guarantee of self-confidence, self-control and self-discipline. In Napoleon's self-

7. Hittle, *Jomini's Art of War*, p. 1.
8. Ludwig, *op. cit.*, p. 468.
9. McMoran, *op. cit.*, p. 18.

inspire complete confidence in others; and this confidence was the moral force of his army which is as three to one to the physical.[10] Nothing is impossible to the man imbued with confidence: "The world stands aside to let pass the man who knows whither he is going."[11]

Motivation

The greater leaders feel themselves commanded by a power and strength which they in turn command. — Ordway Tead.[12]

By studying the lives of great men who made history, it becomes evident that they were driven by a force which transcended their persons. Alexander wanted to unify the Greek and Barbarous worlds, Napoleons' aspiration was to leave his name to history, de Gaulle is moved by his faith in the grandeur of France, Khrushchev believes in the ultimate victory of communism.

Motivation is the intangible force which drives a man to acquire a superior knowledge and understanding, it is the sustaining power in the performance of the ever-boring quotidian tasks, it is the source which engenders enthusiasm, a Greek word which means "possessed and inspired by some divinity".

Philosophers claim that once the intelligence has appreciated the intrinsic value of a "Good", then the will should perform it *ipso facto*. Why is this so rarely done? Because the will is surrounded by flesh and blood. Motivation is this force which maintains in equilibrium the pull of matter and leaves the will free to execute.

Motivation is the force and also the reward of the leader; its selection is not easy.

Mussolini preferred to live one day as a lion rather than one hundred years as a sheep. In his youth, Napoleon wrote to his father saying that his only happiness consisted in the highest possible development of his faculties.[13] Hannibal was driven by his hate of the Romans. The Three Hundred at Thermopylae were guided stoically by their duty towards their country, as indicated on the epitaph:

Go tell the Spartans, thou that passest by,
That here obedient to their laws we lie.

Other leaders have been motivated by either ambition, honour, love of power, or riches. The highest and noblest motivation is not a guarantee of success; in most cases of higher leadership opportunity seems to have played the greater role in the development of a leader. Napoleon, explaining his career, has affirmed that a "man is only a man, he can do nothing unless circumstances are in his favour."[14]

Opportunity plays a great role in the career of any man. Churchill needed a war to show his statemanship, de Gaulle was given power because of the threat of a civil war. Nevertheless, it is true to say with Montgomery that "Fortune or fate decides one half of our life, the other half depends on ourselves."[15]

10. Normand Copeland, *Psychology and the Soldier — The Art of Leadership*, p. 11.
11. Tead, *op. cit.*, p. 94.
12. *Ibid.*, p. 99.
13. Ludwig, *op. cit.*, p. 35.
14. Brice, *op. cit.*, p. 319.
15. Montgomery, *op. cit.*, p. 119.

Opportunity seems to strike at the door of only those men who have prepared themselves for greater things, those men whose minds are oriented towards a great unselfish ideal. Opportunity is the negatively charged magnet which will be attracted only to a positively charged magnet; opportunity will be attracted to the man who has prepared himself to receive it, the man who has developed a strong and receptive personality.

Personality

The personality of the general is indispensable; he is the head, he is the all, of an army. The Gauls were not conquered by the Roman Legion, but by Caesar. It was not before the Carthaginian soldiers that Rome was made to tremble, but before Hannibal. It was not the Macedonian phalanx which penetrated into India, but Alexander. — Napoleon.[16]

"Personality is the extent to which the individual can convert his abilities and energies into habits and actions which successfully influence other people."[17] It is hard work, imagination, and will power.

Understanding of human nature, knowledge and motivation are three indispensable qualities of leadership, but they will be useless unless they are projected and recognized. No guardian angel will mysteriously whisper to the followers that "There is a leader": he must project himself in his speech, his writings and his deeds.

The leader must express himself simply, accurately and with originality. This means work to assimilate his knowledge, to develop his memory and his judgement, and to express new ideas. Lincoln's statement about "the government of the people, by the people and for the people" is an old idea; but, the way it was expressed, it electrified the Union's soldiers at Gettysburg. President Kennedy, in his inauguration address, gave hope to the whole world by expressing with imagination the wishes of many antecedent American administrations: "We will not negotiate out of fear, but we shall not fear to negotiate."

Imagination is the quality that a leader must cultivate; it is the ability to create new ideas by the juxtaposition of old ones; it is the source from which stem initiative and originality. Kennedy's New Frontier, de Gaulle's Grandeur of France are ideas that fire followers with enthusiasm. As Wavell said: "The Commander with the imagination — the genius, in fact — to use the new forces may have his name written among the great captains."[18]

Today, for example, a leader could express to junior officers the importance of maintaining radio communications by expressing the following idea: "Your leadership, on the battlefield, will ride on a wave-length".

Will power is character, the ability to face facts and to decide on a given line of action. It is the assimilation of

16. Lt.-Col. A. I. Akram, *On Relative Strength,* Canadian Army Journal, July 1959, p. 97.
17. Copeland, *op. cit.,* p. 13.
18. General Sir Archibald Wavell, *Generals and Generalship,* p. 10.

great truths: "A man must wish to live and know how to die", "The faith in supremacy of Christian principles over death", "One does not elevate himself by lowering somebody else." These truths guide the intelligence in estimating the value of daily events; and the will decides on the line of action without effort because it is sustained by principles that transcend it. *Qui morituri te salutant* (Those who are about to die salute you) was shouted in front of Caesar by men who estimated death to its just value: nothing.

Will power also engenders courage, the legitimate child of the will. War does not transform a man, does not make a brave person out of a coward; it simply exaggerates the good and evil in each man. Courage is an inexhaustible strength from which the leader will draw coolness in the face of danger, audacity in his planning, and endurance to stand the strain of responsibilities.

Signs of will power are the willingness to acquire knowledge and to apply it at every opportunity; it is the desire to study human nature; it is also the assimilation of great principles that will guide one's life. The result will be success which will sustain and reinforce the will power.

Sun Tzu, a Chinese general who lived more than 2500 years ago, appreciated to its just value the greatness and necessity of leadership when he wrote:

Now the general is the bulwark of the state: if the bulwark is eomplete at all points, the state will be strong; if the bulwark is defective, the state will be weak." [19]

To be completely a good and great leader, a man must acquire these four basic qualities of leadership: understanding of human nature, knowledge, motivation, and personality.

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(Continued on next page)

19. Brigadier General Thomas R. Philips, *The Art of War by Sun Tzu*, p. 50.

New Army Organization

Comptroller General's Branch

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

A new Army organization, to be known as the Comptroller General's Branch, has been authorized and will come into being on 1 August 1962.

Brigadier L. G. C. Lilley, DSO, CD, a distinguished career soldier, and Commander and Chief Engineer of the Northwest Highway System since August 1960, will be promoted to the rank of major-general and appointed Comptroller General of the Army.

The basic role of the Comptroller General's Branch will be to coordinate all financial aspects of Army activities and ensure the financial impact of all Army programmes is fully and uniformly considered at all stages.

The Comptroller General will provide effective correlation of Army manpower to finance. The organization will provide an essential service in recording, reviewing, analyzing and interpreting monetary terms as an aid to the making of sound operating and administrative decisions.

The organization of the branch will consist of three Directorates:

(a) *Directorate of Army Budget.* This now is operating within the Army organization and will continue to function.

Maj.-Gen. Lilley.

(b) *Directorate of Financial Management.* All personnel now employed in the various spending Directorates will be correlated under the Comptroller General.

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(c) *Directorate of Manpower Control and Management.* The present Army Establishments Committee and the Directorate of Staff Duties dealing with the Canadian Army (Regular), Canadian Army (Militia) and civilian personnel of all static establishments will be grouped under this Directorate. This Directorate will also be the Army agency responsible for the coordination of management studies, systems improvement and manpower utilization analyses.

Responsibilities and authority of General Officers Commanding Commands concerning command and administration will not be affected.

Biography

Brigadier Lilley was born in Saint John, N.B., on 11 June 1913 and attended the University of New Brunswick.

He served with the Militia before the war and was commissioned in the Royal Canadian Engineers in December 1939. A member of the 1st Canadian Division, he commanded the 3rd Field Company RCE, which he led in Sicily and Italy.

In 1944 he was appointed Commander, Royal Canadian Engineers, 2nd Canadian Division, and later was Staff Officer, Royal Canadian Engineers, at Headquarters First Army.

He returned to Canada after the war and was Assistant Quartermaster General at Army Headquarters until 1947 when he was appointed Commandant, Royal Canadian School of Military Engineering, Camp Chilliwack, B.C.

Brigadier Lilley attended the Canadian Army Staff College in 1949, then became Command Engineer Officer at Western Command, Edmonton, until appointed Director of Works and Accommodation at AHQ in November 1950 in the rank of colonel. In April 1952 he became Director of Works and four months later he was appointed Deputy Quartermaster General (Works and Quartering). He was appointed to the rank of brigadier in March 1955.

He attended the Imperial Defence College in 1958 and was then appointed Commander, Central Ontario Area, Oakville, Ont., on 1 February 1959. In August 1960 Brigadier Lilley was appointed Commander and Chief Engineer of the Northwest Highway System.

Role of the Rifle Not Changed

In any type of military operations, one thing that has not changed is the importance of the soldier's mastery of his individual weapons, fundamentally the rifle.

One of the basic requirements of modern warfare is the greatly increased dispersion of units. In order to minimize the effectiveness of any enemy's firepower, our units will be dispersed over a much larger area than ever before. As a result, they will have to be more completely self-sustained and their members will be called upon to exercise an even higher degree of individual self-reliance. Cannoneers, cooks, and clerks must be ready and able to defend themselves against sudden enemy raids.—*General Lyman L. Lemnitzer in the "American Rifleman" (U.S.).*

IS BOXING DEAD OR ONLY DYING?

By

CAPTAIN B. N. SEATON, FITNESS AND RECREATION OFFICER,
CAMP GAGETOWN, N.B.

"Detested sport that owes its pleasure to another's pains".

The Crazy World of Gus D'Amato

In this world of automation and TV, boxing is dying. With the little clubs vanishing through lack of support, there is no breeding ground for young boxers and so the old ones go on and on and on. Old Archie Moore and Sugar Ray Robinson are symbols of a sick sport.

Lack of drawing cards has given the whiphand of monopoly to such adept handlers of available talent as Gus D'Amato who can steer their protégés through a careful procession of "boxing bums". This is directly responsible for poor showings such as the Patterson-McNally fight and will surely sound the death knell, I think, of professional boxing.

No less savoury is the situation in amateur boxing where youngsters with boxing promise get no time to acquire a semblance of science and are hustled into the professional ranks. Fortunately, the opponents they meet are, in general, equally mediocre but occasionally some artful dodger like Old Archie Moore batters them swiftly into oblivion and retirement.

What is there, therefore, in boxing for the amateur in civilian life? For the badly-handled novice — nothing save injury and punishment as an inevitable end to a general lack of tuition and mismatching. For the well-handled novice — a thorough grounding in the skills of boxing, and careful matchmaking will bring him an enjoyment in his newly-acquired technique and in competition and can take him to the top of the amateur ranks. If he is oustanding he can then, like Patterson or Cassius Clay, fight for money, having served a real apprenticeship and become a master of his trade.

Army Boxing's Own Headaches

"Therefore never send to know for whom the bell tolls, it tolls for thee".

Comparison of Army with civilian boxing shows the former to be perhaps not yet in the death throes but definitely in a swift decline. The main root to the whole evil cause of the decline is revealed by two questions:

1. The novice class in Army boxing has always produced plenty of excellent boxers and bouts. Why do so few of these novices continue boxing as open boxers? Could it be that they are badly handled when boxing or see no future in it?

2. Over 90% of the boxers in the last Army Championship came from infantry battalions and some of them had fought since the first Army Championship. Why was there so little participation by any rank higher than private soldier or by the other arms or service units?

If the reader had attended every Army Boxing Championship for the last six years he would probably have been most favourably impressed by

the officiating of referees even if he did not agree with all the decisions.

If he had studied all the programmes, however, he would have seen that the boxers stand still in rank. The easy explanation is to say that these men are "boxing bums", unfit for promotion, but the fallacy of this is shown by the fact that so many get promoted when they stop boxing — and in their own units, at that.

The Answer

No, the answer lies in the fact that Army boxers go on a full-time training schedule from October to mid-April. This causes the following:

1. A complete halt in the boxer's professional advancement since this is the period in which he would have received his individual training. At least two Open Army Champions were still drawing recruit's pay.

2. By full-time training the infantry have virtually eliminated unit opposition such as armoured and artillery regiments whose technical commitments make this impossible. The result is the last-minute face-saving entry in the Command Championship of obviously inadequate opposition to the infantry. This lack of opposition is too often reflected when Army boxers get beaten by less trained civilians with more fights to their credit.

3. Army boxers fight three-round fights at ten-round fight speed. It is not possible to maintain the impetus required with an eight-hour training day; the idle boxer wastes his time, the hard worker develops the long fight pace or goes stale.

4. Although well protected by officials in the ring, boxers suffer through misemployment out of it. Obviously, soldier-boxers excused duty and military training from October to mid-April are difficult to employ for the rest of the year and so end up as fatigue men, runners and so on. The excusing of boxers from all duties also creates a great deal of resentment against them in the unit.

Are Boxing's Benefits Worth the Headaches?

Boxing gives the boxer certain obvious physical benefits: it has a high fitness value and provides an effective outlet for the safe release of the young soldier's excess energy. Furthermore, it can provide boxers in isolated camps with an excellent spare-time recreation once they have obtained an interest in boxing techniques. Lastly, it is a contact sport and this is one of the most important physical benefits: it is most essential that any soldier should be accustomed to violent personal attack and react immediately.

There are also certain aspects of character that can be strengthened by boxing. Given a good manager, coaches and referees, it is a tremendous builder of self-reliance and confidence. Few places are as lonely as a ring with a large crowd of spectators. Three other qualities invaluable to a soldier that it teaches are training and fighting to plan, control of nervous tension and steadiness under pressure. Lastly, boxing enforces the suppression of truculence and temper and this is invaluable in these days of policing countries like the Congo.

So much for the physical and character development of the soldier and now

for the benefit of boxing to the unit. Firstly, no unit ever having had a boxing team that has put up a good show — win or lose — will doubt the morale effect of a campaigning boxing team. Somehow, a unit seems able to identify itself with the man in the ring and this is equally applicable to the company size team as to the battalion or regimental team. Secondly, the financial considerations of well-run boxing shows are by no means to be dismissed lightly in these days when most Commanding Officers have to fight to keep the Regimental coffers in a healthy state.

The immense impact on the civilian public of the Army Boxing Championship, especially in Winnipeg, speaks for itself. Apart from the spirit and keenness of the boxers the public are normally tremendously impressed with the standard of organization and officiating. The benefit of excellent public relations created by boxing at the Army level is inestimable.

Do We Bury Boxing or Revive It?

The very real benefits to soldier, unit and the Army outlined above make any attempt to overcome the abuses and disadvantages covered earlier a worthwhile project. The following steps are recommended as measures that will achieve that end:

1. All soldiers should be taught the elements of self-defence by the minimum number of boxing periods during physical training at recruit training stage and be required to use the skills learned at least once in the ring.

2. Boxing instruction should be included during the normal unit physical training for those interested in boxing. This could be taught whilst the boxer was being conditioned by using a modern circuit training system. The advanced skills should be stressed such as attack or defence techniques and counter punching. Basic lessons like footwork should be reinforced and brute force minimized at all stages.

3. The boxing season should be limited to the period mid-January to mid-April by order, decree, agreement or whatever measure is necessary.

4. Units should give boxers every opportunity to complete specialist and NCO courses by the end of December and group them into platoons, or equivalent, for ease of administration and continuing military training during boxing training.

5. Boxing training should consist of one hour in the morning, one in the afternoon and a possible third one in the evening. *All training periods should be conducted at top speed,* working up to a three-minute activity, one-minute relaxation peak.

6. Maximum emphasis should be placed on competition: competition improves condition, cuts down training time, relieves the tedium of training and decreases fight nerves. Competition gives a welcome break in routine by a change of scenery. As many fights as possible with good civilian boxers should be obtained for added experience and unit teams should aim at fighting at home or away approximately every two weeks.

By Whose Hand Shall Boxing Die?

The solution is simple but the power to implement the remedy is in the hands of the advocates of full-time training. Given their support, Army boxing can rise like Phoenix from the ashes, but without this it will surely die.

BOXING TITLES FOR CANADIANS

Four boxing titles, two won by knockouts, went to boxers from Canada's 4th Canadian Infantry Brigade Group during Divisional title fights in Dortmund, Germany, last March.

Seven individual finalists out of 16 Canadian Army entries won for Canada's NATO Brigade two knockout and two walkover victories in the annual boxing finals of the 14th British Army Division.

Privates H. C. Buffet of St. John's, Nfld., and G. A. Izzard of New Glasgow, N.S., both members of the 1st Battalion, The Black Watch (Royal Highland Regiment) of Canada, won the light middle and the middleweight titles, respectively, by knockouts.

Signalman R. J. Murphy, Toronto, a member of the Canadian Corps of Signals attached to the 3rd Regiment, Royal Canadian Horse Artillery, won the flyweight title by a walkover, and Rifleman K. E. Walsh of St. John's, Nfld., 1st Battalion, Queen's Own Rifles of Canada, took the light heavyweight crown.

Rifleman L. Drover of Hodge's Cove, Nfld., QOR of C, took a close decision over Private J. P. Burns of New Waterford, N.S., The Black Watch, in a special bout in the welterweight class.

Three other finalists were Guardsman W. F. Keetch of the 1st Battalion, Canadian Guards from Ajax, Ont., and Privates D. E. Jefferies, Halifax, N.S., and M. R. McLean, Tuft's Cove, N.S., of The Black Watch.

Team Manager was WO 2 John Mitchell of Toronto, The Black Watch; coach, Guardsman J. T. Chesson of the 1st Battalion, Canadian Guards; trainer, Corporal G. Macdonald of The Black Watch; and dresser, Corporal W. W. Desaulniers of the Black Watch. — *From a report issued by the Directorate of Public Relations (Army).*

Disease Now Jet Propelled

We live in an age of speed. Disease is now jet propelled. Epidemics, no respecters of national frontiers, used to proceed across continents slowly; now they can be carried to the far corners of the earth in a few hours.

Most diseases have a period of incubation. This is the time between the infection of the victim and the appearance of the symptoms, and is often the most infectious stage of the illness. Fifty years ago a person could not travel very far during this period and it was possible to limit the spread of disease by a system of quarantine. Today a man may travel half-way around the world and infect thousands of people before becoming aware of his condition. An epidemic of small-pox originating in Pakistan, for example, recently spread as far as Great Britain before it was recognized to be an epidemic in the country of origin.

With control of epidemic diseases so difficult, the answer is eradication. — *From "The World Health Organization" in the United Nations World Review.*

Latest Army Bridging Techniques

British Information Service

British Army engineers prepare to construct a floating bridge at a demonstration of military engineering techniques and equipment at the School of Military Engineering, Chatham, England. Unlike the old type of pontoon bridge, which had to be transported to its site by trucks, the new techniques enable lightweight pontoons to be used. These can be brought up by helicopter.

National Survival

Mapping For Survival Operations

PREPARED BY THE DIRECTORATE OF MILITARY SURVEY,
ARMY HEADQUARTERS, OTTAWA

Maps are essential to the conduct of all military operations. In the case of National Survival this need for maps falls in two categories:

1. The pre-attack phase when re-entry planning would be done and a resources inventory made, and
2. The post attack phase during re-entry operations.

The re-entry use of maps is similar to that of any other military operation. On the other hand the pre-attack analysis of each target city is new, and possibly needs some elaboration. As can be imagined, a wide variety of supplies and resources are needed in re-entry operations. Their location must be known and their acquisition must be almost immediate. Some items in the list of stores required are obvious; food, clothing and shelter are in this category. But if careful thought is given to the situation it will be realized that additional supplies such as vehicles, engineer equipment, medical supplies, building material, tents, etc., will be needed, and the source location must be known. In short, the location of all sorts of facilities such as doctors' offices, nursing homes, used car lots, construction contractors' yards etc., must be plotted and recorded; and the obvious method is to use the Universal Transverse Mercator (UTM) coordinate system on the standard military map. The UTM coordinates of each type of supply can be stored in electronic data processing systems for quick tabulation and presentation.

In addition to resources plotting a physical analysis of each city is necessary in pre-attack planning. The density of buildings, the probable location of rubble lines, areas of buildings where total roof area is above a given percent, and many of the other physical characteristics of a target city must be located and plotted on a map. Again the need for good up-to-date gridded maps is apparent.

Shortly after the Canadian Army was given the responsibility for re-entry, the available maps of the sixteen target cities were examined by the Directorate of Military Survey. Military maps at 1:50,000 and 1:250,000 existed for most of the target areas, but because the Defence Mapping Plan had for many years stressed the need for more work in the North, maintenance of maps of settled areas had been neglected. Consequently it was found that both of these map series were seriously in need of revision. Further it was found after study that the detail possible at 1:50,000 was inadequate for operation in urban surroundings.

Town plans of some sort existed for each of the target cities. In general these varied from the completely unsuitable to moderately useful. They tended to be at odd scales (too large

for handling in the field or too small for legibility) and to be restricted to a part only of a given target area. In every case they lacked a grid referrencing system compatible with the maps of the surrounding country.

After research it was decided that the optimum scale would be 1:25,000. This scale was large enough to show major buildings like schools and warehouses, yet small enough in scale for areas of a convenient working size to be mounted on a single map board. Further it was decided that both the standard 1.25,000 map and a special military town plan at the same scale would be needed. (A standard 1:25,000 map is shown at Fig. 1, a sample Military Town Plan at Fig. 2).

In the spring of 1960 arrangements were made for the Army Survey Establishment field parties to start the work for the ground control necessary for the plotting of 1:25,000 maps of Toronto, Hamilton, Niagara Falls, London, Windsor, Montreal and Quebec City. The Topographical Survey, Department of Mines and Technical Surveys, was asked for assistance and agreed to do the field work in Calgary, Edmonton, Winnipeg, St. John's, Newfoundland, St. John, New Brunswick and Halifax. The field work for Victoria and Vancouver had already been done in an experimental urban mapping project that the Army Survey Establishment had started long before the need for Survival mapping became apparent.

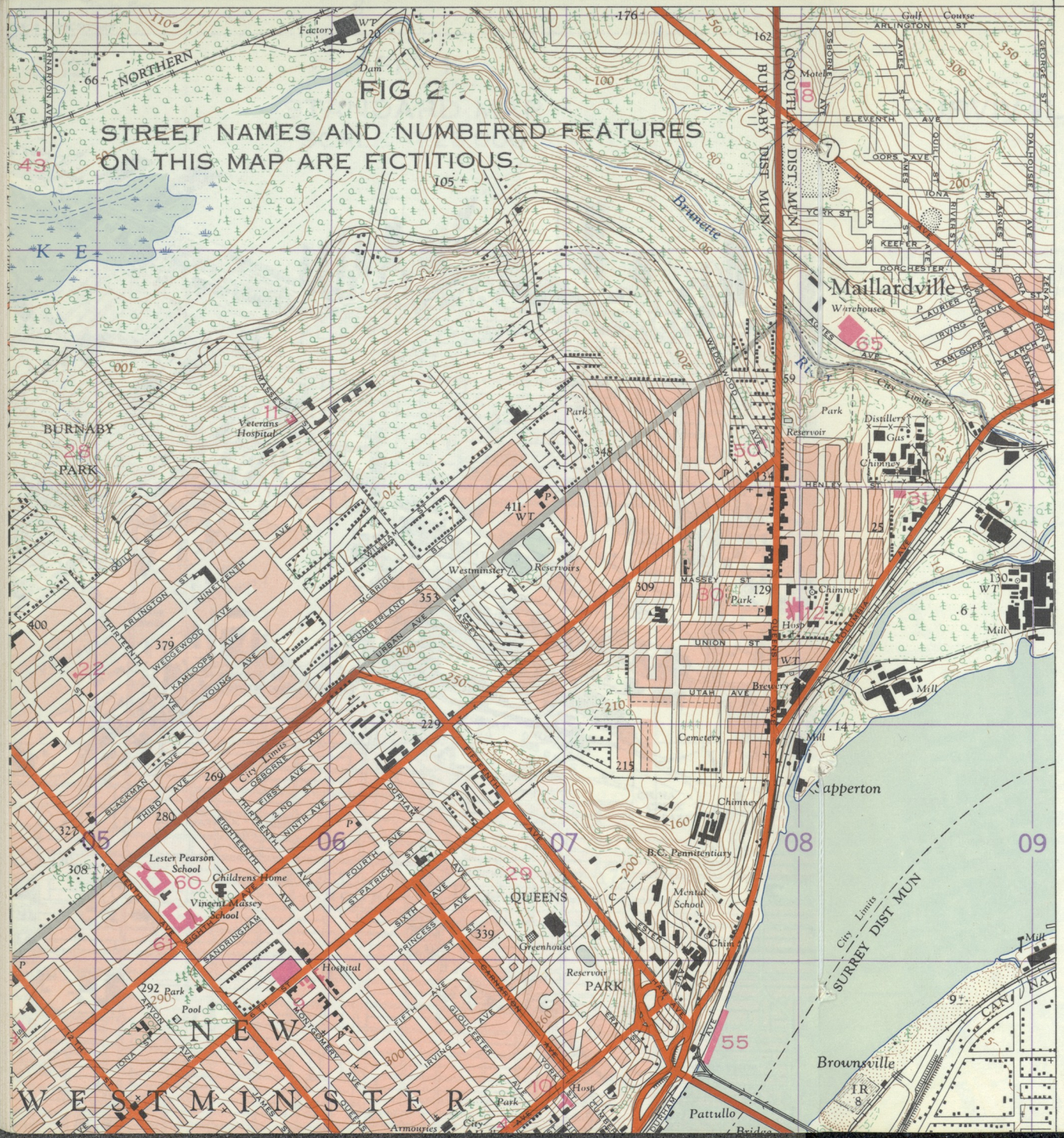
Compilation of the maps was of course done by photogrammetric methods. Air photography of the cities was ordered to be flown at 12,500 feet above ground which gave a photo scale of 1:25,000. This was considered the optimum for the photo interpretation and compilation that followed. Responsibility for the actual compilation was divided between the Army Survey Establishment and Topographical Survey, M & TS.

The initial deadline given by the Directorate of Survival Operations was that 1: 25,000 coverage should be available of at least the built-up areas of all target cities by 1 November 61. To accomplish this task it was apparent that provisional maps would have to be issued in the first instance. These were a black and white map made from the initial photogrammetric manuscripts. The UTM grid and a few of the more important street names were overprinted in magenta.

By 1 November 61 coverage of all cities excepting Hamilton was available. In the case of Victoria, Vancouver and Calgary the standard 1:25,000 maps were published; in the other cities provisionals had been provided, and for Hamilton a commercial town plan was overprinted with the UTM grid as a substitute.

The design of a military town plan specifically tailored to Survival operations proved a very interesting operation. What was needed was an up-to-date map showing all the streets by name, the location of important municipal service centres such as police stations, fire stations and hospitals; the location of municipal centres which would have to be closed down in the case of disaster such as electrical substations, natural gas pumping stations; and the location of services which would have to be restored as quickly as possible to rehabilitate the area,


Fueling Float
HMCS DISCOVERY
Fueling Floats
Telephone
FIG 1
STANDARD MAP
SCALE 1:25,000
Tanks
BM 12
BM 44
BM 101
Oil Tanks
OPPENHEIMER PARK
BM 49
BM 39
MCLEAN PK
Gas Tank
PAC
CAN
FALSE CREEK PARK
GREAT NORTHERN
THORNTON PARK
CAN NAT
Turntable
Swing Bridge
FALSE CREEK (Vancouver Harbour)
JONATHAN ROGERS PARK
CHINA CREEK PARK
MOUNT PLEASANT
ROBSON PK
SUNNYSIDE PARK
CAMBIE
MAIN
FRASER
KNIGHT ROAD



MILITARY TOWN PLAN
NEW WESTMINSTER
BRITISH COLUMBIA

GUIDE TO NUMBERED FEATURES

NUMBER ON PLAN	STREET	GRID CO-ORDINATE
54	**FIRE STATIONS**	
1	BLACKMAN AVE	01S4
2	12TH STREET	0052
3	13TH STREET	04S0
4	ROYAL AVE	06S0
5	HENLEY STREET	0847
6		
7		
53	**HOSPITALS**	
8	AGNES STREET	0449
9	6TH STREET	0S50
10	YORK STREET	07S0
11	MASSEY STREET	0SS3
12	QUEENS AVE	07S2
13		
52	**HOTELS & MOTELS**	
14	WILLIAM STREET	01S2
15	DURHAM AVE	04S1
16	8TH STREET	0649
17	COLUMBIA AVE	0649
18	OSBORNE AVE	08S4
19		
20		
	HYDRO STATIONS	
21	SANDRINGHAM AVE	01S4
22	6TH STREET	04S2
23	14TH STREET	0S49
24	AGNES AVE	0847
25		
26		
51	**PARKS**	
27	SEVENTH AVE	0449
28	CARNARVON AVE	0453
29	FIFTEENTH AVE	06S1
30	MASSEY STREET	07S2
31		
32		
33		

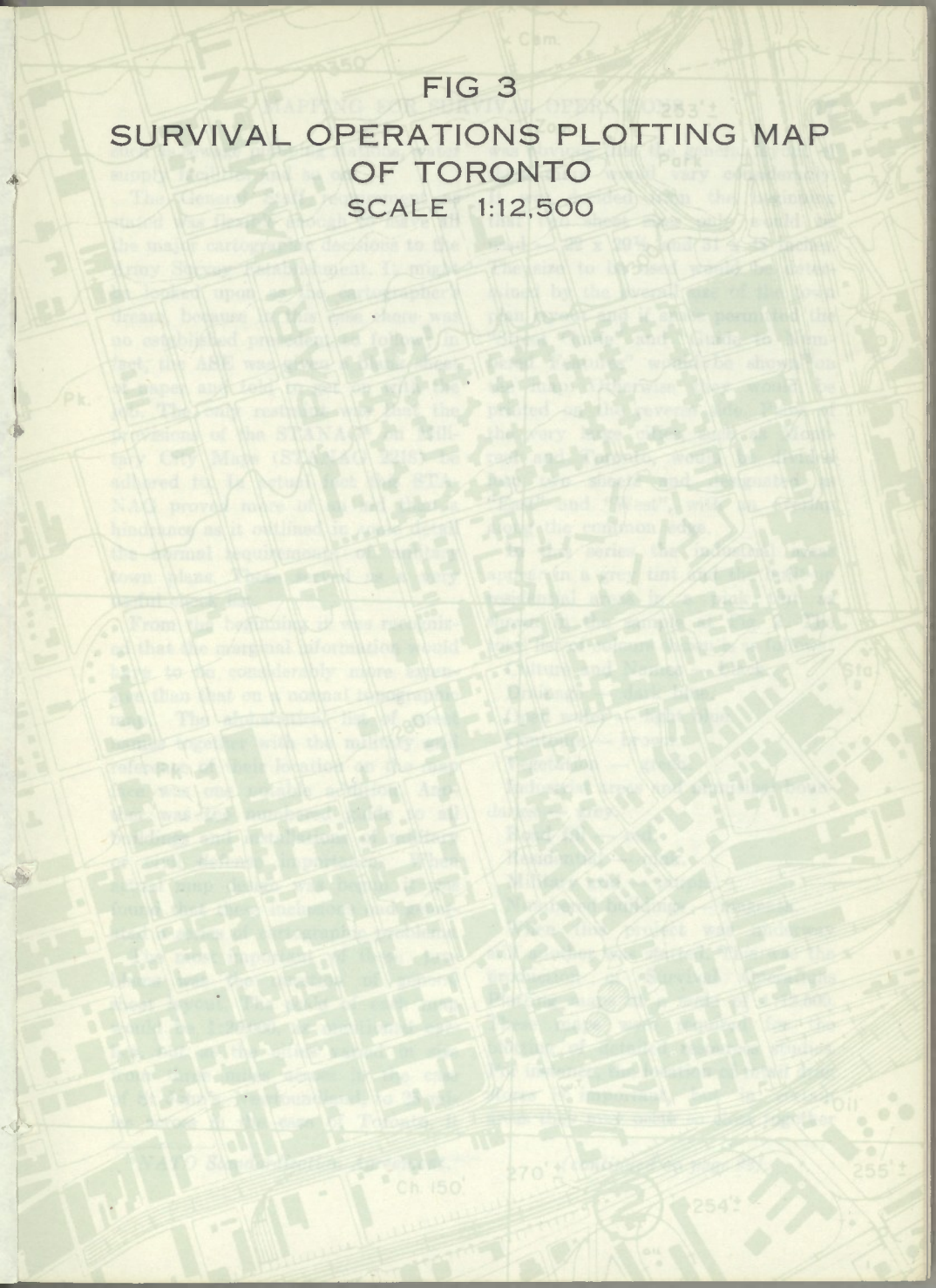


FIG 3

SURVIVAL OPERATIONS PLOTTING MAP
OF TORONTO

SCALE 1:12,500

such as sewage pumping stations, water supply facilities and so on.

The General Staff requirement as stated was flexible enough to leave all the major cartographic decisions to the Army Survey Establishment. It might be looked upon as the cartographer's dream, because in this case there was no established precedent to follow; in fact, the ASE was given a blank sheet of paper and told to get on with the job. The only restraint was that the provisions of the STANAG* on Military City Maps (STANAG 2218) be adhered to. In actual fact this STANAG proved more of an aid than a hindrance as it outlined in some detail the normal requirements of military town plans. These served as a very useful check list.

From the beginning it was recognized that the marginal information would have to be considerably more extensive than that on a normal topographic map. The alphabetical list of street names together with the military grid reference of their location on the map face was one notable addition. Another was the numbered guide to all buildings and installations of military or civil defence importance. When actual map design was begun it was found that these inclusions had generated a series of cartographic problems.

The most important of these problems was the question of general sheet layout. The scale of each map would be 1:25,000, as mentioned earlier, but as the cities varied in size from three miles across in the case of St John's, Newfoundland, to 25 miles across in the case of Toronto, it was obvious that the general layout of these maps would vary considerably. It was decided from the beginning that two sheet sizes only would be used — 22 x 29½ and 31 x 48 inches. The size to be used would be determined by the overall size of the town plan layout and if space permitted the "Street Guide" and "Guide to Numbered Features" would be shown on the map. Otherwise they would be printed on the reverse side. Plans of the very large cities, such as Montreal and Toronto, would be divided into two sheets and designated as "East" and "West", with an overlap along the common edge.

In this series the industrial areas appear in a grey tint and the built-up residential areas in a pink tint as shown in the sample at Fig. 2. The total list of colours shown is as follows:

Culture and Names — black.
Drainage — dark blue.
Open water — light blue.
Contours — brown.
Vegetation — green.
Industrial areas and municipal boundaries — grey.
Road fill — red.
Residential — pink.
Military grid — purple.
Numbered buildings — magenta.

When this project was underway still another was started. This was the production of Survival Operations Plotting maps at a scale of 1:12,500. These maps were required for the plotting of detailed resources studies. For instance, the location of retail drug stores is important, but in certain areas they may occur so close together

*NATO Standardization Agreement.

(continued on page 22)

National Survival

Emergency Government

By

MR. R. L. BEATTY, EMERGENCY MEASURES ORGANIZATION, OTTAWA*

No responsible government today can neglect the possibility of nuclear war. Our Federal Government is therefore making the necessary preparations in peacetime to ensure effective government in wartime on the assumption that if the country is to survive the effects of possible nuclear attack, there must be a government in existence which could direct the survival policy of the nation.

The Intention

The general intention is therefore to create a decentralized federal system of emergency government with central (national), regional (provincial) and zonal units through which vital work of the Federal Government could be carried on, should circumstances require it, even under most difficult conditions.

It is expected that the activities of the Provincial and the Federal Governments will be closely integrated at regional and zonal levels, each being responsible for their own emergency functions. The necessary coordination with local units of government will be achieved at the zonal level. The central authority will be based on a nucleus of [Cabinet] Ministers, officials, military officers and others in the Ottawa area. Regions will correspond with provincial boundaries and the regional authority will, in each instance, be composed of a small number of federal, provincial and military officials under the general direction of a person designated by the Prime Minister.

Joint Headquarters

The emergency organization, with its decentralized elements, will have a higher probability of providing effective operational control under nuclear attack conditions than units of government working from their existing locations. A primary objective of the system will be to integrate the activities of the federal, provincial and municipal governments into one closely coordinated system. To achieve this, joint headquarters will be provided for areas where more than one level of peacetime government has a responsibility, which headquarters will be outside target areas and provided, in some instances, with adequate fallout protection.

These joint headquarters will ensure that civil governments will be provided with the data on the tactical situation that will be required for them to make decisions affecting government and the civil population. The Army will have the responsibility of developing this information at all appropriate emergency government headquarters. Under survival conditions, when speed in policy-making and action-taking will be vital to ensure efficient survival

**This article originally appeared in the magazine "EMO National Digest". — Editor.*

control, the emergency government organization must permit the closest coordination between the several departments which will often be concerned with many of the individual survival policies. Specially-designed emergency communications systems will serve the elements of emergency government. For maximum efficiency, the users of the system must therefore be grouped in the joint headquarters across the country.

Central Facilities

The central element of the emergency government system will include a number of main headquarters from which small cores of senior departmental officials, including Cabinet Ministers, will establish and direct departmental policy. The relatively small departmental groups in these main central sites will require support and assistance of larger departmental elements which will be accommodated at a number of relocation units outside Ottawa, reasonably placed in relation to the various main headquarters.

Regional Facilities

The main regional headquarters will be so located that the danger from blast resulting from aimed attack elsewhere will be negligible and they will have full protection against fallout. They will be the centre of federal and provincial government activities for the area. The same departments of the Federal Government that are represented in the national complex will be duplicated, to a greater or lesser extent, at the regional headquarters. It is expected that both Federal and Provincial staffs would also be supported by larger groups at relocation units in a similar manner to that planned for the national headquarters.

Zonal Elements

In most parts of Canada, emergency government regions will be sub-divided directly into zones. These headquarters will be provided for in existing buildings where fallout protection inherent in the structure is sufficient or where the structure can be adequately adapted. In some zones it may be necessary to go to new construction. The provision of zonal headquarters will be done in close liaison with the Provincial authorities.

Zonal Boundaries

Zonal boundaries have been determined by considering such factors as population, transportation, communications and existing local government boundaries, based on a study of systems now used by the Federal and Provincial Governments to sub-divide provinces. The number may vary from about eight in the largest province to none in the two smallest provinces. Although the exact definition of the responsibilities of the Federal and Provincial Governments in zonal headquarters is a matter requiring further study, it is expected there will be representatives from all departments that have a function essential to survival. The federal emergency government communications system will extend to the zonal level, thereby giving these units a link through to the national headquarters system.

Responsibilities of Emergency Government

This central, regional and zonal system will be the organization through

which it is planned to conduct the business of the Federal Government in at least the early stages of a major war. The essential responsibilties of this emergency government can be defined as follows, with the emphasis on each function varying with the different levels in the organizational structure:

General direction of defence forces.

Conduct of foreign relations during the war.

General direction of civil defence activities.

Preservation of law and order.

Provision and allocation of housing accommodation.

Provision and distribution of food, fuel, power and other essential supplies.

Provision and control of essential medical and public health services.

Maintenance and control of transport and communications facilities.

Basic management of public finances and whatever emergency financial measures might be necessary to maintain a workable economic system.

Direction and control of the production and distribution of various essential materials and services, including control of prices.

Re-employment of manpower in accordance with emergency priorities.

It is the responsibility of government departments concerned to study in detail their wartime responsibilities so that they will be in a position to ensure effective emergency control in war. This study will determine the size and composition of departmental representation at the various levels in the system and the appropriate persons, together with alternates will be designated in peacetime for these tasks.

Manning the Facilities

In order that emergency government will be able to carry out its functions from the emergency facilities that are being provided, a detailed procedure with regard to the manner in which the facilities will be manned is being developed. Although the details of the manning vary with the different levels in the emergency structure, the principle followed is that the system must be capable of beginning operation in a time commensurate with the threat to the area. In some instances this means that the facilities must be manned to some extent in peacetime, while in other cases it will be sufficient to develop detailed plans for the personnel to reach the installation in the minimum time.

Conclusion

In summary, the programme for the provision of emergency government headquarters consists of:

(a) The provision of suitable facilities to ensure government can function under nuclear attack conditions and to permit the closest integration of federal, provincial and local elements.

(b) The analysis and definition of emergency government responsibilities throughout the system.

(c) The development of procedures for manning emergency facilities.

Wise Words

You cannot help men permanently by doing for them what they could and should do for themselves. — *Abraham Lincoln.*

National Survival

Planning Against Fallout

From an article entitled "Weather and Emergency Planning" by G. H. Gilbert, Meteorological Adviser to the Defence Research Board, and reproduced by courtesy of the magazine "EMO National Digest", Ottawa. — Editor.

Wind information accumulated over the years may be used to determine for any particular "target" city the most frequent direction of the "effective winds", and this information may be used in turn to determine the sector most likely to be affected by fallout in the event of a nuclear attack on that city. For example, the most probable orientation of the fallout sector over Eastern Canada would be towards the east, and towards a little south of east for central Canada; over British Columbia the most probable orientation would be towards a little south of east in winter, and towards a little north of east in summer.

Because of the variability of wind from day to day, planning which is based on the most probable sector affected by fallout would be of little value if no account were taken of the possibility of fallout in other sectors. However, by considering the frequency of winds from different directions it is possible to assess the relative hazard in the various sectors. It would also be possible to determine the overall sector which would have, say, a 90% probability of including the fallout in event of a nuclear attack on the city concerned. Such a sector for Southwestern Ontario would have an angular extent of about 100 degrees in summer and about 70 degrees in winter.

Weather must be an important consideration in any emergency planning. The necessity of having an immediate capability for the prediction of fallout in order to be able to give the necessary warning of fallout to the public is evident. In this respect, because of the rapidity with which the weather may change at times, it is desirable that this capability include the services of a weather forecaster. For certain other aspects of emergency planning where the radiological hazard due to fallout may be a consideration, climatological summaries of wind can be used to provide some indication of the relative hazard as between one area and another. Such information would provide useful guidance, for example, in determining the most suitable location for emergency supplies and medical stock piles, and the most suitable bases for supporting operations in the event of a nuclear attack.

Anomalous blast effects are relatively unimportant compared with the blast hazard about the centre of the explosion, but, they may well be misinterpreted as being due to another but smaller nuclear explosion. Although such anomalous effects cannot be forecast with any degree of accuracy with the information normally available, the weather forecaster could give a fairly reliable indication whether a doubtful report was in fact due to anomalous effects or not.

Belt for Spacemen

A jet-propelled flying belt which will enable spacemen to leave their orbiting vehicles in order to perform inspection, repair, and assembly tasks is being developed by Textron's Bell Aerosystems Company. The device is called a zero-gravity belt. With it a man will be able to maneouvre his otherwise helpless body during the periods of weightlessness which will be experienced by space-vehicle crew members in orbit. Bell engineers and members of the U.S. Air Force Aerospace Medical Laboratory have made 81 test flights with an experimental model of the device.

The zero-gravity belt consists of a stack of metal tubes containing high-pressure nitrogen gas. Thrust is obtained by releasing the pressurized gas through jets located on hand-operated control units attached to each side of the belt. A mere 20 pounds of thrust is sufficient to move a man when his body is weightless.

A more advanced belt is being developed for actual use in space. The propellant for the operational unit may be hydrogen peroxide which has proved successful on the Army rocket belt and on the reaction control systems developed for the Mercury capsule and other space vehicles. — *ORDNANCE Magazine (U.S.).*

Mapping for Survival Operations

(Continued from page 17)

that they cannot be shown clearly at 1:25,000. The plotting maps are actually a "blow-up" of the 1:25,000 maps printed in a non-photographic blue. Any markings made on the plotting chart by Target Area Headquarters personnel, Emergency Measures Organization researchers or field men can be taken off by photography and overprinted on stock maps for distribution. This is a very fast process and does not require laborious drafting. A sample taken from a 1:12,500 plotting map is shown at Fig. 3.

Finally the problem of revision must be met. Although the 1:25,000 series is considered the optimum scale for most survival operations, the 1:50,000 and 1:250,000 series have important uses. A project is now underway in the Army Survey Establishment to revise these scales to conform to the new 1:25,000 maps. Due to the explosive rate of growth of most Canadian cities, city maps become obsolete very quickly. A case could be made for annual revision, but the cost would be prohibitive. After careful study it was decided that maps of all scales will be revised on a six-year cycle.

The whole series of projects for the provision of maps for Survival Operations proved most interesting to those in the Directorate of Military Survey and the Army Survey Establishment that worked on them. One most sincerely hopes, in fact almost presumes, that they will never be used for their titled intention. Let us hope instead that they will prove useful in the peaceful development of our urban communities.

Qualification Examinations

How to do the Twist – with the Facts

By

COLONEL W. H. SEAMARK, CD,
CHIEF OF STAFF, CENTRAL COMMAND HEADQUARTERS*

The 1962 Regular Officers' Part I Qualification examinations have been written, marked and the results published. Most candidates are relieved and cheered at having been successful; the few who failed are disappointed and chagrined at having delayed their qualification for promotion by at least one more year.

The results were good. The highest pass rate for many years was achieved. Some candidates earned outstanding marks in individual subjects and the majority of writers obtained good passing grades in all papers. A large number of Lieutenants attempted and passed the Captain to Major qualifications which indicates a rising tide of professional ambition among junior officers. Five of the top 14 candidates for Major's qualification were Lieutenants.

Six hundred and forty-eight candidates attempted the examinations with the result that the Examination Board (augmented for the task) marked more than 3600 papers. Multiple marking of marginal papers and failures swelled the total to approximately 5500 markings which consumed eight weeks.

The business of marking is demanding and requires such continuous individual concentration on the part of the examiners that it can best be described as interesting drudgery. Each paper is a new experience and each one must be evaluated carefully. In some cases the marker must search exhaustively through the rough notes of a candidate who lost the race against time in recording his anwers.

While the standard of Military Writing has improved over the years the standard of handwriting has not and examiners are faced with a wide variety of writing varying from classic copperplate to indecipherable scribblings that resemble the aimless tracks a fly might make after crawling out of an ink well. A few days of this can be borne with relative equanimity but after a few weeks an illegible paper causes an apoplectic flush to suffuse the countenance of even the mildest and kindest of markers and inspires him to mutter incantations of doom in a strangled voice.

It is at these times of tension and dismay that an error sufficiently outrageous to be classified as a "howler" will occasionally be discovered, and the resulting merriment will lift the

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**Employed in the Directorate of Military Training at Army Headquarters immediately prior to his present appointment, the author was Chairman of the Canadian Army Examining Board at the time he wrote this article.* — Editor.

spirits of the marker and restore him to good temper more effectively than a day off at his favourite fishing hole. Some of these twisted facts slip accidentally from the pen of a good candidate who is in a hurry or who suffers from examination jitters. Others are the result of "wild guesses" by candidates who just plain don't know the answer to a question. Whatever the cause, these errors are regrettable and earn no marks, but they do serve the purpose of brightening the odd dismal moment and reducing the tensions of a demanding job. It's an ill wind...

I feel that the readers of this *Journal* might enjoy a laugh at the expense of a few unknown aspirants to higher rank and I therefore record for your amusement some new and interesting "twists" of some old facts.

Organization and Administration

"RCEME personnel perform minor operations in 'A' echelon area."

"In an emergency burial the corpse must be given three feet of overhead cover."

"The man should be buried in a shallow grave to aid in his recovery."

"The Field Ambulance supplies Aunty Biotics to the wounded."

History

"In 1913 Foch returned to his favourite old sport NANCY."

"The purpose of the operations in the Scheldt estuary was to provide Antwerp as an objective for Rundstedt's Ardennes offensive."

"Hitler chose to defend the Rhineland as a Christmas present for the German people."

Tactics

"One disadvantage to carrying infantry on the tanks is that one of them might fall off without being notified."

"The best way to avoid the risks involved in concentrating for an attack in nuclear warfare is don't attack."

National Survival

"'HALF LIFE' is a term used when a man is so sick it cannot be determined whether he will live or die."

"It is at this time in the re-entry operation when personnel are most susceep ... susseptible ... vulnerible."

Current Affairs

LORD BERTRAND RUSSELL

"President of the University of Toronto."

"UK negotiator for European Common Market."

LOUIS RASMINSKY

"A Newfoundlander caught in Cuba during the revolution who has recently returned to Canada."

"The new Chief of the New Democratic Party."

EDWARD HEATH

"UK High Commissioner to Canada."

"The keeper of the Lord Privy."

GENERAL HEUSINGER

"The new force Commander in the Congo."

"The Head of NORAD."

"The man who put John Glenn in orbit."

ALBERT LUTHULI

"The Russian assistant to U Thant."

"Mau Mau leader who was awarded the Nobel Peace Prize."

"Pilot of Hungarian plane that crashed recently in Italy."

"The head of the Quebec Separatist Movement."

THE HUMAN FACTOR

By

CAPTAIN J. A. SWETTENHAM, CORPS OF ROYAL CANADIAN ENGINEERS,
HISTORICAL SECTION, ARMY HEADQUARTERS, OTTAWA

A Congo tribe, it is said, call the white man "the bat that flies hard it knows not whither" and at times I wonder if they are not right. The whole of western so-called civilization is based on the will, and that in turn leads to action or destruction, whereas inside most of us there is an element of repose which, if cultivated, enables us to take stock, assess, and see where we are going.

A poor life, this, if full of care
We have no time to stand and stare.

It seems to me that there is little of true repose in any of us nowadays. Instead, people are in a peculiar state of semi-coma or hypnotic sleep, induced by the fret and racket of mechanized existence. The western world chases outward shadows. It spends its time in a feverish race for money, gadgets, and trivial things, imagining that it is acquiring something valuable thereby; and the chase does in fact throw up bright bits of tinsel or gold which catch the attention. All this prevents us from looking deeper into ourselves. This state, however, can never be realized if we are drowned in it; we have to get our heads above the water.

"But," says the Scientist, "today man has conquered earth, sea, and air; he is about to conquer inter-planetary space. And the standards of living for everyone are higher than they have ever been. Labour-saving devices are freeing men from industrial toil and women from domestic drudgery!"

This is indeed a scientific age, an age of specialization, and of great achievements. But, it may be asked, what are we heading for? What sort of Utopia do we have in view? Perhaps, it can be argued, there is no need to visualize a final goal — that a prospect of more efficient means of production, a greater volume of output, a higher living-standard, is quite enough.

I am not convinced. We have much of that now, yet people are no happier than they were. Freeing ourselves from hard work, without something worthwhile to take its place, has created an abyss of boredom, a great mass of machine-minders and consumers who are growing more and more passive and who are, in fact, heading for imbecility. Mental sickness, we are told, is our greatest medical problem. Science has created devices to fill our leisure time, but can it be said that they have not been abused? Television and the radio enable us to see and hear around the world — but largely things it would not be worthwhile crossing the road for. These protean monsters with a million voices lull us into a dangerous state of passivity and discourage us from creating our own amusements. They give us emasculated renderings of orchestral music which leave out much that is audible in the concert hall, soporifics and commercials, plays without catharsis, and vetted talks which step knowledge down to the level of mere information. They deafen the mind and

offer almost everything but what is perhaps most important — silence. And what of the automobile, that indispensable feature of modern life? In the early days people ran out of their houses to stare; sometimes they went further and shook their fists at the new monsters. Had they prophetic vision? Did they foresee the day when cars would destroy the peace of the countryside, congest our towns, and fill both of them with din? Did they visualize a time when they would make people so insert and physically limp that they would be in danger of losing their limbs? Soon, no doubt, cars will become even faster, and the driving wholly automatic, so we shall have nothing to do but gaze in a hypnotic trance at a blur of featureless scenery, or possibly go to sleep.

The avalanche is gaining speed, and the scientific specialist (mostly concerned with *things*, rather than people) seems to underestimate the complexities of life at large which his hustling brings. Specialists tend to become overmagnified in some function—Nietzche's idea of "inverted cripples" — and to become lopsided in development. We have strayed far from the idea that intelligent men are balanced men; men like Sophocles who could turn his hand to anything, or the "whole man" of the Renaissance exemplified by Leonardo. We are largely preoccupied with an *excess* of science and there is danger in this, for it can hardly be healthy, either for an individual or a society, to grow too exclusively scientific. "The earth's crust", as Lucas says, "is larded with the fossils of species that overspecialized." And if we put our trust too much in gadgets and the nuclear arms with which science has equipped us, while neglecting the human factor, we may well become one with them.

Nuclear arms, space-capsules, the automobile, television and the radio, are all with us. We can no more reverse the march of science than the asp could unbite Cleopatra. Instead, we must learn to live with them — to try to defend and preserve as much as possible of what we value. "Having to sup with the Devil, we must look about for long spoons."

What, then, are the dangers of our modern age? I would say, first and foremost, the sapping of vitality through lack of physical exercise as well as the barbarizing of the mind and the demoralization of character through preoccupation with trivia. In the past, our people lived largely on the land, which moulded character, but the present tendency is to flock to towns where the stock deteriorates. Rome began to decay when slave labour was introduced on the farms and there was a migration of the yeoman peasantry into the cities. General Blumentritt, explaining German failure in Russia, had this to say of his troops (who were by no means unfit) in comparison with the Russians: "The Western European is so highly civilized that in many respects he cannot stand up to the tougher Easterner who lives so much closer to nature, [which] enables these people to move freely by night or in fog, through woods or across swamps. They are not afraid of the dark, nor of their endless forests, nor of the cold, while the Siberian, who is partially or completely an Asiatic, is even tougher and has greater powers of resistance than his European compatriot." As for

our "civilisation", I am not convinced of it. I think, as Disraeli said of the Europeans, that we talk of progress because "by the aid of a few scientific discoveries we have established a society which has mistaken comfort for civilisation".

We have, through science, the nuclear deterrent but in the end it is the man behind the machine, the device, the what-you-will, that counts; and on the fitness of the man — mentally, morally, as well as physically — everything depends. The French at Agincourt relied on armour, but when that was pierced by the English long-bow, it was man to man:

> *Arms were from shoulders sent,*
> *Scalps to the teeth were rent,*
> *Down the French peasants went;*
> *Our men were hardy.*

Again, the Sybarites, highly civilised and fond of pleasure, relied on the finest calvalry of the age to preserve their way of life, which, time after time, it did. They became so proud of their horses, in fact, that they introduced them to their feasts and taught them how to dance. The Crotonians, apprised of this, marched on Sybaris, and when the much-vaunted cavalry massed against them, played dance music which effectively broke up the charge. Man against man, the soft Sybarites were no match for the earthier Crotonians: Sybaris was levelled to the ground. Suppose then, that our missiles are fired one day, and that powerful rays, like seductive music, deflect them from their course? How different from the Sybarites would we be then with the weapons that we count on helplessly circling, playing ring-a-rosie in the sky? An alarming thought, but not impossible.

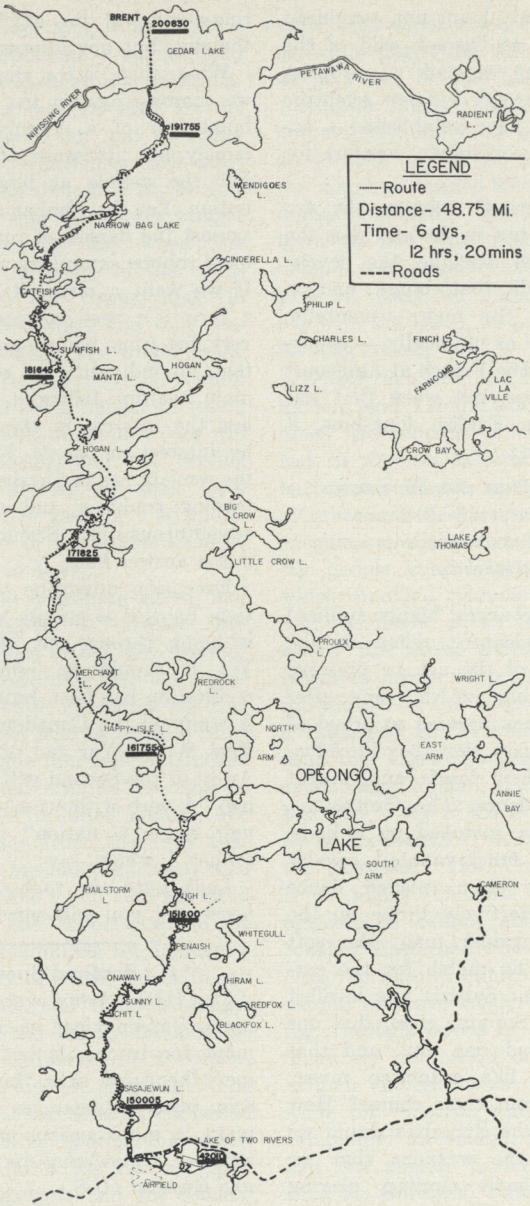
What, then, is the answer? How can we combine against the barbarism and fanaticism of a century that has so largely lost its sense of life's values? For the people at large, I have no notion. Yet the combat must be waged against the danger of turning men into mere robots, as soulless as hens in cages. If we want a civilized humanity, not a termite's nest, science alone seems very for from being enough. I suspect that no individual or society can remain healthy, balanced, and sane, unless the interest in *things* is matched by interest in *people*. For the soldier, the remedy lies in physical fitness, good reading, tradition, and in fostering the adventurous spirit. Science *and* the man is the answer here.

Exception might be taken to tradition, for this is an age where tradition is being thrown out of the window. Yet it should be remembered that civilisation has been built on tradition. A study of the Canadian Corps in the First World War and of the Canadian Army in the Second will prove rewarding. "A verb without a past is 'defective'; so is a nation", and to every soldier I would say:

Look unto the rock whence ye are hewn and you will survive.

Seafood Special

The [U.S.] Army is studying possible uses of green algae as a food supplement for troops. It is "highly nutritive", the Army says, "but has a repulsive taste." Researches are trying to make it more gastronomically acceptable. — *Army-Navy-Air Force Journal and Register (U.S.).*


BRENT
200830
CEDAR LAKE
PETAWAWA RIVER
NIPISSING RIVER
191755
RADIENT L.
WENDIGOES L.
NARROW BAG LAKE
CINDERELLA L.
CATFISH
PHILIP L.
CHARLES L.
FINCH
SUNFISH L.
181645
MANTA L.
HOGAN L.
LIZZ L.
FARNCOMB
LAC LA VILLE
CROW BAY
HOGAN L.
BIG CROW L.
LAKE THOMAS
171825
LITTLE CROW L.
PROULX L.
MERCHANT L.
REDROCK L.
WRIGHT L.
HAPPY ISLE L.
NORTH ARM
EAST ARM
161755
OPEONGO
ANNIE BAY
LAKE
SOUTH ARM
HAILSTORM L.
CAMERON L.
151600
WHITEGULL L.
PENAISH L.
ONAWAY L.
HIRAM L.
SUNNY L.
REDFOX L.
CHIT L.
BLACKFOX L.
SASAJEWUN L.
150005
LAKE OF TWO RIVERS
42010
AIRFIELD
LEGEND
Route
Distance- 48.75 Mi.
Time- 6 dys,
12 hrs, 20mins
Roads

Exercise Stalwart:

A Contribution to the Army's New Adventure Training

By

MAJOR A.A.S. PETERSON, MC, CD, THE ROYAL CANADIAN REGIMENT*

When in the autumn of 1961, Adventure Training was authorized for the Canadian Army, 2nd Battalion, The Royal Canadian Regiment, stationed at Camp Petawawa, Ont., was quick to submit a plan for unit participation in the programme.

In brief, it was proposed that a party of ten all ranks traverse Algonquin Park in February 1962 from Brent, a Canadian National Railways divisional point near the northern park boundary, to Highway 60 in the south. The exercise, nick-named "Stalwart", was to commence with a night parachute drop and the party was to move with arctic equipment, including a ten-man tent, three days' rations and petrol. Resupply was to be by light aircraft, supplies being airlanded, parachuted or free-dropped as circumstances dictated. The route to be marched was estimated at between 50 and 60 miles and it was planned to cover the distance in six to nine days. In substantiating the proposal, the aims to be achieved were listed as:

1. The development of initiative and leadership.
2. The development and testing of endurance.
3. Navigation practice.
4. The gaining of Defence of Canada Force experience.
5. The developing of long-range patrolling techniques.
6. Meeting and overcoming a challenge.

The plan was limited in scope intentionally for it was realized that confidence in adventure training could best be achieved by a successful, if modest, first effort. Further, the proposal had the advantages that, in general, the resources necessary to implement it lay within the Army and particularly within Central Command.

The outline was approved in principle. However, Exercise Stalwart in its final form differed from the original plan in that, due to unit commitments, it took place in mid-March rather than February and the route was changed to run from south to

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north so as to take advantage of easy road access to a Drop Zone.

Royal Canadian Air Force participation in Stalwart included one C-119 aircraft for the para-drop and one helicopter for casualty evacuation from the Drop Zone. Extra-unit support was provided by L-19 aircraft from the Air Observation Post Troop, 4th Regiment, Royal Canadian Horse Artillery, which flew aerial reconnaissance, safety and resupply missions.

The Adventure Team was, of course, found from within 2 RCR, being carefully selected from a large number of volunteers. Members had to be qualified parachutists and able to swim and the team was representative of all ranks and all sub-units. The group comprised one officer, one Company Sergeant-Major, one Staff Sergeant, three Corporals, one Lance-Corporal and three Private Soldiers. The only specialists in the team were a Medical

An example of "difficult going". In the bush, snow cover was as much as four feet in depth and, while stream beds were easy to follow, alders made progress slow.

The team "takes ten". Note the navigation party in the far distance moving independently but in visual communication with the toboggan group. Using this method of movement, the toboggan group did not once retrace their steps because of navigational error.

Assistant and a Signaller. Members were medically examined before being accepted; the average age in the group was 29.7 years. Because 2 RCR had earlier completed winter training and had participated in a Defence of Canada Force (DCF) exercise in Quebec Command in February, no special training other than a review of night parachute techniques was necessary.

A second unit group was found under an officer to provide the Drop Zone Party and logistic support. After the para-drop the support group moved to Camp Petawawa from where resupply and safety missions were flown.

Exercise Stalwart was scheduled to begin the night of 13/14 March. As is often the case with airborne exercises, inclement weather forced a 24-hour postponement and Stalwart commenced at 2000 hours, 14 March, with the release of two toboggans over the Lake of Two Rivers. The aircraft made a second pass and the team, wearing arctic clothing, with rucksacks, rifles and snowshoes, parachuted at 2010 hours.

The Drop Zone was marked with kerosene-burning flare pots laid out to form a "T", designating its beginning, and a line of flares at right angles to

the aircraft's approach to mark the end. The parachutists had the benefit of a quarter moon and landed without incident.

The problem of locating the toboggans in the dark was solved by lashing a flashlight to each equipment container. These were turned on before the toboggans were released from the monorail and were still functioning when the parachutists rallied on the equipment.

The team then moved off the Drop Zone and into the park for a distance of four miles where they bivouacked for the night.

A day-by-day report of subsequent moves would be tedious and it is sufficient to state the following facts.

The Adventure Team marched a total distance of 48.75 miles in six days, 12 hours and 20 minutes, mostly on snowshoes and during daylight hours. Within this time, a total of 60 hours were spent on the march for an average speed of 0.8 miles per hour; in fact on lakes, the team covered 1½ miles in the hour: however, when moving across country through bush, alders and deadfall, speed was often reduced to 100 yards in 10 minutes. Throughout the march, every member of the team carried a C1 Rifle and rucksack and the group hauled two toboggans each weighing in excess of 200 pounds. There were no drop-outs and no medical problems other than a few foot blisters attributable, in the main, to wet duffle socks. Morale remained high and the last full day's march was the best, 9½ miles being covered.

The team moved mainly on lakes or along water courses. Getting from lake to lake, however, at times involved moving through virgin bush. Consequently, "going" conditions varied from excellent to poor. Lake surfaces were frozen to a depth of about 20 inches and covered with from one to two feet of snow. In bush, snow cover varied from three to four feet. Going was also affected by temperatures which ranged from minus three by night to plus 46 degrees Fahrenheit by day. In the early morning, the snow surface was firm; from ten o'clock on, the snow progressively softened and trail-breaking became a chore as snowshoes broke through the snow and toboggan bottoms became caked with slush.

A meal halt in a wooded area.

It is perhaps of interest to record that members of the Algonquin Park staff travel only between 0800 and 1300 hours in mid-March. The Adventure Team found it possible to march from first to last light daily; however they paid the penalty of thoroughly wet

mukluks and duffle socks at the end of each day!

The choice of route and the distance to be covered daily was left entirely to the discretion of the Team Leader. In the event this proved to be wise as the planned route, which had been selected from the map, was found unusable.

The team, equipped with issue 1:50,000 maps of the park, navigated using the principles laid down in arctic warfare training. They divided into a navigating and trail-breaking group of three and a toboggan party of seven (three to each sled and one as a relief) following. Distance was calculated by pacing, two thousand paces being considered as one mile. In the main, the 1:50,000 map proved accurate in its representation of ground features but was deficient in details of tracks, logging buildings and portages. Therefore, the team navigated mainly by ground

Two of the team take a smoke while a third takes a picture. Here the men are dressed in full parka which was donned at first light. By 1000 hours the party had to shed part or all of it under the warm sun.

features, checking direction and verifying location by compass bearings.

Relatively little game was seen, other than deer, small animals and one pack of seven wolves. However, numerous deer, moose, wolf and bear tracks were discovered. The team concluded they could have lived off the land had it been necessary.

The 4 RCHA AOP Troop was of inestimable service, flying up to three supporting missions daily for safety, resupply and aerial reconnaissance purposes. Although provision was made for resupply by wing release parachute drops, this did not prove necessary and supplies were airlanded either beside the team or at mutually arranged locations on the line of march. Aerial reconnaissance included ascertaining ice thicknesses, route information and direction guidance when the party was moving through thick bush. Under these latter circumstances, the trail-breaker wore a fluorescent panel on his rucksack for easy aerial recognition.

When overhead, the L-19 and the Team Leader communicated by 510 wireless set. Indeed, the pilots of the AOP troop were the team's sole link with civilization and the group came to regard the versatile aircraft and their ubiquitous occupants with affectionate regard.

Once again the current arctic equipment proved itself. Team members made full use of the layer principle incorporated in the parka, removing first the inner then the outer as the temperature climbed through the day. The three arctic stoves, each of which burned for about 46 hours, never faltered. The 500 CP lamp, including its globe, which had been para-dropped with the tent group equipment at the beginning, completed the exercise intact. Not one air mattress became unserviceable. Thorough training and conscientious maintenance reaped their own rewards.

The team did, however, have some difficulty with the magnesium-type snowshoe which was found to sink into deep, soft snow, to slip on semi-icy surfaces and to be lacking in traction on slopes. At the end of the second day these were replaced with wooden snowshoes. However, the wooden snowshoe proved too liable to break and by the sixth day most of the Team had reverted to the magnesium-type. Without doubt, and despite their limitations, the majority of which could perhaps be overcome by incorporating a saw-tooth bottom edge, the magnesium snowshoe is a sturdy piece of equipment and is suitable for an exercise of this nature.

The team was provided with the Ration Pack 4 ration. This proved adequate, if monotonous. The Arctic Supplement, which was requested but not authorized, would have been most welcome. Team members found that thirst, aggravated by a diet of bully beef, tinned chicken and sausages, was a real problem which could have been overcome to some extent by the inclusion in the ration of fruit powders to mix with melted snow or ice.

Exercise Stalwart stood-down at 0830 hours on the morning of the sixth day at Brent Station where a good portion of the populace gathered to see what had just come out of the woods; it ended officially five hours later when a happy, if odoriferous band of broth-

ers boarded the Super-Continental for Pembroke.

What had been achieved?

Exercise Stalwart proved that the spirit of adventure is not dead. The modern soldier, lifted out of the humdrum of garrison life, proved himself to be enthusiastic, conscientious and durable.

Stalwart contributed to airborne training by demonstrating that night parachute descents have a place in unit continuation training and future DCF exercises.

It reaffirmed that a small force can operate independently in the wilderness and leaves to the imagination the effect such a group might have on the very limited lines of communication available to an enemy force operating in terrain such as Algonquin Park.

It made a small contribution to Adventure Training in the Canadian Army. Not least, it left ten soldiers with a sense of comradeship and accomplishment, feelings which the author believes were shared to some degree by all who in any sense supported the venture.

Guardsman Goose

General Sir Daniel Lysons, who served as a subaltern in Lower Canada during the Rebellions of 1837-1838, included the following story about the Coldstream Guards' pet goose in his *Early Reminiscences* (London, 1896):

"... one day this goose was taking its morning walk in the Citadel at Quebec, and happened to observe a nice-looking young man on sentry walking up and down in front of the officers' messhouse. The goose being of a social disposition stepped up, put his long neck close to the man's leg, and walked up and down with him, much to his amusement. Shortly after this it came on to rain, and the sentry went into his sentry-box. Goosie observed this move with a thoughtful countenance, soon grasped the situation, and, not choosing to be left out in the rain, pushed his way into the sentry-box, turned round, and stuck out his head to look about. In due course of time the corporal came with the relief; the old sentry told the story about the goose, and the party watched with great interest to see what the intelligent bird would do. It observed with equal interest the little ceremony of the relief. This being over, goosie gazed at the receding form of his old friend, then inspected the newcomer, and being satisfied with his appearance continued to walk up and down with him. This went on day after day till the battalion left Canada. The goose was then carried carefully on board ship and brought to England, where he was introduced to a sentry in the Portman Street barracks, and continued to perform his duties with unabated zeal.

"I frequently saw this remarkable bird when I went to the Citadel at Quebec, where I had numerous friends in the Coldstream Guards, and I remember well the termination of the sentry's orders on that post — "In case of fire, alarm the guard, and *take care of the goose.*" — *Contributed by J. Mackay Hitsman, Historical Section, Army Headquarters, Ottawa.*

FOOD AND THE FIGHTING MAN

By

MAJOR N. A. SHACKLETON, CD, LORD STRATHCONA'S HORSE (ROYAL CANADIANS) *

In modern military operations ammunition and fuel impose the greatest burden upon the supply system of the Army. But the most vital component of the military machine runs on food. While this presents much less of a transportation problem, the quality of the soldier's daily ration, its preparation and the circumstances under which it is eaten can exercise an important influence upon the effectiveness of the Army. This becomes increasingly evident during prolonged campaigns and when troops are compelled to endure exceptional hardship and privation.

It may be that such conditions will prevail in the event of another war. Methods of waging war have changed profoundly, yet there has been little corresponding alteration in the basic needs for the sustenance of the individual. For this reason past difficulties encountered in the feeding of troops and the means employed to overcome them merit consideration. It is proposed therefore to discuss briefly, the rations scales, the field cooking equipment and the messing arrangements that have been used in armies from time to time, and to comment on some of the problems that may be met with in the future.

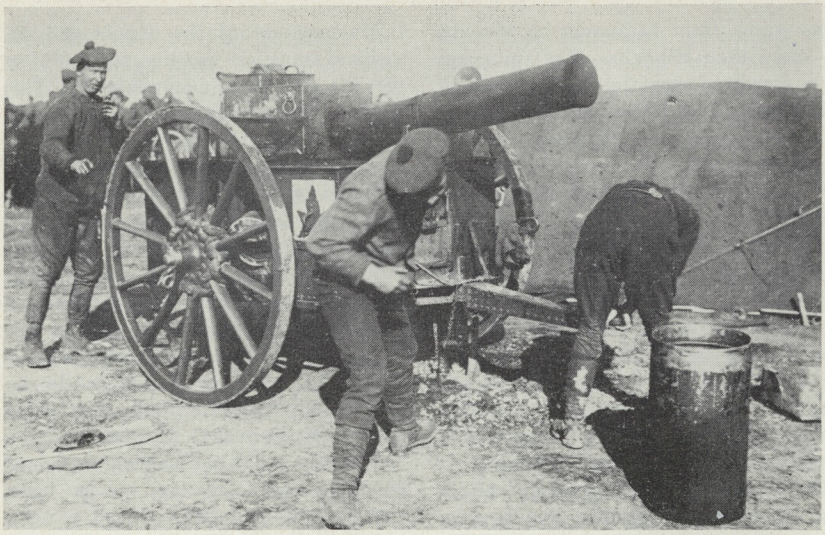
**The author is employed as a member of the United Nations Truce Supervisory Organization in Egypt.* — Editor.

Napoleonic Wars

In the years preceding the French Revolution military operations were restricted by the availability of rations and forage. Sparse population and inefficient agriculture limited the size of an army that could live off the land. Campaigns were rarely undertaken without the establishment of depots upon which an army could depend for a minimum of regular supplies.

This practice was known as the *Magazine System* and, although favoured by most European countries, it did not necessarily preclude the use of foraging parties by armies on the move — the *Requisition System*. With the improvements in agriculture towards the end of the 18th Century and the vast increase in the French Army under Napoleon, both systems were widely employed. However, lack of transport, poor roads and the extraordinary mobility of the French Army, left commanders, on occasion, no recourse but to live entirely off the land for indefinite periods.

In his Russian Campaign, Napoleon made arrangements for the establishment of depots in the wake of the invading army. A transport organization comprising 5000 to 6000 wagons was created. These vehicles carried 40 days' rations for 300,000 men. Each battalion was supported by transport carrying a further six days' provisions. Despite these preparations it was re-



Courtesy Imperial War Museum

The "Stew Gun", the Canadian Army's travelling kitchen of the First World War, being prepared for use. In this picture the chimney is in the "down" position.

cognized that the system was liable to interruption or break-down; this is apparent from the administrative precautions adopted at the unit level.

De Segur tells us that the French soldier of Davout's Corps carried on his person four biscuits weighing one pound each, ten pounds of flour and two loaves weighing three pounds each. These rations combined with his kit weighed a total of 58 pounds and were intended to meet his needs for 14 days. When the flour bag was empty it could be filled with grain which was ground in hand-mills carried by the company. The mills could produce in 12 hours a day's ration of flour for 130 men. The flour was then baked by the troops into bread or biscuit.

If one considers the roads, distances and the load capacity of the transport vehicles together with the scorched earth policy of the Russians, it seems unlikely that the French soldier could expect much more than a pound and a half of foodstuffs from the supply system of the Army each day. Fresh meat was available on the hoof early in the campaign. Later, as the distance to the front increased, those cattle which survived the marches long enough to provide meat for the forward troops rapidly diminished. Ultimately the fighting man was compelled to make do with occasional horse meat and to forage for much of his food. The latter expedient caused the dispersion of troops at the end of each day's march, with a consequent increase in fatigue and in casualties inflicted by the enemy.

Despite the inadequacies of the supply system, 100,000 men fought a succession of battles and completed

the march from Lithuania to Moscow — more than 500 miles. The campaign was fought during the hottest time of the year; and the private soldier marched under a load, which by modern standards, can only be termed staggering. That this feat was accomplished on a diet scarcely above starvation level is a remarkable tribute to his qualities of resourcefulness and endurance.

Elsewhere on the Continent in 1812 we find a small British Army confronted by similar problems of supply in its struggle against the French in Spain and Portugal. Wellington had been quick to appreciate that the question of supply was a dominant factor in all operations against the superior French Armies in this theatre. Furthermore, to achieve victory with his limited force it was essential to acquire a degree of mobility that would make possible the defeat of the French formations before they could concentrate. Another consideration was the need to maintain the goodwill of the peasants. This ruled out the adoption of the French practice of living off the land.

To meet these demands, Wellington organized a maintenance system designed to impart flexibility and speed to the movements of the Army. Depots in Portugal were kept replenished by ox-carts, boats and other transport. Divisional supply columns of pack mules were established to move food and ammunition from the appropriate depots to the field units. Each of the latter had 13 mules as regimental transports. The use of pack animals at the divisional level and below enhanced cross-country mobility but limited the volume of supplies that could be moved.

Management of the depots and divisional transport was the responsibility of the civilian commissariat. This agency also provided the soldier's daily ration. Hardly a delicately balanced diet, it consisted of a pound of meat, a pound of biscuit and a pint of wine. When available, a pound and a half of bread replaced the biscuit. One half pint of spirits — usually rum — could be substituted for the wine. For this fare the soldier paid three shillings and six pence a week, or roughly half his pay. At times the ration could be supplemented by the purchase of extra food from the sutlers who followed the Army. But when on the march troops generally had to manage on the basic ration. Looting brought harsh punishment; and sutlers were often disinclined or unable to keep pace with the rapid thrusts of the Army into enemy territory.

In the infantry companies, cooking in the field appears to have been organized in squads of eight to 10 men. Each of these groups was issued with a "Flanders kettle" — a heavy iron pot with a capacity of about 12 quarts. Later in the campaign this kettle was replaced with a lighter tin vessel which increased the speed of cooking and required less fuel. This kettle was carried in turns by the men of the squad.

On occasion, commanders in Wellington's Army, like the French, freed themselves from dependence upon the supply columns by loading the soldier with enough food to last for periods up to seven days or longer. On 20 April 1811, Private Wheeler recorded in a letter home that he was issued with biscuits for nine days, meat for seven

days and wine for four days. To prevent spoiling, fresh meat was often cooked before the march began: this would entail a certain loss in weight. Even so, the total weight of these provisions would be over 16 pounds. Added to the remainder of his kit this meant that Wheeler began his march with a burden of more than 60 pounds.

The system developed by Wellington was efficient. It usually provided the soldier with a minimum of two pounds of food each day; and it provided a more balanced diet than that of the French Army. Notwithstanding, the health and effectiveness of the Peninsular Army was also due to other factors. The interior economy of the regiments was well organized; and perhaps more important, the soldier was tough and resourceful. Speed and skill in the preparation of his meals and the careful husbanding of his meagre ration enabled the Peninsular campaigner to carry out tremendous feats of endurance. The record of Private Wheeler's regiment is typical. In a 10-month period it marched and fought more than 2000 miles.

Preservation of Food

During the Napoleonic era a process was developed that eventually caused a profound change in the subsistence of the soldier and eliminated many of the supply difficulties that had hitherto plagued commanders in the field. This innovation was the preservation of foodstuffs in tinned metal containers.

Courtesy Imperial War Museum

Aldershot ovens of a First World War field bakery.

Courtesy Imperial War Museum

A sergeant cooking his meal near Beaumont, Hamel, in 1916.

The first practical results of this process were probably achieved by Nicholas Appert who preserved food in glass bottles. Trials of this food were carried out by the French Navy about 1806. By 1813 the British firm of Donkin & Hall had perfected a method of preserving food in tinned iron cans. By 1818 this firm was producing at least 15 varieties of canned food. During that year an estimated 23,779 cans of rations were delivered to the Navy.

The efficiency of the canning methods employed were remarkable for that time. A notable example is a can of veal which was taken by Sir Edward Parry on his expedition of 1824. Opened in 1938 — more than a century later — the contents were still in good condition.

Another method of preserving food, the forerunner of modern dehydration techniques, was evolved by 1850. This process utilized artificial means for partially drying foodstuffs which were then compressed into cakes. These were wrapped in tin foil and packed in air-tight cases of tin or zinc. Dried and compressed rations were used in the Crimean War, and although they lacked the lasting properties and other qualities of canned food they remained on ration scales for many years.

Victorian Era

Toward the end of the 19th Century there was a perceptible change in the diet and messing facilities of the Army. During service at home stations the basic ration was still roughly a pound each of meat and bread. Additional items were paid for by the soldier as

extra messing. However, by the eighties, troops serving in a theatre of operations were fed on a more generous scale. During the Egyptian Campaign of 1884-85 the field ration included one-and-a-quarter pounds of fresh or preserved meat, the same quantity of bread or a pound of biscuits. An ounce of preserved vegetables and varying quantities of tea, coffee, sugar, lime-juice and condiments were also provided. This ration weighed little more than two-and-a-half pounds.

The ration issued to Canadian soldiers during the Red River Expedition was similar except that salt pork was sometimes substituted for fresh meat, and half a pint of beans was issued in lieu of preserved vegetables. At this time the field service marching order of the soldier weighed 55 pounds.

Cooking equipment for the battalion of 1886 was virtually unchanged from that of the Peninsular Army. The principal items were 68 Flanders kettles carried on the unit transport wagons. However, it is apparent that commanders were becoming increasingly aware of the value of good diet. By this time the battalion establishment boasted a sergeant cook. Another feature was the absence of wine or spirits as a regular item in the daily ration. During the Crimean War the issue of spirits had been half a gill daily, and 40 years earlier Wellington's

Courtesy Imperial War Museum

A man-pack bulk food container used for carriage of food to the trenches — Arras, 1917.

campaigners were entitled to almost half a gallon of spirits each week.

The last two decades of the 19th Century were marked by several innovations which improved the well-being of the soldier. Amongst these were the Groves Travelling Oven and the Perkins Steam Travelling Oven. These horse-drawn equipments were allotted to field bakeries of the Army Service Corps. In 24 hours the Groves and Perkins Ovens could produce a ton-and-a-half of bread, respectively. The Aldershot or Ground Oven was another development that relieved the monotony of service biscuits. These were portable equipments. Ten of them could be erected in 90 minutes; in one day they could produce 4320 rations of bread.

By 1899 a comparatively modern type of emergency ration was introduced. This consisted of a tin cylinder divided into two compartments; one contained four ounces of concentrated beef and the other five ounces of cocoa paste. These could be eaten cold or made into soup and cocoa. This ration was designed to "maintain strength" for 36 hours.

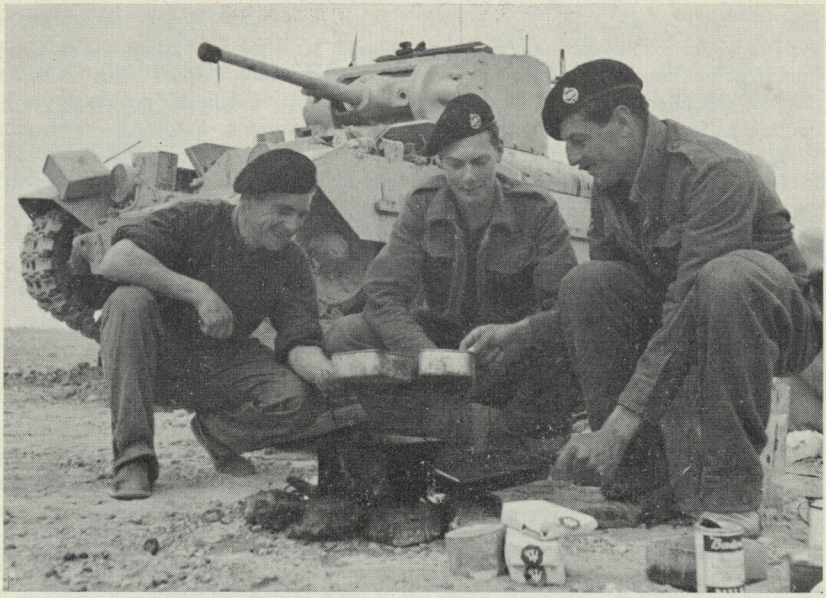
The First World War

The outbreak of the First World War found the British Army well prepared to cater for the messing needs of the soldier. Instruction at the Army School of Cookery had become a permanent feature of training. By 1913 NCO cooks were given a four-month course to fit them for their duties. Short courses were also held for regimental officers to instruct them in "the management and supervision of the soldiers' messing arrangements".

About this time the battalion was able to discard the bulk of its cumbersome camp kettles with the introduction of the Wagon, Travelling Kitchen Mark I — commonly known as the "stew gun". This equipment was a horse-drawn stove and pantry. The body and limber of the kitchen contained a firebox, boiling vessels and compartments for the carriage of rations and fuel. Four were issued to each battalion.

In July 1913, a special field ration was introduced. This contained a pound-and-a-quarter each of meat and bread together with bacon, cheese, tea, jam, sugar, condiments and lime-juice. It weighed less than three pounds twelve ounces. The dietetic considerations involved in the composition of the new ration were evidenced by the claim that it would provide not less than 4500 "energy units". An amendment of 1914 reduced some of the commodities slightly and a daily allowance was made for the purchase of extra messing items to vary the diet.

Except for the employment of horsed transport the supply system of the First World War differed little from that of 1939-45. Unfortunately, the stagnation of hostilities with the advent of trench warfare largely nullified the progress that had been made in the feeding of the infantry soldier. At an early date operations settled into a struggle between lines of trenches separated by barbed wire and curtains of fire. Under these conditions units often served for weeks in the front lines. Movement, other than in trenches or dead ground, was usually vulnerable to enemy fire. One of the



Courtesy Imperial War Museum

A tank crew breakfasts in the Western Desert, 1942.

principal hardships was caused by the difficulty in providing hot food for troops separated from their field kitchens.

At times food was cooked in the rear and carried to the front lines by fatigue parties. Special harness and containers were introduced for the man-carriage of hot food in bulk. But, more often than not, the front-line soldier was obliged to eat his food cold or resort to field cooking expedients such as the alcohol-fuelled "Tommy Cooker" or makeshift stoves and braziers. It was not an uncommon practice for companies going into the line to carry rations of tinned meat and biscuit sufficient for seven days.

Although below modern standards, the ration scale of 1914 was considered adequate and the field kitchen equipment was the best to be had at the time. The chief problems encountered in the feeding of troops — those of cooking and distribution—were brought about by the widespread introduction of the machine-gun and powerful artillery. During periods of action, the system of messing based on unit kitchens was unequal to the task of providing food for platoons and companies holding trenches which were often a few yards from the enemy. As a result, many battles of the First World War were fought on little more than bully beef and biscuit.

The Second World War

During this conflict cooking in the field was much improved by the adop-

tion of the portable gasoline fuelled type of cooker. This equipment, which operated by use of air pressure, was used in conjunction with the insulated container. The unit weighed 60 pounds. Food was partially cooked, then placed in the insulated containers where the process was completed without further use of the cooker. Seven containers and insulators with miscellaneous utensils met the needs of a company.

Several other pressure gasoline cookers were introduced for use in small detachments and for the crews of armoured vehicles.

During the war Canadian soldiers trained in Great Britain on a 3600-calorie daily ration weighing slightly less than four pounds. The principal items of this diet were eight ounces of meat, three of bacon, 12 of bread, sixteen of potatoes and eight of vegetables. The scale was increased to 4000 calories upon the invasion of Europe. An extensive range of pack rations was also developed for assault landings and patrols, and to ensure that troops had food available in convenient form when cooking on a unit basis was impracticable. These included the 24-hour ration pack, the jungle ration, the composite (14-man) pack, the Pacific composite (6-man) ration pack, the AFV ration pack and the mountain (Arctic) pack. The food value of these packs extended from 3590 to 5100 calories. They contained a varied range of items and included such necessities as cigarettes, matches and toilet paper.

Unfortunately, ration packs were sometimes not available in those theatres where their need was felt most. In describing the operations of the Winter of 1943 on the Burma Front, Field Marshal Sir William Slim states "...Vegetables ranked with meat as an almost insoluble problem ... the almost complete lack of fresh vegetables in so many men's diets had a serious effect on health. The substitutes should have been tinned vegetables, tinned fruit, dried fruit, or dehydrated vegetables, but there were practically none of these in the forward supply depots".

Mobile operations in the Western Desert during the period 1940-43 created special problems for mechanized troops. The regular flow of supplies was often interrupted by the enemy. Cooking was based largely on vehicle crews; and the intensity of the actions frequently prevented troops from preparing their scanty rations. Cyril Joly, a tank officer in that campaign, states "...In the mid afternoon, when we had taken up a position on a good, commanding ridge, we even had time to cook our first hot meal for three days, and to be able to enjoy it undisturbed by shellfire or the threat of attack".

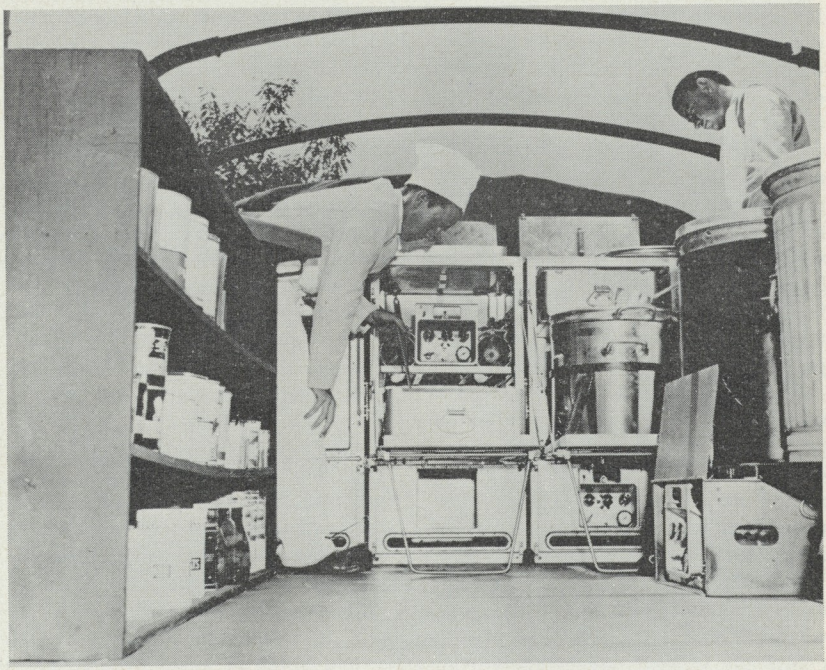
Later in the war, during operations in North-West Europe, the feeding of troops presented fewer difficulties. There were ample supplies of pack rations, there was air superiority, supply columns were generally secure and battles were not characterized to the same extent by the hasty advances and withdrawals so typical of war in the desert. Even so, mechanized units normally organized their messing on a vehicle crew or minor sub-unit basis. For much of the time, therefore, unit cooks with their transport and equipment were largely superfluous.

Post-War Developments

After the Second World War cooking in the Canadian Army was organized around an establishment of four Royal Canadian Army Service Corps cooks to each sub-unit of infantry company strength. Specialization in cooking combined with the adoption of new equipment and improvements in rations have produced the highest standard of messing enjoyed by the Army.

The company kitchen is based upon a 2½-ton truck and the M1937 Field Range. This cooker is fuelled by gasoline under pressure and is capable of boiling, roasting and frying; it can be adapted to serve as a bake oven. Two of these units will serve 150 men. Kitchen equipment also includes insulated containers and water immersion heaters.

Field rationing in the armies of Canada, U.S.A. and Great Britain has been the subject of careful study. Much success has been achieved in dehydration and freeze drying techniques. Significant progress has also been made in the development of rations for extremes of climate and the improvement of packaging methods. A typical example of these products is the British Composite Ration



Courtesy Imperial War Museum

An infantry company's cooking equipment — the M1937 field range mounted in a 2½-ton truck. The two units shown can be dismounted for use on the ground.

(Lightweight). This is based on dehydrated pre-cooked foods packed in flexible laminates. It is made up in three different menus and includes cereals, meat, vegetables and puddings. Because of the laminates 80% of the pack ration consists of food which in its dry form weighs 27.8 ounces or less. It contains more than 3320 calories. Six pints of water are required for its preparation. The ration is supplemented by an issue of bread or biscuit.

The Soviet Army

On occasions the standard of living prevailing in Western armies has been the subject of unfavourable comparison with that of the Soviet Army. It is interesting to note, therefore, that the standard Soviet Army ration weighs about five pounds, of which one pound is bread. The ration contains roughly 3000 calories, and it consists of two types — a basic ration used six days a week and a vegetarian ration which is used once a week. Hot meals, mostly in the form of stews and soups, are normally prepared at the battalion level. When necessary, the food is carried to the troops in large thermos containers. When this is not possible the dry ration is issued.

Field kitchens include truck-drawn trailers and a horse-carried mountain pack type. Several varieties of mobile or portable field batteries are in use at the divisional level. These equipments can turn out enough bread for at least 15000 men. During the Second World War these bakeries were used in conjunction with divisional mills which utilized local resources for the production of flour and meal. Requisition of local supplies is a standard practice of the Soviet Army in time of war. This is especially true for perishable goods such as meat, vegetables and butter.

Summary

One hundred and fifty years ago the soldier fought on two pounds of food each day. His cooking requirements were met by a share in the section camp-kettle. To maintain health and well-being it was essential that he extracted the maximum nourishment from his meagre ration. This he achieved by good management, organization, skilful cooking and a pronounced lack of fastidious objection to plain fare.

During the 19th Century the soldier benefited from improvement in the packaging of food, enlightened views on the subject of diet and the introduction of food specialists who assumed responsibility for the preparation of his meals. At the outbreak of the First World War messing arrangements were firmly established on a company and battalion basis under the supervision of skilled tradesmen. However, the nature of operations in that war was such that the equipment and methods employed could not satisfy the needs of the fighting man.

Again, in the Second World War field messing based upon unit kitchens was often impracticable, particularly during mobile operations. The pack ration was designed to meet this situation. This proved satisfactory when it was available and when the tempo of operations permitted a modicum of preparation.

Contrary to popular opinion, the scale of rations in the Soviet Army is comparable in weight to that issued to Western armies. A day's rations for a battalion in either army requires the

same minimum quantity of transport — one truck.

Conclusion

A future war will be characterized by 24-hour activity. Complete mechanization, the need for dispersion and the additional calls on manpower for local security and patrols will make new demands upon the stamina of the infantry soldier. Messing by unit kitchen will be a rare occasion. If full value is to be gained from pack rations, and their acceptability maintained, they should be prepared for eating and consumed, when possible, on a group or crew basis. The necessity for this procedure increases the longer subsistance is by pack ration.

It would be unwise to assume that in a future war an uninterrupted flow of pack rations could be guaranteed, especially if operations are conducted in remote areas of the world. Also, the provision of dehydrated rations might well be impracticable in arid country. In these circumstances a force may be compelled to rely to a varying extent upon local procurement, or upon miscellaneous supplies of standard civilian

Courtesy Imperial War Museum

A petrol cooker of the Second World War.

stocks. It is conceivable that ration scales could be supplemented by such staples as mutton, rice and soya beans.

In any of these situations a good knowledge of cooking is an essential feature of training. Every soldier should be capable of producing, with speed, a meal from fresh or preserved rations for his section or vehicle crew. Speed in the preparation of meals can only be achieved by organization, the adoption of drills and regular practice. In the absence of such measures, the accelerated tempo of future operations will result in haphazard feeding and the incomplete utilization of the food value of the ration.

Finally, it should be noted that the North American soldier is drawn from a civilian environment where a proportion of the individual consumption of food each way may be as high as eight pounds. Furthermore, in peacetime he enjoys a ration and a standard of army food services which are excellent by any criterion. He is, perhaps, the best fed soldier in the world. For these reasons, transition to the rigours of active service can be made less difficult if, in peacetime, the field training of the soldier includes substantial periods of spartan living. At these times frugality and privation should become accepted as a frequent circumstance of war.

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Queen's Commendation

Soldier Honoured for Brave Act

FROM A REPORT WRITTEN BY SERGEANT L. HOLBROOK,
PUBLIC RELATIONS ASSISTANT, HEADQUARTERS, CAMP BORDEN, ONT.

The 4th of January 1962 started out pretty much the same as any other training day for Corporal James Victor Jacques, an instructor with Camp Borden's Royal Canadian Armoured Corps School. But little did he realize that later the same day he and one of his students would come perhaps within a split second of meeting death.

His recruit troop undergoing General Military Training arose at reveille, had breakfast and were off to the classroom to write theory tests on hand grenades.

Early that afternoon they were transported by Army lorries to Castle Grenade Range located about five miles from camp. Each soldier of the 35-member troop was slated to throw two live grenades at a target as the practical portion of their grenade training.

Under the supervision of the troop officer, Lieutenant Richard D. Robertson and Sergeant Jean L. Boucher, the trainees prepared the grenades for throwing by removing the beeswax coating. Then one candidate at a time went into the priming bay to load the igniters into the cores of his grenades. The igniter is a fuse which detonates the grenade four seconds after it leaves the thrower's hand.

After priming the grenades, the student was sent to the throwing bay, a cement safety enclosure. Corporal Jacques was supervisor of one of the two bays in operation that day.

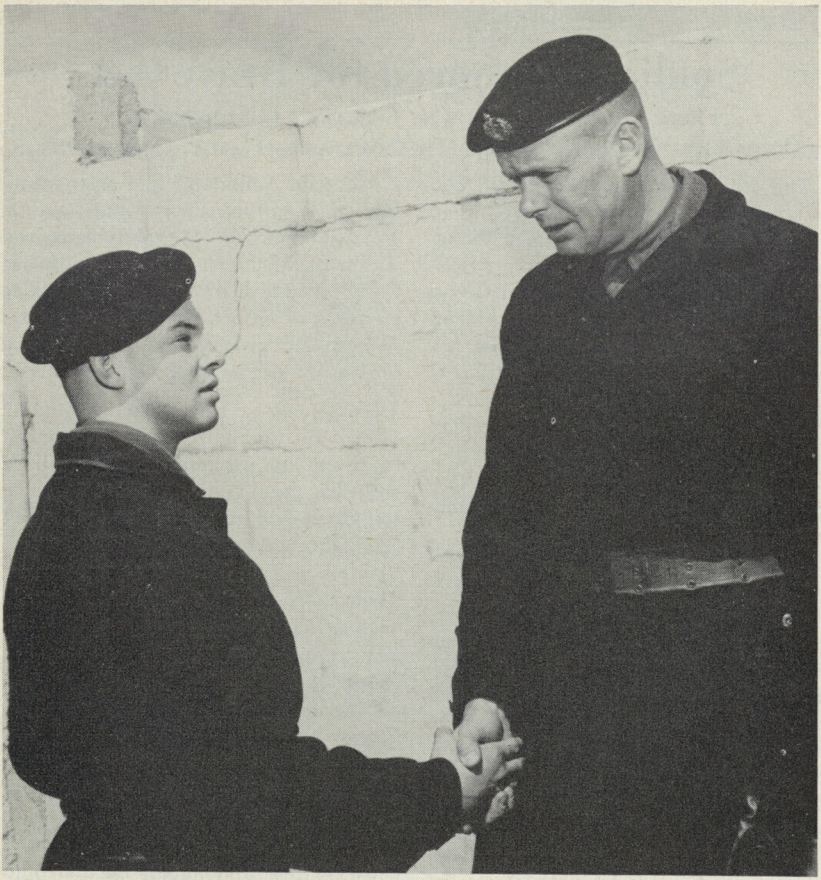
Fourteen candidates had successfully thrown their grenades. Candidate 15, Trooper Ian B. McPhail, appeared within the enclosure to make his throw. Corporal Jacques checked McPhail's grenades to ensure the base plugs were screwed in properly and the safety pins were in place.

Lieutenant Robertson shouted, "Ready!" McPhail prepared himself to throw by assuming a good stance with his legs apart, shoulders facing the target out front and hands at waist level. Jacques confirmed with, "Ready". Lieutenant Robertson commanded, "Throw!" Jacques responded with, "Throw".

As Trooper McPhail was about to throw the grenade, his foot slipped on the hard ground as his arm came forward. The grenade fell short, bounced off the forward wall of the throwing bay and landed under McPhail, who had slipped to the ground. At this point less than four seconds stood between life and death for Jacques and McPhail.

Jacques screamed, "Grenade!" This command is given when a live grenade is out of control in a safety area.

Jacques made a lightning grab at McPhail's coverall collar. He snatched him off the grenade and out through the rear passageway, dropping on the man's body a split second before a thundering roar and flying debris announced the explosion of the grenade.



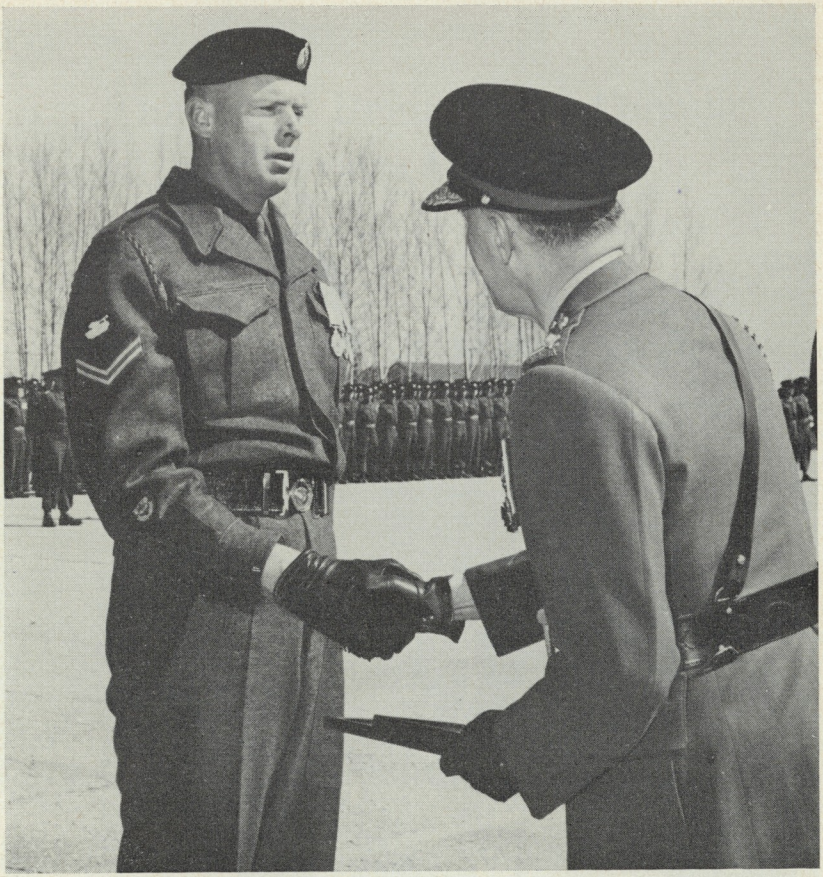
Canadian Army Photograph

Corporal James V. Jacques, The Lord Strathcona's Horse (*right*), talks with Trooper Ian B. McPhail whose life he saved during grenade training at the Royal Canadian Armoured Corps School, Camp Borden, earlier this year.

Neither McPhail nor Jacques suffered a scratch. A moment later Jacques had gained permission from the troop officer to re-enter the bay accompanied by McPhail to continue the practice. Jacques spoke to McPhail, "These accidents are very rare but do happen. Now we must complete your test. Come on, let's throw your grenade."

McPhail threw his second grenade successfully.

The job completed, Jacques, lighting a cigarette, turned to report the details of the event to Lieutenant Robertson and the troop.



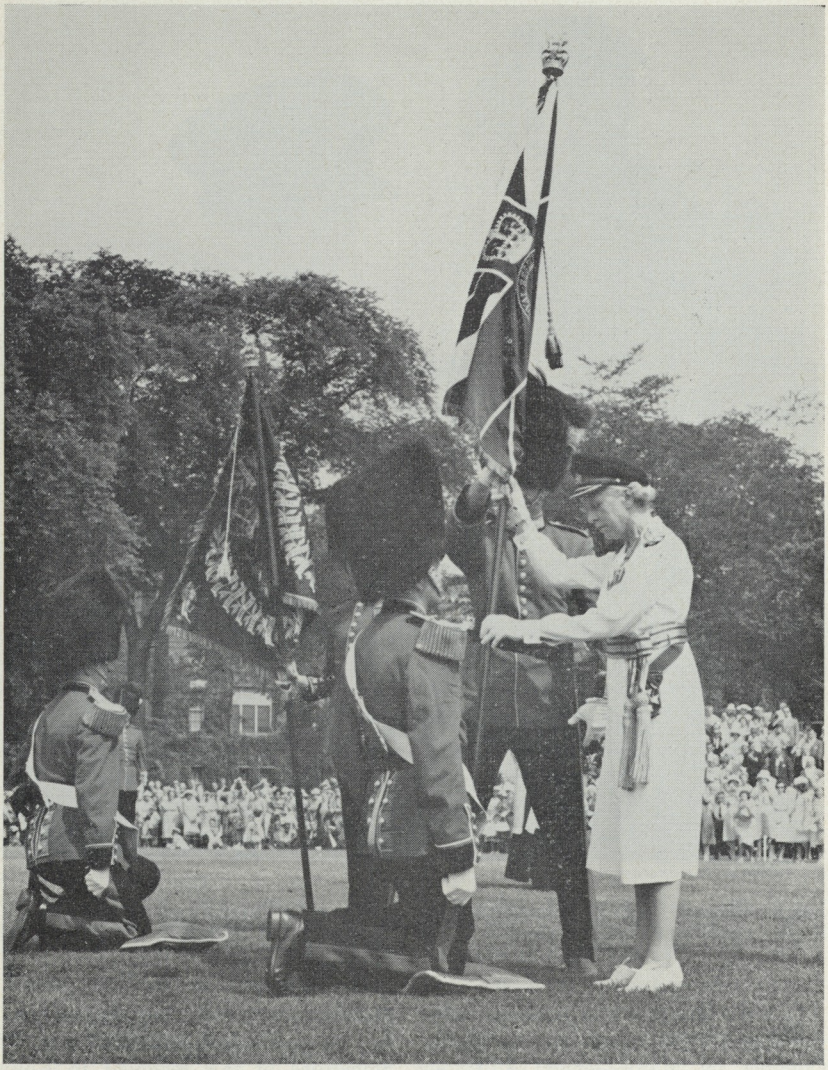
Canadian Army Photograph

Major-General J. P. E. Bernatchez, CBE, DSO, CD, Vice Chief of the General Staff, presents Corporal Jacques with The Queen's Commendation for Brave Conduct before a parade of 500 troops at Camp Borden.

Corporal Jacques was presented with the Queen's Commendation for Brave Conduct by Major-General J. P. E. Bernatchez, CBE, DSO, CD, Vice Chief of the General Staff, before a parade of 500 troops at Camp Borden, on 16 April.

Corporal Jacques enlisted in the Lord Strathcona's Horse (Royal Canadians) in 1948 and served with "B" and "C" Squadrons of this regiment in Korea during 1951 and 1952.

For the past two years he has been an instructor at the Armoured Corps School at Camp Borden.



Presentation of the Colours to The Royal Regiment of Canada by Her Royal Highness The Princess Royal, Princess Mary, Colonel-in-Chief of the Regiment.

Princess Mary Visits

The Royal Regiment of Canada Celebrates Centennial

By

CAPTAIN A. H. CHARTERS, CD, THE ROYAL REGIMENT OF CANADA

In downtown Toronto within the city-grimed, greystone walls of venerable St. James' Cathedral — a church older than the city itself — are massive pillars pointing skyward, nearly all of which for a great many years were adorned with battle flags fragile with age and steeped in history.

During all these two of the towering ceiling supports remained naked. But on Sunday, June 24, they carried for the first time the colours of The Royal Regiment of Canada, which this year is celebrating its centennial.

One of Canada's most distinguished visitors of the year, Her Royal Highness The Princess Royal, Princess Mary, who is Colonel-in-Chief of the Regiment, on that day took part in the ceremony of the laying up of the old Colours of The Royals — the Queen's Colour and the Regimental Colour — at their final resting place on the two remaining pillars.

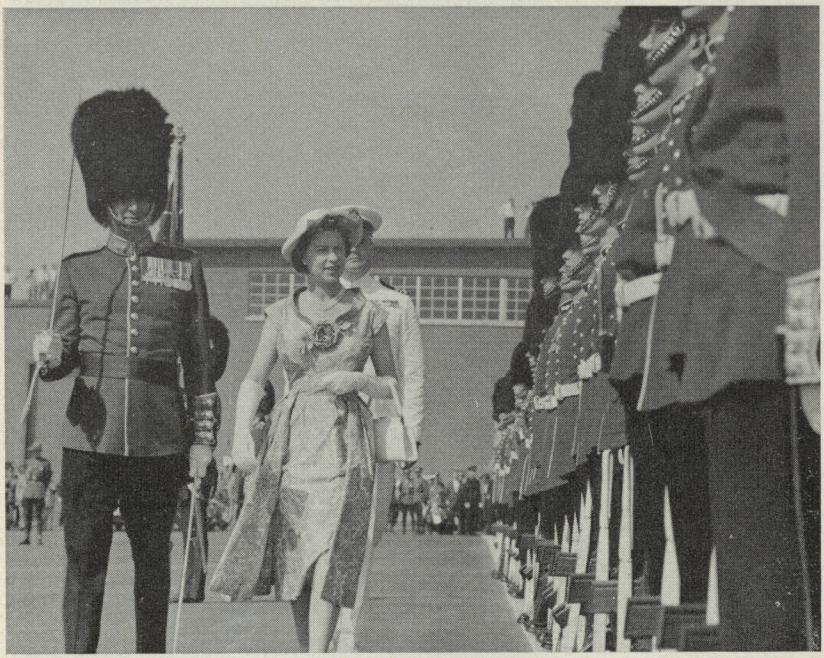
The event was, indeed, a highlight in a carefully planned and meticulously executed month's-long 100th anniversary celebration for The Royal Regiment, preparations for which have been proceeding for three years.

The first major event of the Regiment's centenary year went off with few hitches. On April 5, the entire regiment paraded before Toronto's City Hall where His Worship Mayor Nathan Phillips read and presented an illuminated scroll to the Regiment's Honorary Colonel, Lt.-Gen. G. G. Simonds, CB, CBE, DSO, CD, granting the regiment the "Freedom of the City".

The regiment — 600-strong in full dress and accompanied by detachments of Canadian Women's Army Corps — marched around Toronto's City Hall in symbolic recognition of two achievements: first, the freedom granted to the first military unit in the city's history to march "with colours flying, drums beating and bayonets fixed", any time and any place within the city; and second, the obligation to hold itself, as a Regiment, as the first official protectors of the city.

Prior to this there had been a number of events commencing 1 March all of which were part of the official Centenary Celebrations; parades, a regimental dance, a plaque unveiling and laying of wreaths. Other events included the introduction of a newly-composed ceremonial composition by the Royal's band at a celebration at Fort York Armoury in honour of HRH The Princess Royal's birthday, April 25.

The Princess Royal leaves St. James' Cathedral, Toronto, after the ceremony of the laying up of the old Colours of The Royal Regiment of Canada. On the right is Lt.-Gen. G. G. Simonds (Retired), Honorary Colonel of the Regiment.

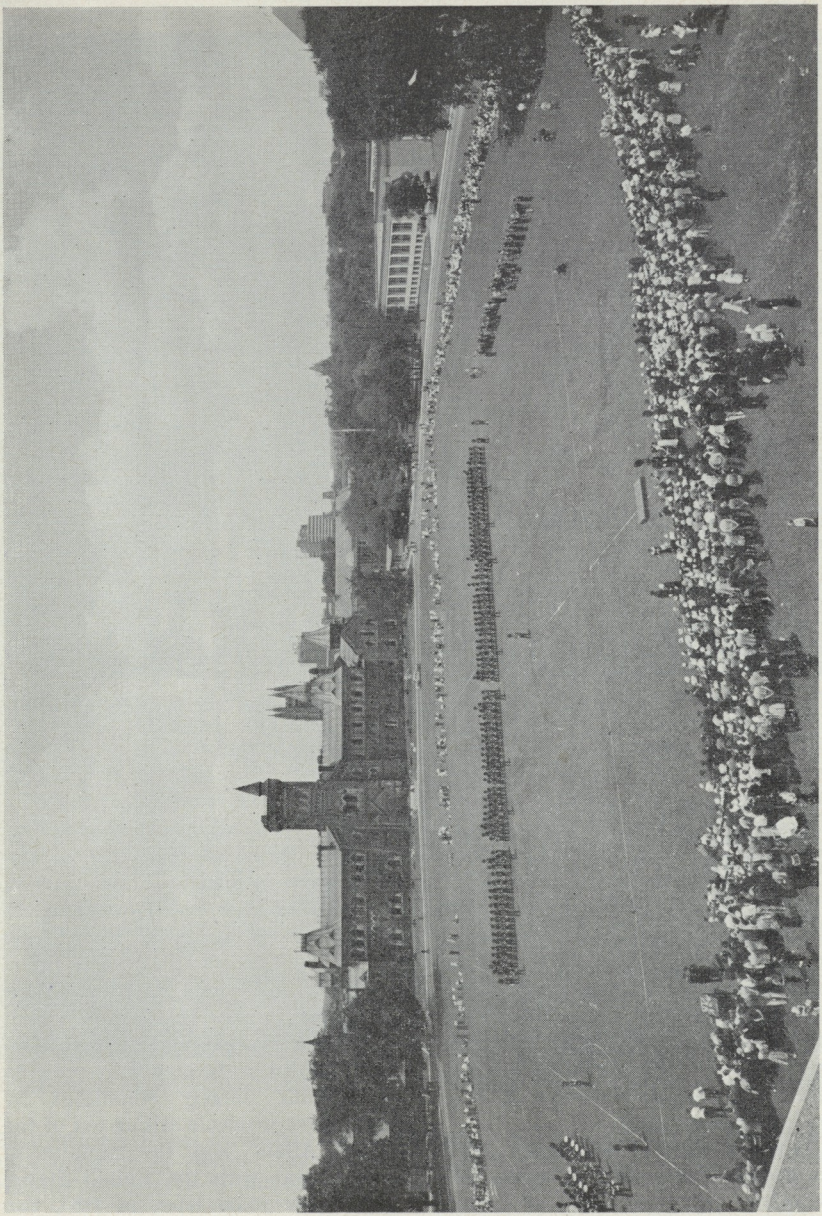


The regiment provides a Guard of Honour for Her Majesty the Queen during a visit to Toronto. The Guard Commander is Major (now Lieut.-Colonel) C. S. Frost, CD, who now commands the regiment.

On May 11 the regiment entertained dignitaries from Western Canada at its annual Officers' and Sergeants' Batoche Dinners at the Armoury.

Victory at Batoche is an event which the officers and men of the Royals commemorate annually. But there are other campaigns in the unit's century of history, which fill out the picture of the Canadian citizen-soldier who is, in the words of the Regiment's motto, "Ready Aye Ready" to serve his country in times of need.

It was in a gas-lit hall in old Toronto in mid-March 1862 that the 10th Battalion Volunteer Rifles of Canada was authorized, forming the nucleus of the Royal Grenadiers and thus one of the first organized regiments of Canada's Non-permanent Active Militia. Three years later, the Governor-General authorized use of the "Royal", and the regiment became the 10th or Royal Regiment of Toronto Volunteers. It is interesting to note that within a year after its formation in 1862 the Regiment earned a favourable report on its training, largely stimulated by provocative incidents arising out of the "Trent Affair" and the stimulus of possible war with the United States. And a few years later, in 1865, two



companies of the Regiment moved to Lower Canada to assist in preventing further breaches of neutrality by the Confederates' operation in Canada against the Union.

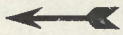
The American Civil War at an end, they returned home, but shortly were sent to the Niagara Peninsula to counter guerrilla raids on Canadian territory by the Fenians who had massed in large numbers south of the border. After the first false alarm, when the men were dismissed, the Fenians crossed the Canadian border at Niagara Falls and, later, at Quebec; units of the Regiment were placed on active duty and dispatched to Chippewa to counter the invaders and guard the Welland Canal. For the next six years they were on and off active service as threats of war culminated in the raids in Quebec and Manitoba in 1870-71; public buildings were guarded by the Regiment in Toronto.

A decade later, by general order, the name of the regiment was changed to 10th Battalion Royal Grenadiers. (It was not until after the First World War that the numeral was dropped, leaving the name The Royal Grenadiers).

The next major test for the Regiment came in 1885. Years before, it had adopted a lion rampant, holding a flag and the motto "Ready Aye Ready" as its regimental crest. How well the officers and men lived up to this motto was demonstrated when on March 27 the news reached Ottawa of the ambush of Royal North-West Mounted Police by the forces of Louis Riel at Duck Lake settlement in Saskatchewan. By midnight of that date the Regiment had its orders to provide a battalion to go west, 250-strong; and by breakfast-time the next morning, every officer and man had mustered, making selection of the 250 an easy task. Snider rifles were issued. Soon began the epic journey through the wilds of Northern Ontario along the shores of Lake Superior where the railroads had not yet been completed; with forced marches across gaps as wide as 50 miles, gaps filled with slush and broken ice under the April sun, and slippery, icy hummocks at night.*

At Qu'Appelle, the battalion was attached to the column of Major General Middleton, Imperial Officer in command of the Canadian Militia and General Officer Commanding the active force. But the column had moved out four days before, and over the burning, alkali plains of Saskatchewan, short of drinking water and poorly equipped, the Regiment pushed on with all possible speed, marching two hundred and ten miles in nine days to overtake the column at Clarke's Crossing. Soon after, on April 24, men of the Regiment came under fire from some of

The Royal Regiment of Canada observes the ceremony of the Trooping of the Colours on the campus of the University of Toronto. Her Royal Highness the Princess Royal, Colonel-in-Chief of the regiment, presented the new Colours to the regiment at this site during her visit in June.



**This movement of militia troops by rail and march, under extreme winter conditions — blazing sun by day, 30 degrees below freezing at night — is cited in European military textbooks as an example of the capacity for endurance of troops who are imbued with the will to win through.*

Riel's men at Fish Creek as the columns moved up into position.

But it was not until the troops reached Batoche, to find it cunningly guarded by well-concealed rifle pits, that blood was let. For three days 600 of Riel's men were engaged. Their position was shelled with a few muzzle-loading nine-pounders, and each night the Regiment, together with other infantry units, withdrew to a zareba behind the lines, leaving an outlying piquet. The battle was desultory, with neither side gaining advantage. Then, on May 12, came the order, "Fix Bayonets!", an order somewhat liberally interpreted and given by their own officers on their own responsibility. Then, "Charge!"

General Middleton, who had been out on a reconnaissance, returned to the zareba just in time to hear the cheering and see a long line of men, bayonets glittering in the sun, moving forward at a steady, determined pace. The General ordered out all remaining troops and galloped forward himself to direct the charge. The bayonets proved too much for the rebels. After an initial rally, Riel's force soon found their half-hearted defence turned into a disorderly rout.

The charge had broken the back of the North-West Rebellion, and within a few days those rebels who had escaped were rounded up, including Louis Riel. Rebel losses were 51 killed, and 173 wounded. The Regiment lost three men killed, and 73 wounded. In 1888 the Regiment was authorized to carry the distinction "Batoche" on its Colour.

Hostilities in South Africa broke out in the fall of 1899 and part of the contingent offered by Canada to the British War Office included five officers and 44 other ranks from the 10th Regiment Royal Grenadiers. For service in the Boer War, Lt. (later Lt.-Col.) James Cooper Mason was awarded the Distinguished Service Order for gallantry in action.

In the First World War, the Regiment furnished personnel for approximately two of the eight companies of the 3rd Infantry Battalion, Canadian Expeditionary Force. One of the battalions of the 1st Canadian Division, and the 3rd Battalion served in all operations of the Division until the war's end.

The Grenadiers later raised the 58th and 123rd Battalions CEF, and contributed materially to a number of others; a total of 350 officers and 3715 other ranks passed into battalions of the Canadian Expeditionary Force.

Following demobilization, the Regiment moved from a one-battalion regiment to three battalions, one active and two reserve. The numeral was dropped, and the Regiment became The Royal Grenadiers. Two of the overseas battalions with which the old 10th had been closely associated were perpetuated by incorporation into the battalion titles. They had seen service at Mount Sorrel, on the Somme, at Vimy Ridge and in the great battles of The Hundred Days. They had entered the Great War with four Battle Honours emblazoned on the Regimental Colour. They emerged with the right to emblazon ten more. The 14 were:

Batoche
Fish Creek

A member of The Royals takes part in a ceremony at old Fort York, Toronto.

North-West Canada, 1885
South Africa, 1899-1900
Ypres, 1915-17
Festubert, 1915
Somme, 1916-18
Arras, 1917
Vimy, 1917
Passchendaele
Amiens
Hindenburg Line
Cambrai, 1918
France and Flanders, 1915-18.

In the years between wars, a number of honours were earned by the Regiment. It furnished a guard for the visit of HRH The Prince of Wales in 1919. It had been presented with 600 bearskins by Lt.-Col. (later Sir Albert) Gooderham during his first tenure of command, 1907-1911, and wore these with distinction on various occasions. The Regiment continued to maintain its reputation for particularly fine shooting, and many members represented the Regiment on Canadian Bisley teams, comprising the 18 best shots in the Dominion. At both Provincial and Dominion meets the Regiment gave a good account of itself, carrying off many prizes.

Late in 1936, with the reorganization of the Canadian Militia, The Royal Grenadiers and The Toronto Regiment were amalgamated. They were allotted the title The Royal Regiment of Toronto Grenadiers. At the coronation of King George VI in 1937, two members of the new regiment were given distinguished honours: Major (later Lt.-Col.) G. Hedley Basher, ED, commanded the Guard at Buckingham Palace, and CSM D. D. Spencer, was chosen as Sergeant of the Guard. In November 1938 King George VI formally approved re-designation of the regiment as The Royal Regiment of Canada. By this time the combined battle honours totalled 26.

The Royal Regiment of Canada won the Colonel Sir Casimir Gzowski Infantry Trophy in 1961. The trophy is awarded annually to the infantry militia battalion judged to be the best in over-all training and administration. A total of 58 battalions in Canada compete for this award.

In the summer and fall months of 1940, after hasty mobilization and a winter's training in Toronto following the outbreak of the Second World

Skiing is included in the regiment's winter training schedule. Extra-curricular training also includes, hockey, judo, skin-diving and baseball.

War, the Regiment was stationed near Reykjavik to garrison the port of Habnafjordur, Iceland, and shortly after at Huerigadi, for the construction of defensive works, and an airstrip at nearby Kadadarness; one platoon garrisoned the Westmannaer Islands, about 200 sea miles from Reykjavic, as a mobile striking force.

By winter, the Regiment had sailed for Scotland and settled down later in Aldershot where passes were issued for the first leave after the privations of Iceland. For two years thereafter the Regiment's duties were in the front line of the defence of Britain. As the threat of invasion diminished, the role of the training programme changed from defensive to offensive. Then, in full light and without cover, on 18 August 1942, 526 officers and men of the Regiment landed at Puys, a little village east of Dieppe, as support for the main assault on Dieppe itself. They were met by murderous fire; mortar and artillery soon found their range; the navy could not effect evacuation. Of the 26 officers and 528 other ranks of the Royals who had proceeded on the raid there returned to England only two officers, both wounded, and 63 other ranks, of whom 31 were wounded, two fatally. Of those who remained behind at Puys, eight officers and 201 other ranks had been killed in action, two officers and 16 others ranks died while in captivity, and of the remaining 262 who became prisoners of war, eight officers and 95 other ranks had been wounded.

In the invasion two years later, after basic training had been instituted all over again with reinforcements, the Royals sailed from London and New-

haven and went ashore July 5 at "Mike" beach near Corseulles-sur-Mer and five days later moved near to Caen in support of the 3rd Canadian Division, where the first casualties since Dieppe were suffered.

Shortly men and officers of the Royals were to distinguish themselves at Eterville, Louvigny, in "Operation Spring" and on to the Caen Breakout ("Operation Totalize"). Casualties were heavy throughout, especially in the cracking of the German hinge at Caen. Then came the pursuit to the Seine and the heartbreaking and bitter fight in the Forest de la Londe. Finally, the Regiment was one of those given the honour of liberating the city of Dieppe on 1 September 1944. Two days later ceremonies were held by the 2nd Canadian Division, and the next day H/Maj. H. F. Appleyard, MC, the padre (now Anglican Bishop of Georgian Bay), held a Royal's memorial service for the unit at Blue Beach near Puys. A memorial tablet was erected to commemorate the Dieppe landing and those Royals who fell.

In the advance to Antwerp Lieut.-Colonel R. M. Lendrum, DSO, took over command, coming from the Canadian Scottish Regiment. He successfully guided the Royals until the end of the war in Europe.

In common with other militia units in Canada, The Royal Regiment of Canada receives thorough training in the National Survival role.

After Antwerp, the Royals fought in the Nijmegen Salient during the winter of 1944-45, digging in by day, with the enemy in full view and aggressive with heavry artillery resources, and moving, cooking and eating by night. That Christmas was spent in the line.

Towards the end of winter, the Royals headed for Cleve by way of Mook, Hekkin and Materborn, and through to early March distinguished themselves at Goch-Calcar and The Hochwald, culminating in the capture of Xanten on March 8, the last strongpoint of the Germans west of the Rhine. Then followed the march into Northern Holland, and, by mid-April, into Germany itself to capture the city of Oldenburg by encirclement on 5 May. After the official end of hostilities three days later, the unit was involved in "Operation Eclipse", the occupation of defeated Germany.

The Battle Honours earned in the Second World War have been emblazoned on the new Colours officially presented during the visit of HRH The Princess Royal. Her Royal Highness arrived in Canada June 21, and was met at the airport at Toronto by an honour guard from the Regiment. More than 100 members of the Regiment's association were on hand for the days of ceremonies and celebrations which followed, commencing with an informal supper dance Friday evening, June 22, and a dance, held concurrently. The Princess Royal attended both.

On Saturday, 23 June, there was the Trooping of the Old Colours and Presentation of New Colours by HRH, the Colonel-in-Chief, followed by a Veterans' Reception on the University of Toronto campus. The Centenary Dinner and Reunion was held that evening.

On Sunday, 24 June at 11 a.m., the ceremony of the Laying Up of the Old Colours in St. Jame's Cathedral took place. In the afternoon there was the Centenary Garden Party, at Old Fort York, tendered by the City of Toronto aided by The Royal Regiment of Canada Chapter IODE and The Royal Regiment of Canada Chapter, Silver Cross Women.

From 30 June to 7 July the Regiment revisited Saskatchewan and the battle scenes at Batoche and a month later members of the Regiment attended the Twentieth Anniversary observances at Dieppe, journeying there via London and Paris. At the Canadian National Exhibition Grandstand Show the Regiment will appear nightly, and the Regiment's honorary Lieutenant-Colonel, Lt.-Col. D.E. Catto, DSO, ED, will address the Directors' Luncheon at the CNE at this year's Warriors' Day.

During these Summer events, despite all the emphasis on the happy culmination of years of planning, training will go on apace; and once again, as amply illustrated over the past 100 years, the good citizen-soldiers of The Royals will — in nuclear survival training, in learning how to handle choas after atom bomb attack, in becoming proficient in the use of medicines, weapons, new methods of combat, in all those areas where the defence and protection of Canadians' livres and properties are at stake — in all this, the men of the Royals will, as they have throughout their first century, stand "Ready Aye Ready".

Flashback No. 38

Push-Button Warfare, 1944

NARRATIVE SUPPLIED BY THE HISTORICAL SECTION,
ARMY HEADQUARTERS, OTTAWA

During the Second World War a start was made by the Germans at "push-button" warfare utilizing small tanks. While the Canadian Army came into contact with them first at Falaise, they were used in Italy and on the British beaches on D-Day.

The picture on the opposite page shows one of these miniature tanks, captured by the British on D-Day. An operator controlled it for distances of up to a thousand yards by means of a cable and a control box. The ones with which the Canadians came into contact were presumably radio controlled; war diaries mentioned aerials from which flew white flags. They were called by the Canadians either "Robot" or "Beetle" tanks and, though looking like a youngster's toy tank, weighed some 500 pounds when fully loaded. Their power came from a six-volt storage battery and they were capable of speeds of from seven miles per hour for cable-controlled tanks to 15 for radio-controlled. The buttons on the control unit were used to move the tank forward, backward, turn it in either direction, and to explode it when it reached its destination.

While it was loaded with 160 pounds of T.N.T., its lethality was slight. As the diarist of The Royal Hamilton Light Infantry wrote, "When they exploded they made a terrific blast but no casualties were suffered by personnel of the unit." His colleague in the Canadian Grenadier Guards (then the 22nd Canadian Armoured Regiment) put it in another way: "Their value is problematical, for the blast being practically vertical caused no material damage to us." Indeed, the only fatal casualty caused through them was an officer who was hit by shellfire while examining one. While some of them were hit by our gunfire, it was never determined whether that or the German operator was the cause of their exploding.

The attack against The Royal Hamilton Light Infantry on 31 July 1944 was very short and was conducted under cover of a smoke screen while that on the Canadian Grenadier Guards on 10 August 1944 lasted slightly less than an hour and was conducted in the open.

Space Control

Space technology will eventually become a dominant factor in determining our national military strength ... In times to come, whoever controls space, controls the world. — *Senator John Stennis, Senate Armed Services Committee (U.S.).*

An Analogy

Operational Research Procedures

Mr. H. H. Watson, Director,
Canadian Army Operational Research Establishment

Note: The following is part of a talk given to the Canadian Army Staff College on 14 February 1962. Acknowledgement is made to Mr. G. N. Gadsby, Director of the British Army Operational Research Establishment, who suggested the analogy. — Author.

To give an idea of the general approach to undertaking military operational research (OR), an analogy may be drawn between the project sponsor/OR relationship on the one hand and the patient/physician relationship on the other. This is illustrated in the table below, although the parallels which are drawn are not to be considered exact by any means. A person consults a physician because he does not feel well, is not "up to par", or perhaps prudently seeks a routine check-up. The person, or the patient, describes his symptoms, or, in other words, states a problem or a difficulty for which he requires a solution, and he, often impatiently, expects the physician to make an immediate recommendation or a prescription for a course of action.

Before attempting a solution, the physician will make sure that he understands what the problem is and that the patient has been reasonably objective in stating his symptoms or his needs. His next step will be to make a preliminary diagnosis or a working hypothesis; that is to say, he will construct a framework or a model on which he can work. Then comes the clinical examination, which may be termed the detailed data collecting phase. The physician fits these data into his model and, after due consideration, makes a diagnosis which points to a solution to the problem or, in other words, what is required to make the patient well again. His next step is to state his findings to the patient, to offer recommendations as to those courses of action which he has concluded will alleviate the problem and the symptoms and to prescribe the one which best fits the case.

It should be kept in mind that a physician, like an operational resear-

PATIENT/PHYSICIAN	SPONSOR/O.R.
Symptoms	Difficulties
Preliminary Diagnosis	Problem Formulation
Clinical Examination	Data Collection and Analysis
Confirmed Diagnosis	Solution
Prescription	Recommendation

cher, will only give advice; this the patient can follow, modify, or reject, as he sees fit. Throughout this whole procedure best results are obtained if there is close cooperation and collaboration between the patient and the physician. In all but relative minor cases the physician will institute a follow-up by suggesting one or more further visits by the patient, when the effect of the prescribed treatment can be assessed. It is usually cheaper and more satisfactory all round if the patient consults his physician when worrying symptoms first appear and does not delay until the trouble becomes serious. Self-diagnosis can be badly in error.

To continue the analogy, a sponsor sets a question or raises a problem to the operational researcher. To get a neat answer to the wrong question, or to a wrong interpretation of the question, is much less desirable than to get 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 after frank discussion with the sponsor. In doing this, it is usually necessary to ask not only what is required but also by whom, why and when. It follows that a satisfactory formulation of the problem may require considerable study, discussion and initial calculation in order to delineate the relevant and sensitive parameters and the methodology to be used. This leads to the production of a model, which may be a physical analogue (*e.g.* a war game) or, more frequently, a set of mathematical equations which set down relationships between the various parameters involved in the problem. Into these equations must be fed numerical data so that real solutions may be calculated. The collection of these data may be a major undertaking for, if the performance of a weapon system or a piece of equipment in the tactical environment being studied is not known, it may be necessary to conduct controlled field measurements or experiments. Sometimes this is not possible and some estimates or performance have to be made, extrapolating from what is known, using systems analysis or war gaming. The sponsor and his staff will have been following the work through its various stages and will have provided much of the data used in the analysis.

Writing the report with its conclusions and recommendations is sometimes the most difficult part of the whole project for the operational researcher; it is certainly an important part and must be treated so. The conclusions and recommendations must be stated simply, clearly and unambiguously; they must not go beyond what the data will support and their limitations must be pointed out. There is no guarantee of course that the chosen model, which can at best be only a simplified representation of reality, is adequate or that the data and analyses are complete. The operational researcher can make a false diagnosis and prescribe an incorrect or an inadequate treatment; but then so can the physician, even if only infrequently.

A Maxim

Better not to have been born than to live without glory. — *Napoleon.*

"The Dawn of Majuba": R. Caton Woodville's famous drawing of the Boers' surrender at Paardeberg, 27 February 1900.

Sixty Years Ago

Peace Came to South Africa

By

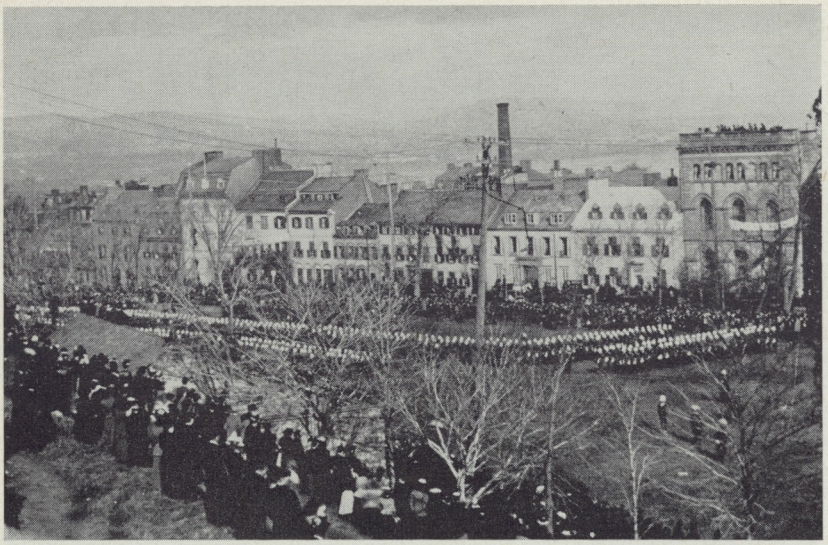
MRS. ALICE SORBY, MBE,

HISTORICAL SECTION, ARMY HEADQUARTERS, OTTAWA

Sixty years ago, on the thirty-first of May 1902, the final terms of peace between Boers and British were signed in the house of the Commander-in-Chief, Lord Kitchener of Khartoum, in Pretoria. The Treaty of Vereeniging derived its name from the fact that for many weeks of negotiations the Boer delegates had been assembled in Vereeniging. It was there that De Wet, the former intransigent, finally decided for peace and threw his weight on the side of accepting British terms. The terms were unique because they provided for the conquerors to pay an indemnity of £3 million to rebuild the ruined homes of the veldt. The most important pledge of all, which was fulfilled to the letter four years later,

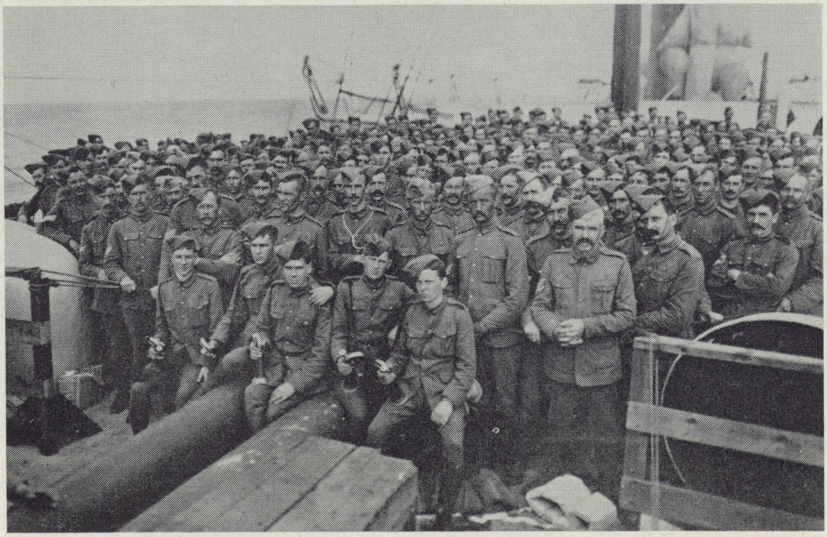
From Public Archives of Canada

"D" Battery, Royal Canadian Artillery, riding up Metcalfe Street, Ottawa, *en route* to South Africa. This appeared in a report entitled "The Transvaal War, 1899-1900" published in the Illustrated London News.



From Public Archives of Canada

Above: The First Contingent is reviewed at Quebec City before leaving for South Africa. *Below*: Troops aboard the *Monterey,* a steamship chartered by Lord Strathcona who raised and equipped a mounted regiment at his own expense.



From Public Archives of Canada

Above: Non-commissioned Officers of Lord Strathcona's Horse aboard ship. *Below*: Ship's officers of the *SS Monterey* which carried the Lord Strathcona's Horse to South Africa. The regiment embarked on 16 March 1900 at Halifax and arrived in Table Bay on 10 April.

The 1st Gordon Highlanders and the Royal Canadian Regiment cross the Modder River on Sunday morning, 18 February 1900. This is the upper of the two crossing places, and the river flows from right to left. Paardeberg may be seen in the right background and members of the 82nd Battery on the skyline. The Boers were holding positions upstream.

was the promise of representative government and eventually full autonomy.

From Canada to South Africa was a long journey and it may be wondered why a dispute over the denial of political rights to foreign miners in the Transvaal should cause concern here. Of course the fate of the *Uitlanders* was not really what mattered. What was important was a tremendous resurgence of Imperial enthusiasm following Queen Victoria's Diamond Jubilee in 1897. Even before the actual outbreak of war, several British colonies had offered military assistance. At first Canada held aloof but the government was pushed into action by a great weight of public opinion favouring participation. So Canada undertook to "equip a certain number of volunteers not to exceed 1000 men and to provide for their transportation to South Africa".

On 14 October 1899 orders were issued for the enrolment of volunteers for six months' service to be extended

From Public Archives of Canada

Canadian troops seizing a kopje near Sunnyside in the Toronto Company's baptism of fire. In the raid which took them to Douglas the Canadians distinguished themselves by carrying a ridge which had been recognized as the key to the enemy's laager. "C" Company of the Royal Canadian Regiment, consisting chiefly of Toronto men, formed the infantry force. This photograph is taken from *Canada's Sons on Kopje and Veldt* by T. G. Marquis and published by The Canada's Sons Publishing Company (1900).

to 12 months if necessary. By 20 October eight companies had been enrolled, moved to Quebec, and formed into the 2nd (Special Service) Battalion of the Royal Canadian Regiment. Approximately 150 officers and men were from the regular units but the majority of the volunteers came from the militia regiments, 82 of which, from every province, provided volunteers. This battalion, which was the first contingent, sailed from Quebec on 30 October 1899 on the *Sardinian*, just 16 days after the order had gone out, surely a fine example of administrative dispatch.

The second contingent consisted of two regiments of mounted rifles and three batteries of field artillery. The 1st Battalion, Canadian Mounted Rifles, was formed on a nucleus provided by the Permanent Force cavalry regiment, The Royal Canadian Dragoons, and later was allowed to take the RCD name. The other regiment, named at first the 2nd Battalion, Canadian Mounted Rifles, and later simply, The Canadian Mounted Rifles, had its basis in the North-West Mounted Police. The second contingent sailed from Halifax early in 1900. In March of the same year the 3rd Battalion, RCR, was organized to replace a British unit in garrisoning Halifax. This was the last of the units raised in Canada for which the Canadian gov-

From Public Archives of Canada

Canadian Scouts from the 17th Troop, "C" Company, South African Constabulatory, photographed at Drietfontein, Transvaal, in May 1902.

From Public Archives of Canada

Soldiers who fought at Paardeberg — the 2nd (Special Service) Battalion, Royal Canadian Regiment — are welcomed home at Halifax.

ernment assumed financial responsibility.

Lord Strathcona, the Canadian High Commissioner in London, offered to raise and equip a mounted regiment at his own expense. The offer was accepted and the command was given to Lieutenant-Colonel Sam Steele, a famous NWMP officer, a veteran of the Red River Expedition, of the North-West Campaign, and of the Yukon gold rush. The name and traditions of this unit are preserved in the Army today by Lord Strathcona's Horse (Royal Canadians).

Other units were recruited in Canada. Over 1200 men were enrolled for the South African Constabulary, "a permanent mounted force established for the purpose of maintaining order and public security in the Orange River Colony and the Transvaal". In November 1901 a regiment known as the Canadian Yeomanry, afterwards designated the 2nd Regiment CMR, was organized. This was dispatched overseas along with the 10th Canadian Field Ambulance, and eight Nursing Sisters. The 3rd, 4th, 5th and 6th Regiments of Canadian Mounted Rifles were formed also but saw no action, since, by the time they reached Durban in June of 1902, peace had already been declared.

Brief mention should be made of the many *ad hoc* units organized in South Africa during the war. Efforts were made to induce personnel, whose term of engagement was ended, to remain. These irregular units, although

having on strength many Canadians, were not Canadian units. They carried such colourful names as "Binnington's Horse", "Commander-in-Chief's Bodyguard", "Imperial Light Horse", "Kaffrarian Rifles", "Kitchener's Horse", "Orpen's Light Horse" and so on. One of the best known has been called variously, "Canadian Scouts", "Howard's Scouts", and "Ross' Scouts". This was commanded at one time by the famous "Gat" Howard, who was killed in South Africa, but who first gained prominence in the Canadian Army during the North West Campaign when his status defied definition.

The Battle of Paardeberg is commemorated annually by the Royal Canadian Regiment. It was the first battle ever fought overseas by the Canadian Army, where after ten days of bitter fighting, the Boer General Cronje was forced to surrender. It was the Canadians who delivered the final attack and helped to avenge the defeat at Majuba on the anniversary of that bitter affair some years earlier. The surrender of Cronje at Paardeberg was a heavy blow to the Boers. In the words of De Wet himself "Depression and discouragement were written on every face. The effects of this blow, it is not too much to say, made themselves apparent to the very end of the war."

Men of the second contingent were in action in the spring of 1900 and in May "C" Battery took part in the relief of Mafeking. A very important action took place at Leliefontein where a small party of RCD's and two of "D" Battery's guns covered the retreat of the Infantry. This is a day which will always be remembered by the Royal Canadian Dragoons for three Victoria Crosses were won that day by members of the Regiment. The awards went to Lieutenant H. Z. C. Cockburn, Sergeant E. J. G. Holland and to Lieutenant R. E. W. Turner who commanded a Division in the First World War, became Lieutenant-General Sir Richard Turner and who died at his home in Quebec City in 1961. Lieutenant E. W. B. Morrison, RCA, was awarded the DSO for his part in the same action. This officer subsequently commanded the Canadian Corps Artillery in the First World War and rose to the rank of Major-General.

The fourth Canadian VC was awarded to Sergeant A. H. L. Richardson of Strathcona's Horse for rescuing wounded comrade under heavy crossfire during a skirmish at Wolve Spruit on 5 July 1900.

The 2nd Regiment of Mounted Rifles was involved in a memorable incident at Boschbult in the Western Transvaal when 21 men under Lieutenant Bruce Carruthers made a determined stand against a much larger force of Boers. Lieutenant Carruthers was afterwards appointed to the Permanent Force, eventually became AAG for Signalling and is today considered the father of The Royal Canadian Corps of Signals.

Compared with the part played by Canada in two World Wars the Canadian effort in South Africa seems very small. Canada provided only about 8000 men, and most of them were recruited for Lord Strathcona or the British Government at no expense to Canada. Total casualties numbered fewer than 500. The whole war cost less than $3,000,000. However, the war

Major-General Bogert

Distinguished Soldier to Retire

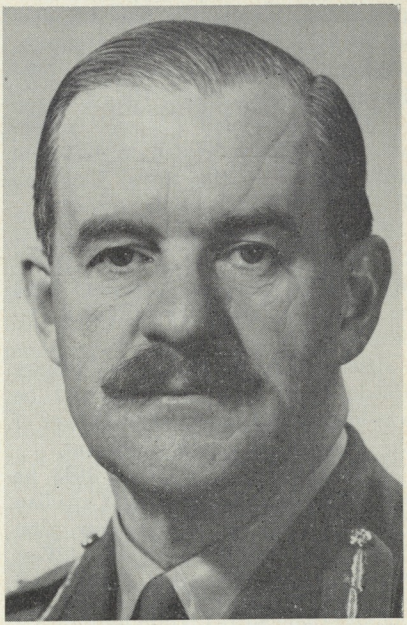
A STATEMENT BY THE HONOURABLE DOUGLAS S. HARKNESS, MINISTER OF NATIONAL DEFENCE

Service with distinction keynotes the 32-year military career of Major-General M.P. Bogert, CBE, DSO, CD, who will retire from the Canadian Army in September.

From a second lieutenant in 1930 to a major general with divisional responsibilities he relinquishes the appointment of General Officer Commanding Eastern Command, Halifax, on retirement.

Major General Bogert's replacement will be announced at a later date.

Determination and forceful leadership were always a part of Maj.-Gen. Bogert's makeup. He exhibited these qualities in Italy in December 1943 when, as a lieutenant colonel commanding the West Nova Scotia Regiment, he coolly and capably directed a counter-attack which dislodged the enemy from its position to enable flanking battalions to advance unimpeded.



Maj.-Gen. Bogert

For this courageous direction under heavy machine-gun fire while crossing the river to the south of Jelei in the St. Leonardo sector he was awarded the Distinguished Service Order.

The French Government also recognized his abilities by presenting him with the *Croix de Guerre*. The Greek Government bestowed upon him the Golden Aristion Andrias (Order of Gallantry).

For distinguished and meritorious service as Commander of the 25th

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Peace Came to South Africa

(Continued from preceding page)

in South Africa was very significant in the national life of the country and set a pattern which has been followed since. It was the first time that Canadian troops served overseas under their own officers. This was the beginning of an idea which was to persist in Canadian politics, a preference for, in fact, an insistence on placing Canadian troops under a unified Canadian command.

Canadian Infantry Brigade in Korea in 1952 he was created a Commander of The Most Excellent Order of the British Empire (CBE). The Government of the United States of America awarded him the Legion of Merit.

Born in Toronto, Ont., 17 March 1908, Maj.-Gen. Bogert was educated at Selwyn House School, Montreal, Ashbury College, Ottawa, and the Royal Military College, Kingston.

He was appointed a second lieutenant in the Black Watch in 1930 and was assigned to the Royal Canadian Regiment in 1932 as a lieutenant.

Promoted to captain shortly after the outbreak of the Second World War and to major in August of 1940, he became a lieutenant colonel 3 December 1941.

After serving at Canadian Military Headquarters in London, England, he was appointed Commanding Officer of the West Nova Scotia Regiment.

From March to June of 1943 he served at Headquarters 2nd Canadian Corps as a General Staff Officer, First Grade, then returned to the "West Novies" for the invasion of Sicily and Italy.

Once recovered from wounds received during the heavy fighting in Italy, Maj.-Gen. Bogert was promoted to colonel and assigned to the General Staff at Canadian Military Headquarters.

He became a General Staff Officer, First Grade, with the First Canadian Division from April to October of 1944. Then he was promoted to brigadier and appointed to command the 2nd Canadian Infantry Brigade in Italy.

When the cease fire came he remained in Germany in command of a Canadian Brigade on occupational duties.

Returning to Canada he commanded Headquarters Eastern Ontario Area at Kingston, Ont., until August 1948. Then he moved to Vancouver to take over command of British Columbia Area until August 1950.

After attending the National Defence College at Kingston, he became Director General of Military Training at Army Headquarters.

In February 1952 he succeeded Maj.-Gen. J. M. Rockingham as 25th Canadian Infantry Brigade Commander in Korea.

On his return to Canada the following year, he was appointed Deputy Adjutant-General at Army Headquarters. In May 1954 he became the Commandant of the Canadian Army Staff College at Kingston.

Upon promotion to his present rank in February 1958, he was appointed General Officer Commanding Eastern Command.

A Strategist Must Have His Tactician

As society becomes more highly industrialized, the art of war becomes more complex. As an almost inevitable result, the logistical and tactical factors in military operations tend to condition the strategy of which they are theoretically but a servant. A strategist like Eisenhower or Wavell must have his work supplemented by a superb tactician like Montgomery, just as Lee had his Stonewall Jackson. The enormous technical preparations which precede a modern campaign preclude the possibility of rapid changes in strategy.—*Edward Meade Earle.*

An Essay

United Europe as a "Third Force"

By

CAPTAIN W. H. MOORHOUSE, CANADIAN ARMY STAFF COLLEGE, FORT FRONTENAC, KINGSTON, ONTARIO

Historical Background

The idea of a United Europe is not new. Indeed, the history of Europe since the days of the Roman Empire has been the record of a movement alternately towards and away from unification.

Before the Industrial Revolution and the birth of modern, national armies, the motivation towards European unity was usually supplied by the existence of an outside threat. Since these two phenomena, ideas of European unity have arisen as a result of one European power attempting to establish an hegemony over the others.

There is a further important historical fact to be considered. Until the sixteenth and seventeenth centuries the major European nations were concerned exclusively with European affairs. After the geographical discoveries of that period and the consequent scramble for empire, the interests of some of the major powers tended to be outward-turning. One of these nations, Great Britain, was paramountly successful in this struggle. For more than three hundred years her interests were two-fold: firstly, to consolidate the empire which she had acquired; secondly, to ensure a balance of power among the other European nations. The first of these aims produced the fiction that Britain was not a European power by political interest, and the second effectively precluded the possibility of a United Europe.

Today, Europe is faced once again with the problem of unification. The wheel seems to have turned full cycle. It is again the threat of outside intervention which primarily focuses the collective attention of the statesmen of Europe on the necessity of unity. However, in addition to the direct external threat posed by Soviet communism, — a negative inspiration, — there is a positive force at work. This may be interpreted as the consciousness that Europe as a political tradition and as a culture is worth saving and worth developing for its own sake. This comes at a time when the colonial empires of the European powers have been all but shorn away.

We have, therefore, the twin stimuli to European unity. Let us now examine the resources available to a United Europe, the resources which may enable it to realize its ambitions.

The Economic Aspects

The unity of Europe will result in an economic bloc of approximately 250 million people. This is a population well in excess of that of the United States or of Soviet Russia. These people are, moreover, among the most sophisticated on earth. The skill of the workers, the excellence of the technicians and the enterprise of the in-

ventors are accepted economic facts even among Europe's competitors.

The production of such heavy industrial items as coal and steel, when taken collectively, shows the enormous potential of this Union. Coal and steel are cited as the basis and backbone of any industrialized society; they are the yardstick of productivity. The production of other capital and non-capital goods and services, however, is equally impressive.

The production figures are impressive only when considered collectively. Viewed severally, the economic resources of each country of Europe seem only fragmentary within the regional framework. While the productivity of a single country may seem considerable within Europe, confronted with the two major powers of the world it appears negligible.

Great strides have been taken and are being taken towards economic unity. Although problems yet exist, many problems, at one time considered insuperable, have been overcome. The European Market, consisting of France, Western Germany, Italy, Belgium, the Netherlands and Luxembourg has been a fact for some time. Among the problems which the Common Market has solved are the removal of restrictions of foreign exchange, removal of quota restrictions based upon currency shortages, the adoption of West European power and steel plans, the mobility of labour within the group and the adoption of a common agricultural policy. Only a few years ago such problems would have been considered insurmontable.

Success breeds success. Even after so short a period as six years the results of the Common Market endeavour have been such as to attract no less a competitor than Britain. For long the leader of the European Free Trade Association consisting of herself, Norway, Sweden, Denmark, Austria, Portugal and Switzerland, for many reasons — mostly concerned with the Commonwealth — Britain was obliged to remain outside the Common Market. Now it appears that she will join it and will be followed by most, if not all, of the "Outer Seven". The European Free Trade Association alone represents a market of some 90 million people.

These are indeed great strides towards economic unity. Not only is this group of 250 million people the largest single market in the world, it could develop into the most powerful single industrial system in the world.

The Political Aspects

In spite of differences of nationality and race, language and religion and in spite of bitter internecine wars, the peoples of Western Europe have remained a single identifiable group, and in the past have made their influence felt throughout the whole world. This has been achieved without political unity in the modern sense of that term.

In terms of time and space the world is continuing to shrink at a rapid rate. The combination of modern flight and modern weapons calls for a reappraisal of geographical, defensive and economic standards by which to judge what constitutes a really independent and secure political organization. What were considered great nations in the past are today too small and too poor to be able to maintain a powerful identity. The solution seems to lie in

the evolution from smaller to larger political units or organizations. Such organizations must grow out of some measure of pre-existing unity. Common history, common political outlook, community of economic interests, geographical proximity or awareness of a common threat — some at least of these elements must be present on which an effective political structure can be built. That these common considerations are present in Western Europe cannot be doubted.

At the Hague Congress of May 1948 a Political Committee under the chairmanship of Paul Ramadier, a former Premier of France, reported, among other things, that: "It is impossible to keep problems of economic collaboration and defence separate from those of general political policy. Economic and defence plans having been made, political power is required to implement them. The processes of industrial and military integration inevitably give rise to conflicts of national interests. These difficulties can only be resolved and the necessary compromises accepted when the problem is viewed in the light of wider political considerations... Sooner or later this must involve the renunciation, or, to be more accurate, the joint exercise, of certain sovereign powers."

There is considerable agreement today in Europe on the need for political cohesion; this is particularly true among the nations of the Common Market. Where differences exist they are ones of form rather than of principle. Broadly speaking, these differences lie between the adherents to a political federation and the supporters of unionism.

Federation calls for the partial surrender of the national sovereignty of the member states, whereas a political union postulates an association of states retaining their own independence.

It is beyond the scope of this short paper to prognosticate what form of political association will be adopted ultimately in Europe. Suffice it to say that following upon economic unity some form of political unity there will be.

The Military Aspects

Since the end of World War Two the trend towards European unification has come about mainly as the result of a threat of outside intervention. We have noted that modern methods of travel and the development of modern weapons have caused a shrinkage of the world in terms of time and space and that this, in turn, has called for a reappraisal of the ability of nations individually to provide for their own defence.

Although we are considering the military aspects of the situation last, it should not be forgotten that it was the necessity for providing a common military front to the outside threat that was the first stimulus to West European unity. This requirement was met by the creation of the North Atlantic Treaty Organization. Under the terms of this treaty an attack upon any one of the signatory members is to be considered an attack on all of them. Again, under the terms of this treaty, a military organization was created in which military forces of the several nations were to serve on a basis common to all, without overriding regard to the wishes of the nation providing the forces. This organization grew out

of Western Union, largely the creation of Ernest Bevin, Secretary of State for Foreign Affairs in the post-war Socialist Administration in Great Britain.

The forces which were contributed by the individual nations were limited by the economic and political factors at work in each of the member countries at the time the treaty was signed. Some of the larger nations, notably France and Britain, had commitments outside Europe. The total force provided was that which was considered necessary to prevent sudden, successful aggression into Western Europe.

The fact that further penetration by the Soviet has not been staged against Western Europe must be considered proof to the point of demonstration of the effectiveness of this military alliance.

Since 1949 the fortunes of Western Europe have waxed prosperous. Economic progress (and cooperation) has been tremendous. Gross national product has been growing in the last few years at a rate in excess of that in the United States. These facts are mentioned, since, in modern times, it is largely upon these bases that the capabilities of a nation (or a group of nations) to wage war must be judged.

An abundance of manpower is also required. The present population of the European nations under consideration is approximately 250 million. Moreover, a high proportion of this population is in the critical military age bracket, let us say, of 18 to 35 years. Again, with the exception of West Germany, most of the European nations, as far as actual fighting is concerned, have been at peace since 1940. Babies born in 1940 in Europe are now over voting age and are starting to have families of their own. Birth rates are high in Europe today and are rising, largely as a result of economic prosperity.

The standard of physical fitness is also very high. The percentage of young males who are rejected for military service in the European armies is low and the figures compare most favourably with those of any non-European country.

Added to these hard economic and human facts must be the intangibles of morale and military élan. Most European countries are both martial and military. Western Europe is the birthplace of most modern military ideas and methods of waging war. From Frederick the Great, through Napoleon, to Montgomery and von Manstein, the military tradition runs high. Let us not forget that it took a very great proportion of the combined efforts of half the world to defeat the Germans alone in World War Two and that this victory was itself considered highly problematical for almost six years.

The military potential of a United Europe must, it is suggested, be considered very formidable.

Conclusion

In this paper we have examined some of the aspects of a trend towards an economically and politically united Europe. Europe is not yet united. The movement, although gathering momentum is not yet complete. How long it will take for the movement to be completed and what form a United Europe will assume are questions to which only time has the answers.

The economic, political and military advantages of unity are appealing to a growing number of individual states. Assuming a Europe so united, its influence as a world force cannot be doubted. It is likely that it will have a mind of its own and will be susceptible neither to Soviet threats nor American blandishments. Its relations with the so-called "uncommitted" nations of the world will probably be determined mainly by economic factors.

The influence of a United Europe upon world affairs is, at this point, incalculable. What can be said with some certainty is that great influence can and will be exerted by such a union. It must be considered a potential third force to be reckoned with by the two political behemoths of the twentieth century.

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Army's New Technique for Projects

A new technique developed for planning, scheduling and controlling both costs and time in tackling large projects within the Canadian Army will soon be undertaken on a widespread scale, it has been announced by Army Headquarters, Ottawa.

Based on the most important steps in planning any type of project, the technique is called "The Critical Path Method". It has undergone extensive study in both the United States and Canada, and this fall it will be taught at the Royal Canadian School of Military Engineering.

In 1956 the Du Pont organization in the United States established a team of engineers to develop a superior system for planning, scheduling and controlling complex engineering projects. The technique has been used by the Department of National Defence in construction projects for the National Survival programme with outstanding success. It is currently being used in the construction of provincial headquarters buildings for the Emergency Measures Organization, and in the future its use may be made mandatory in the calling of tenders for National Defence building projects.

The Critical Path Method was first tried by the Government in the Ottawa area two years ago on a building project of a year's duration. However, since then further investigations have revealed that its techniques can be applied to advantage in other fields of endeavour, including that of military tactics. — *From a report issued by the Directorate of Public Relations (Army), Army Headquarters, Ottawa.*

WINGS FOR THE CANADIAN ARMY

AN ARTICLE WRITTEN BY THE DIRECTORATE OF LAND-AIR WARFARE, ARMY HEADQUARTERS, OTTAWA*

From humble beginnings in the Second World War, military aviation has grown to a fleet of 46 fixed and rotary wing aircraft.

Canadian Army aviation had its humble beginning during the early years of the Second World War. In 1941, three officers of the Royal Canadian Artillery based in Great Britain were detached to take the British Army flying course.

After they had gained their wings, these three pilots were sent to join British Air Observation Post units for employment on artillery spotting duties. By the spring of 1944 the pilot strength of the Canadian Army had been reduced by two-thirds: one pilot had been killed and one had been captured. The sole survivor of the original triumvirate was one David Ely, then a Captain, later a Lieutenant Colonel, and Director of Land/Air Warfare at Army Headquarters until his retirement in January of this year.

During the late years of the Second World War the decision was taken to form a Canadian flying component as part of the Canadian Army. The task of this component was to provide Air Observation Post (AOP) aircraft in support of artillery units for the provision of aerial observation and adjustment of artillery fire. Three squadrons were formed of 16 aircraft each, equipped with British-made Auster aircraft. Unfortunately, by the time the Canadian Army flying force had been trained and was ready for action, the war was all but over.

The postwar period saw a decline in Army aviation to just two flights of four Austers each. Primarily a training nucleus, these aircraft were based at the Canadian Joint Air Training Centre (CJATC), Rivers, Manitoba, where limited training was in progress to maintain a small reserve of artillery pilots for AOP duties.

During the Korean War, one Canadian Army pilot at a time was sent to fly with a British unit spotting for the Commonwealth Division. Valuable experience was gained by individual pilots but a Canadian Army flying unit, as such, was not in evidence in that theatre of operations. Of the pilots who were attached to the Commonwealth Division, Captain Peter Tees won the DFC, the first such award to a Canadian Army officer since the First World War. Captain Joseph Liston was shot down and captured shortly after his arrival in Korea; he spent more than a year as a prisoner of war before being released.

During the early fifties, there was a growing awareness that advances in design and development in size and speed of Air Force aircraft had created a hiatus in the type of aircraft re-

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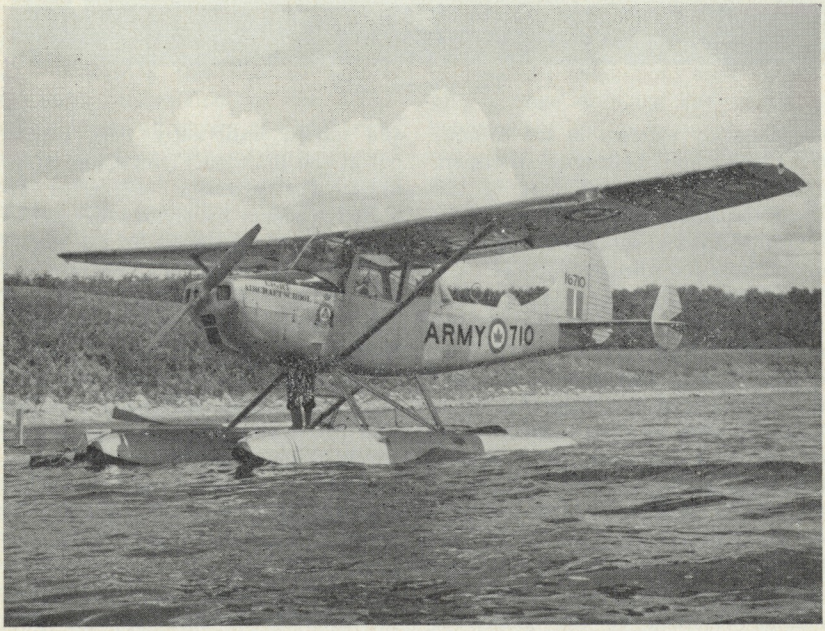
**This article was published under the title "The Army's Wings" in the April-May 1962 issue of "Canadian Flight" (The Pilot's Magazine) by whose courtesy it is reproduced here.*
— Editor.

quired to give the Army the sort of specialized operational and logistical support that it required. At the same time, tremendous advances had been made in the aviation industry in the development of light aircraft, particularly in the field of light reconnaissance and cargo helicopters. It was recognized that these had become excellent cross-country vehicles in the Army sense.

In the mid-fifties, the venerable Austers were retired from service with the Canadian Army and replaced with the Cessna L-19 which was in service with the U.S. Army. The acquisition of this modern, all-metal aircraft resulted in a marked improvement in operational capability and communications.

It was during this period, too, that it was decided to provide limited expansion in the pilot training programme and to prepare the ground work for the purchase of additional Army aircraft and perhaps helicopters as the nucleus of an Army aviation component under direct control of the Army Commander.

The need for expansion had been substantiated in respect to an increase in the number of AOP troops in support of the artillery. It was further thought that a need existed for an air



The versatile Cessna L-19 on floats. This aircraft is used by the Canadian Army in a variety of roles, and a total of 25 are in service, both in Canada and overseas.

The Cessna L-19.

reconnaissance element in the Armoured Corps, and helicopter transport platoons as an integral part of the Royal Canadian Army Service Corps to afford logistical support over ground not suitable for wheeled vehicles.

The first requirement was for pilots. In a field that had been dominated primarily by the artillery by virtue of their existing requirement, the door was now opened to officers of other Corps to train as pilots. Limited selections were made and the officers dispatched to RCAF Station London, Ont., for medical examination and psychological fitness tests. Successful candidates proceeded to flight training and the unsuccessful and unfortunate remainder returned to less glamorous but equally important duties.

The growing pains were numerous. Initial flight training was, at that time, and indeed until early 1960, carried out at the Brandon Flying Club, Manitoba. The excellent instruction afforded students by civilian instructors under the able leadership of Ed McGill accounted for a low attrition rate and the number of qualified fixed-wing army pilots grew rapidly. Seventy hours of instruction on the Cessna 140 led to graduation from the *ab initio* phase of training. Advanced and tactical fixed-wing training was carried out with the Light Aircraft School at the CJATC, Rivers, and on completion of this phase of training the fledgling became a qualified fixed-wing Army pilot.

Due to increased expansion and in the interests of economy, the pilot training scheme was changed in 1960. The responsibility for *ab initio* flight training of Army pilots was shifted

The Army's Cessna L-19 on skis.

from civilian authority to the RCAF who undertook this task at Station Centralia. Instruction on the Chipmunk covers all phases of flight training in 125 hours. An intensive ground school course covers aircraft engineering, flight procedures, meteorology, navigation, aerodynamics, survival, and flight conduct exercises. Over 336 hours of ground school instruction combined with flight training turns out an Army aviator with a sound basic knowledge of his new-found skills. Advanced and tactical flying training is still carried out at CJATC, Rivers.

The Light Aircraft School has grown and become the Army Aviation Tactical Training School, responsible for the tactical flight training of Army aviators in both the fixed and rotary wing field. In addition to increasing normal flying proficiency, the emphasis during this phase of training is primarily on low-level tactical flying, operating in and out of unprepared air strips by day and by night. Exercises in low-level navigation, aerial re-supply, message dropping and photo reconnaissance are predominant throughout the training programme. This advanced tactical training covers a period of 12 weeks during which 124 hours are devoted to flying sequences and 90 hours to ground school. On completion of this phase, the pilot is awarded the wings of an Army pilot.

Transition of Army pilots from fixed-wing aircraft to rotary wing aircraft of the light reconnaissance type again becomes the responsibility of the RCAF and is accomplished by the Basic Helicopter Training Unit at Rivers. The conversion course consists of 60 hours of flight training and 20 hours of ground school over a period of eight weeks. The flight training and ground school period cover basic helicopter flight manoeuvres and theory of flight, and give the student helicopter pilot a firm base for the

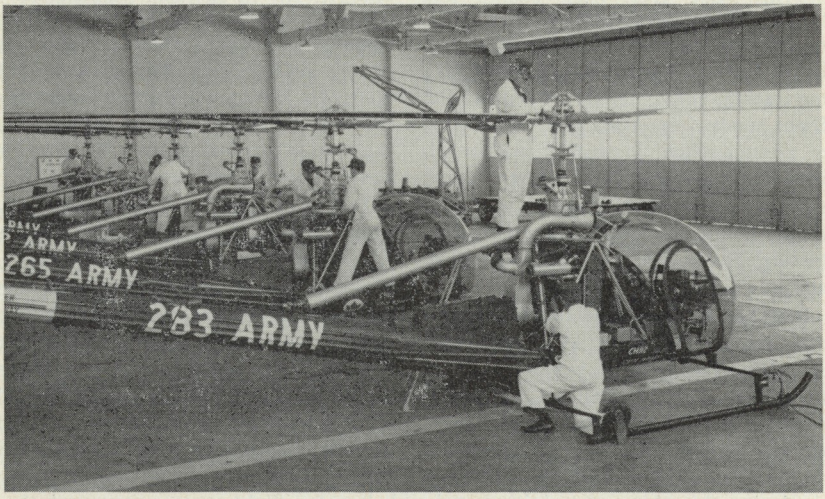
more advanced tactical training to follow.

As in the case of tactical flying training on fixed wing aircraft, so on rotary wing aircraft does the responsibility for tactical flying training rest with the Army Aviation Tactical Training School. Here, the student helicopter pilot continues his helicopter training and over a period of eight weeks he completes 118 flying hours and 11 hours of ground school. Here again, emphasis is placed on low-level navigation, contour flying, concealed approaches and take-offs, confined area work, the radiation and monitoring role, and road and route reconnaissance. A field exercise of two weeks' duration completes helicopter training and affords the student pilot the opportunity of putting into practice in unfamiliar terrain all those lessons learned in the course of this long and arduous training.

At the time of writing there are some 150 qualified Army pilots of which more than 90 are qualified in both fixed and rotary wing aircraft. Training of pilots continues at the rate of about 20 per year and a look to the future would indicate that an increase in the training rate is almost certain.

An Army pilot first must be a trained officer of his Corps, and, secondly, a pilot. Few senior positions require a trained pilot.

The flying times of Army pilots vary widely according to whether they are in an active flying unit, or only maintaining proficiency. The active pilot may fly 500 hours a year, whereas a pilot on Continuation Flying Training is required to put in only 72 hours a year. Army pilots on full-time flying



Maintenance crews at work on some of the 21 Hiller CH-112 light reconnaissance helicopters based at the Canadian Joint Air Training Centre, Rivers, Man.

duties are required to fly at least 45 hours each quarter. Pilots on Continuation Flying Training must fly at least 18 hours each quarter to qualify for aircrew allowance.

The Army has more pilots trained now than it has active flying positions to provide for rotation of employment and to staff new aviation sub-units to be formed during the next few years. A little more than one-third of the pilots are now on full-time flying duties. The remainder fill full-time operational and administrative positions in other establishments and in addition fly regularly to maintain their proficiency.

The flying element of the Canadian Army is equipped to carry out five main functions:

Reconnaissance: In operations, Army aircraft provide information on enemy strength, disposition and activity, ground conditions, obstacles and routes for men and vehicles to aid the decisions of the field commander in the employment and disposition of his troops and weapons.

Artillery Air Observation Post: These aircraft are primarily concerned with the direction of artillery fire onto targets observed from the air. Reconnaissance information gained from their observation or photography will also be passed to the formation staff.

Command Liaison: Aircraft allow commanders and their staffs to carry out personal reconnaissance and liaison visits in a fraction of the time required by conventional means.

Tactical Movement of Troops: Transport helicopters can move small fighting units and their crew-served weapons to critical points rapidly, and over ground not otherwise negotiable.

Logistical Support: This is the planning, procurement, and provision of all personnel and material requirements for the fighting troops. Transport helicopters can supply urgently required reinforcements, equipment, ammunition and petrol on short notice over long distances. They supplement the lift and flexibility of conventional means of transport.

The Canadian Army today operates a fleet of 46 fixed and rotary wing aircraft. Of these, 21 are Cessna L-19's based at CJATC and with the AOP Troops both at home and with the Canadian Brigade in Europe. A Training and Liaison Flight at Army Headquarters operates four Cessna L-19L models in a courier and liaison role to service the Ottawa area.

Twenty-one Hiller CH-112 light reconnaissance helicopters are located at Rivers for training helicopter pilots and for operational training during the Brigade concentrations in the summer months. Nine of these helicopters will shortly move to Europe to provide aerial reconnaissance and liaison facilities for the Canadian Infantry Brigade Group in Germany.

Future plans include the cargo helicopter which will provide a logistical airlift capability for the Army.

More Ink than Blood

98 Years Ago: It has been said that at the close of the war there will be a greater shedding of ink than there had been of blood during its continuance; and there is undoubtedly some truth in the saying. — *From the files of the Army-Navy-Air Force Journal and Register (U.S.).* •

TRAINING THE SOVIET SOLDIER

By

CAPTAIN FRANK H. SCOTT, INFANTRY, UNITED STATES ARMY*

Although the Soviet Army poses one of the main threats today, many of us know surprisingly little about its training, discipline, morale, and the individual soldier. Admittedly, the subject cannot adequately be covered in a brief article. However, it is hoped that this discussion will stimulate others to read for themselves the many books and articles which have been written about the Soviet Army. A partial bibliography of such reading material appears at the end of this article.

Individual Training of the Soviet Soldier

Three features stand out in Soviet Army training: repetition, physical training, and political indoctrination.

There is a high degree of repetitive training in basic military skills, especially marksmanship, throughout each training year. All Soviet soldiers assigned to TOE [field] units receive this training, the main objective of which is to develop instinctive reflexes to respond to any given situation. There are, of course, both good and bad features of such training.

One of the most striking characteristics of Soviet Army training is the great importance attached to physical education and exercise. Rigorous physical conditioning is stressed throughout every stage of the training cycle. In addition to regularly scheduled morning calisthenics, periods are allotted during the day for physical conditioning. Even the movement to and from training sites is converted into physical training by double-timing and by use of forced marches.

Soviet leaders believe that full conditioning of the mind is also necessary for success in combat. In order to achieve the "proper mental attitude" in the Army, political training is conducted on a rigorous schedule. Infantry and artillery troops receive many hours of political indoctrination during their winter training periods. Political officers are attached to virtually all units, and are responsible for creating the approved mental attitude in the average Soviet soldier. This is achieved by exercising absolute control over what the soldier reads, hears, and sees. Political indoctrination periods are used for disseminating anti-Western propaganda, for discussions of subjects such as the history of the Communist Empire, and for reading from Marx and Lenin.

Soviet Unit Training

The Soviet Army places heavy emphasis on unit training. Nine to ten months of the training year are devoted to progressive unit training, starting with the squad or gun section level, and continuing through the platoon, company, battalion, and regimental levels. The training year is concluded with division-level manoeuvres. Beginning at company level, combined arms

**Reproduced form the January-February 1962 issue of "Infantry" (U.S.) by courtesy of that publication. — Editor.*

exercises are incorporated into the training, including tanks, engineers, artillery, and tactical support aviation. In recent years Soviet Army training has placed increasing emphasis on protection against exploitation of nuclear weapons. There has also been strong and continued emphasis on protection against chemical munitions. Through this realistic and extensive work in the field, the Soviet Army has developed discipline and combat-efficient Army units.

Discipline and Morale

Discipline in the Soviet Army is extremely harsh. This constitutes both a strength and a weakness in the Soviet Army. While the harsh discipline makes an obedient robot of the Soviet soldier, it also suppresses his initiative through his fear of authority. As long as iron discipline is maintained, Soviet troops will fight well. If their discipline should be weakened, history tells us, they become disorganized. This historical condition, however, is not one to be relied on in a tactical sense.

Soviet troops have a limited amount of leisure time. Generally 12 to 16 hours a day are spent on military training, political indoctrination, and supervised recreational activities. Leaves and furloughs are difficult to obtain, except for certain technicians or politically reliable soldiers. Morale varies from unit to unit, ranging from excellent to poor. It depends upon many variable factors, but primarily upon leadership and treatment of the troops by their officers.

Pay scales vary greatly among soldiers, sergeants, junior officers, and high-rank officers. Pay is meagre in the lower ranks, but high, even by our standards, for field grade, general, and political officers. In most cases, promotion is obtained only when an officer is considered absolutely loyal to communist beliefs. Seniority and war experience are secondary to political reliability. This causes some discontent and friction between politically and non-politically minded officers.

The officer-enlisted relationship in the Soviet Army is based upon the personal qualities of the officer and his interest in his men. In the Second World War these relationships tended to be comradely. After the war there began a strong trend toward formality between the various ranks. The present system is based upon the Prussian system, and authority is apparently feared and respected by Soviet troops and officers.

The Soviet Soldier

The Soviet soldier, because of his background, is intellectually a simpler person than most of our soldiers. He is willing to accept severe regimentation, harsh discipline, and restricted activities as a normal part of military life. Although self-discipline is not usually a character trait, the recruit responds obediently to imposed discipline. An important characteristic of the Soviet soldier is his deep-rooted patriotism. He fights his best against an enemy invading his native land. His patriotism, however, is not necessarily directed to communism as an acceptable ideology. The Soviet political system does not encourage active seeking of responsibility by its citizens. Lack of this quality may limit

the Soviet soldier in offensive situations, although it does not affect his determined defensive capabilities. At the same time, the Soviet soldier usually shows great initiative in infiltration, tactical deception and improvisation on the battlefield.

In general, it can be expected that the Soviet soldier in combat will be a tough opponent, accustomed to hardships, and convinced that he is really defending his country against aggression. The Soviet Army today is a better-trained fighting force than it was when it fought the German Army in the Second World War.

We must know all we can about its capabilities and limitations for future warfare.

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The Power of the Voice

Whether used conversationally or for words of command the voice is perhaps the most powerful possession the instructor has as his medium of training. But avoid talking too much. Unnecessary words also cause the point to become blurred—and perhaps lost. Also, do not drift into a monotonous tone. Even an active mind may become lulled and boredom may creep in.

The vocal powers must be given the thought and consideration they deserve. In some people the voice is a near dormant possession. Others do make some use of it; but how many of us study the sense and use it to its warranted advantage. Dictators do. Politicians do. Actors do. Why? Because they know it has the power of producing laughter and tears, love and hate, friendship and enmity, calm and hysteria! And how do they achieve these moods? Simply by thoughtful inflections and modulations, good articulation, tones suitable to their subject, sometimes soft and easy flowing, sometimes hard and firmly emphatic, but always stressing deliberately the salient words of the thoughts they are uttering. Apply the power of the voice.—*From "The Instructor and His Students" by Capt. J. A. Shimeld in the December 1961 issue of the Australian Army Journal.*

Service Volley Ball Champions

Canadian Army Photograph

The Calgary Garrison Volley Ball Team which won the Services Division of the Canadian Volley Ball Championships played in Montreal during the spring. The Garrison team also are Western Canada Open Champions, Western Canada Service Champions, Alberta Area Army Champions and Western Command Champions. *Back row, left to right*: Major W. J. Brown (coach), L/Cpl. J. Cotterhill, Cpl. H. Gates, Cpl. H. Pronk, Cpl. C. Collicott, L/Cpl. P. Sybrandy. *Front row, left to right*: Rfn. R. Flack, S/Sgt. R. Bourgon, Sgt. J. McBride.

Recruiting Methods — 1861

The methods by which volunteer regiments were raised [during the American Civil War] were various. In 1861 a common way was for someone who had been in the regular army, or perhaps who had been prominent in the militia, to take the initiative and circulate an elistment paper for signatures. His chances were pretty good for obtaining a commission as its captain, for his active interest, and men who had been prominent in assisting him, if they were popular, would secure lieutenancies. — *From "Hardtack and Coffee" by John D. Billings, 1887.*

COLD WAR TERMINOLOGY – U.S.

FROM THE ARMY INFORMATION DIGEST (U.S.)

COLD WAR is the use of political, economic, technological, sociological, and military measures, short of overt armed conflict involving regular military forces, to achieve national objectives.

SPECIAL WARFARE is a term used by the U.S. Army to embrace all the military and paramilitary measures and activities related to unconventional warfare, counter-insurgency, and psychological warfare.

UNCONVENTIONAL WARFARE includes the interrelated fields of guerrilla warfare, evasion and escape, and resistance. Such operations are conducted in enemy-held or controlled territory and are planned and executed to take advantage of or stimulate resistance movements or insurgency against hostile governments or forces. In peacetime, the United States conducts training to develop its capability for such wartime operations.

A Resistance Movement is an organized effort by some portion of the civil population of a country to resist the legally established government or an occupying power. Initially, such resistance may consist of subversive political activities, and other actions, designed to agitate and propagandize the populace to distrust and lose confidence in the legally established government or occupying power. If not suppressed, such resistance can result in insurgency by irregular forces.

Insurgency is a condition of subversive political activity, civil rebellion, revolt, or insurrection against a duly constituted government or occupying power wherein irregular forces are formed and engage in actions, which may include guerrilla warfare, that are designed to weaken and overthrow that government or occupying power.

Guerrilla Warfare is the conduct of combat operations inside a country in enemy or enemy-held territory on a military or paramilitary basis by units organized from predominantly indigenous personnel. The aim is to weaken the established government of the target country by reducing the combat effectiveness of the military forces, the economic means, and the overall morale and will to resist.

Irregular Forces refer in a broad sense to all types of insurgents to include, for example, partisans, subversionists, terrorists, revolutionaries, and guerrillas.

Paramilitary Forces are those existing alongside the armed forces and are professedly non-military, but formed on an underlying military pattern as a potential auxiliary, or diversionary, military organization.

Evasion and Escape are those operations whereby friendly military personnel and other selected individuals are enabled to emerge from enemy-held or unfriendly areas to areas under friendly control.

COUNTER-INSURGENCY includes all military, political, economic, psychological, and sociological activities directed toward preventing and suppressing resistance groups whose actions range in degree of violence and scope from subversive political activity to violent actions by large guerrilla

elements to overthrow a duly established government. The basic military problem is to maintain or restore internal security so that other elements of the counter-insurgency programme can operate. Comprehensive, national, counter-insurgency plans are required to integrate and coordinate the use of all military and non-military means, including available outside assistance, to suppress and eliminate all forms of insurgency.

U.S. Army Counter-insurgency Forces comprise special forces, civil affairs, psychological warfare, engineer, medical, light aviation, signal, and other elements as required. They are capable of operating in disturbed areas, if invited by a host government, to provide training and operational advice and assistance to indigenous military forces engaged in maintaining or restoring internal security.

U.S. Army Special Forces Groups are especially trained and organized to train and assist indigenous leaders and forces in measures, tactics, and techniques required to prevent or eliminate hostile resistance and guerrilla groups. Other Army elements extend and complement the activities of Special Forces Groups. Assistance and training provided to indigenous forces may include operational advice. The wartime mission of Special Forces Groups is to recognize, supply, train, and direct predominantly indigenous forces in the conduct of guerrilla warfare in enemy-held or controlled territory to support the overall military effort.

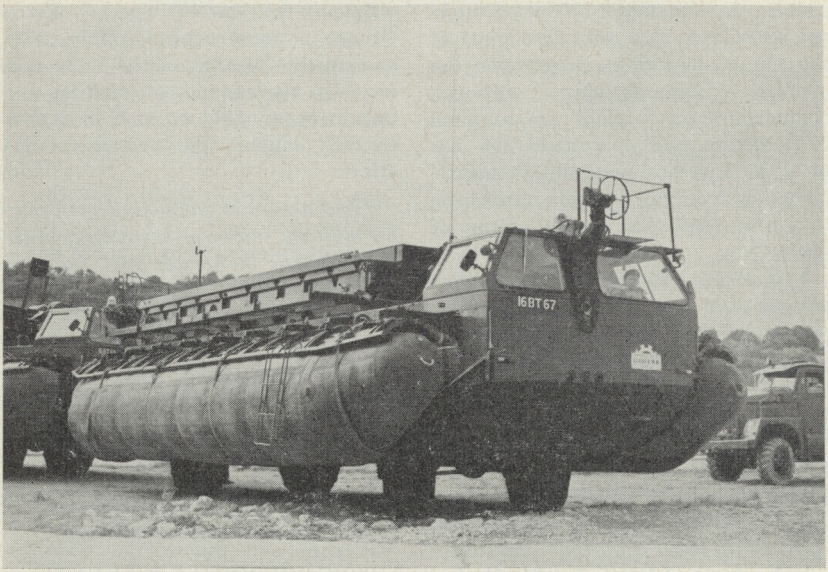
Civic Action is any action performed by military forces of a country, utilizing military manpower and skills, in cooperation with civil agencies, authorities, or groups, that is designed to improve the economic or social betterment of that country. Civic action programmes can enhance the stature of indigenous military forces and improve their relationship with the population. Thus, such programmes can be a major contributing factor to the elimination of insurgency.

PSYCHOLOGICAL WARFARE includes those activities and operations planned and conducted to influence the opinions, emotions, attitudes, and behavior of the enemy, the indigenous population, and neutral or friendly foreign groups in such a way as to support the accomplishment of national aims and objectives.

War's Historical Landmarks

The appearance of the atomic weapons, long-range rockets, guided missiles, supersonic aircraft, helicopters, nuclear propelled warships, radar for reconnaissance and for bombing, and many other things has so strongly affected the possible means of combat that contemporary military affairs are completely dissimilar to what they were in the period of the Great Fatherland War of 1941-1945, or to what they were in recent times in military operations in Korea. Therefore, at the present time the practical experience of the wars of the past can be regarded only as important historical landmarks of the past, and not as an unchanging dogma determining military affairs of today and tomorrow.—*Maj.-Gen. G.I. Pokrovsky, Soviet Army.*

Newest Engineering Equipment



British Information Service

This "Gillois" experimental amphibious bridging unit was shown at a recent demonstration of military engineering techniques and equipment at Britain's School of Military Engineering. In operation the unit is driven into the water and the wheels are retracted. The bridgeway is then swung out at 90 degrees to the truck and several units are linked up to form a bridge.

Role of the Rifle Not Changed

In any type of military operations, one thing that has not changed is the importance of the soldier's mastery of his individual weapons, fundamentally the rifle.

One of the basic requirements of modern warfare is the greatly increased dispersion of units. In order to minimize the effectiveness of any enemy's firepower, our units will be dispersed over a much larger area than ever before. As a result, they will have to be more completely self-sustained and their members will be called upon to exercise an even higher degree of individual self-reliance. Cannoneers, cooks, and clerks must be ready and able to defend themselves against sudden enemy raids.—*General Lyman L. Lemnitzer in the "American Rifleman" (U.S.).*

New West Indies Federation

At the East Caribbean conference held in London in May to consider the constitutional future of the eight territories remaining following the withdrawal of Jamaica and Trinidad from the previous West Indies Federation, it was recommended that there should be a new federation of the eight territories, to be called The West Indies Federation and with Barbados as its capital.

Following the conference adjournment, the first step toward Federal government was taken when Sir John Stow, Governor of Barbados, presided at a meeting of the Advisory Regional Council of Ministers which is to consider problems of common interest. The Council is composed of a representative from each of the eight territories.

The Legislatures of the participating colonies are to study the recommendations emerging from the East Caribbean Federation Conference. They will thus have an opportunity of considering and approving the deliberations of their delegates.

The conference unanimously agreed that the territories concerned should be merged into the new Federation as a prelude to independence. Thereafter it is intended that Commonwealth connections should be retained through application for Commonwealth membership and linking of the Federation's currency to the pound sterling.

The recommendations provide that before independence there would be a Governor-General for the Federation with powers appropriate to a constitution conferring internal self-government in the Federal sphere.

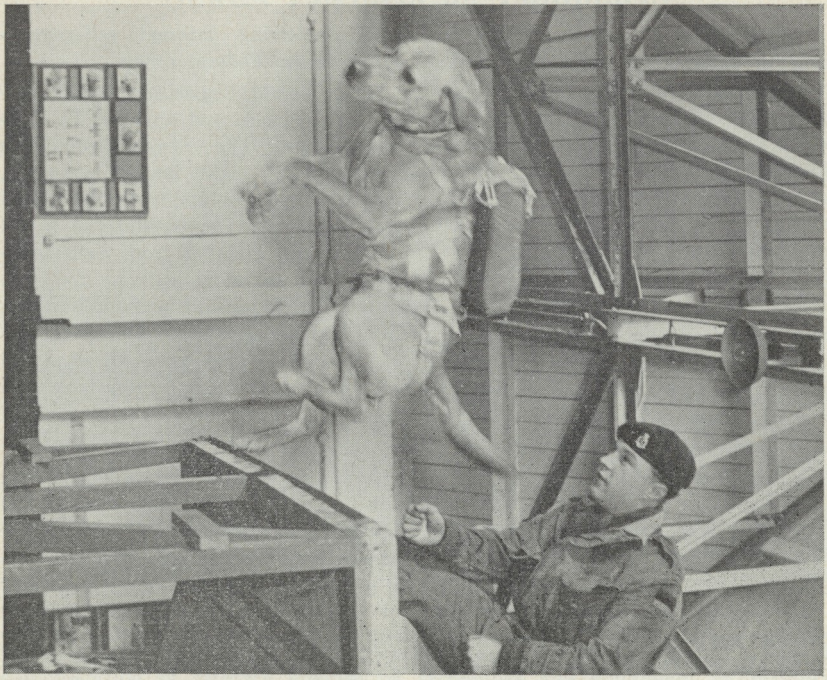
The Federal Legislature would consist of a Senate and a House of Representatives. The Senate would be composed of eight unpaid members, one from each component colony, and the House of Representatives would contain one member from each territory, plus an additional one for each unit of 50,000 persons in the population of that territory. The Federal Cabinet would consist of a Prime Minister and no more than six Ministers assigned to portfolios by the Governor-General on the advice of the Prime Minister.

The creation of a Federation would entail the transfer from individual territories of services such as Customs and Excise, Income Tax, the Judiciary, Police and Postal Services. The Federal Government would also have exclusive powers in relation to the raising of external loans.

Before the Federation is established consideration must be given to the extent of the external assistance likely to be available to it. The British Government has indicated that it will assist within the limits of available resources and in the light of a survey of economic needs and development potential.

The proposals envisage that Federal and Unit Government representatives would constitute a Federal Economic Development Council to ensure that complementary rather than competitive policies were pursued. An Industrial Development Board would be established to advise on the distribu-

Dog Trained for Parachute Drops



United Kingdom Information Service

"Tudor", a Golden Labrador, is being trained for parachute descents with the Parachute Field Ambulance Brigade of Britain's Royal Army Medical Corps to help in mountain rescue work. After three months' ground training, the dog will make his first parachute drop, and a special harness and parachute are being developed to make him comfortable during the descent and also provide an easy landing.

New West Indies Federation

(Continued from preceding page)

tion of public loan funds to industry either through a Federal Loans Council or a Federal Development Bank.

A unified Civil Service for the whole of the new Federation was recommended.

The Conference recommendations are now to be referred to the individual territories. Fiscal and civil service commissions will be appointed as soon as possible. When these steps have been taken a further constitutional conference is envisaged, when final decisions will be taken about the form of the new Federation. — *"Background to Britain", British Information Service, Ottawa.*

Book Reviews

How to Overthrow a Government

Reviewed by Colonel C. P. Stacey, OBE, CD,
Supplementary Reserve

I seem to remember that the late Marshal MacMahon, Marshal and subsequently President of France, is on record as saying, "I strike instantly from the roster of promotion any officer whose name I have perceived upon the covers of a book." Let us hope that this nineteenth-century French Army principle is not operative in the Canadian Army of the twentieth century; for a Canadian Army officer has just written a book, and it is a good one. Major D. J. Goodspeed's *The Conspirators** has been widely praised on this continent and in England, and his fellow-officers, if they have not already discovered it for themselves, will find that this volume is one that they can read with much pleasure and profit.

The book is sub-titled *A Study of the Coup d'Etat.* Major Goodspeed defines a *coup d'état* as "an attempt to change the government by a sudden sharp attack against the actual machinery of administration". *The Conspirators* is the first complete analysis of this rather special type of military operation; and anybody who is contemplating attempting to change a government by methods less mild than those usually employed in this country, or anybody charged with protecting a government against such enterprises, will find it, if not quite a textbook, the nearest thing to a textbook on the subject that is available for his instruction.

The author's method, almost inevitably, is historical. The body of the book consists of accounts of six actual twentieth-century *coups d'état,* of which three were successes and three failures. It begins with an extraordinary piece of Balkan melodrama, the murder of King Alexander Obrenovich and Queen Draga in Belgrade in 1903, a completely successful and very barbarous performance which played a part in preparing the way for the First World War. The second example is Easter Week in Dublin, 1916 — a silly, courageous, doomed enterprise which nevertheless had in the end a good deal to do with ending English rule in Ireland; for the rebel leaders whom the British were misguided enough to execute proved to be more dangerous dead than they ever had been when alive. It is a tragic tale, very well told here. Very different is the next episode, the October Revolution in Petrograd, 1917. In it there was no high, hopeless, poetic courage of the Irish sort; it was a piece of hard-headed practical political engineering by two geniuses in that line, Messrs. Lenin and Trotsky. It was no military model, for the chiefs, with rather surprising innocence, entrusted the tactical planning to an ex-officer, one Antonov-Ovseenko, who

*The Macmillan Company of Canada Limited, Toronto, 1962. $5.00.

was thoroughly incompetent. But the target government, Kerensky's, was even more inept, and although one loyal and efficient battalion could have ruined the whole *coup* no such unit existed. Lenin and Trotsky won an almost bloodless victory, and their heirs and successors are still enjoying the fruits of it.

The fourth episode is the Kapp Putsch of 1920 in Berlin, an example of a momentarily successful movement which nevertheless collapsed almost at once. The fifth is Mussolini's March on Rome (1922), a very unheroic affair which was however the beginning of a regime that lasted until 1943. The last is the story of the plot against Hitler which so nearly ended him on 20 July 1944. This movement was primarily the work of an idealistic young army officer, Colonel Count von Stauffenberg, who gave his life for his ideals and deserves to be remembered, it seems to me, as one of the genuine heroes of the modern world. In his preface Major Goodspeed remarks, "Perhaps it is only by accident that in the six cases presented the three successes went to the most ruthless and extreme of the factions and the three failures were suffered by those less drastic in their aims and less violent in their methods. Whether there is any lesson to be derived from this the reader must decide for himself."

Having told his six stories, the author reviews the lessons learned in a final chapter entitled "The Theory of the Coup d'Etat". There are, he concludes, three stages to a *coup*: the Preparatory Phase, the Attack Phase, and the Consolidation Phase; and the first is "generally by far the most difficult and dangerous". Perhaps his most fundamental point is that the absolutely vital object of a *coup* is "the neutralization of government leaders". *Men* are what matters; the men at the head of affairs must be killed or captured. This is far more important than seizing government buildings or public utilities. Broadcasting facilities, however, are a target of the very highest significance; under modern conditions, capturing them is a matter of necessity. Space precludes reproducing the analysis in detail. It strikes this reviewer as sound in all essentials, though Major Goodspeed might have developed more completely the vital proposition that the participation or at least the neutrality of the armed forces is utterly essential to the success of a *coup* in the modern world.

Though this book was written primarily as a military study, most readers will enjoy it chiefly as a piece of popular history — six twentieth-century tales of plotting and violence, all true, and all stranger than fiction. And the writing, vivid, pungent and yet literate, will widen its appeal still further; Major Goodspeed uses English with skill and effect. All told, *The Conspirators* is both an enlightening and an eminently readable book, one of the best Canadian books of the year.

Poor Servant!

98 Years Ago: The baggage of an officer in the field should be only one valise besides what is carried by the servant. — *From the files of the Army-Navy-Air Force Journal and Register (U.S.).*

From Batoche to Xanten

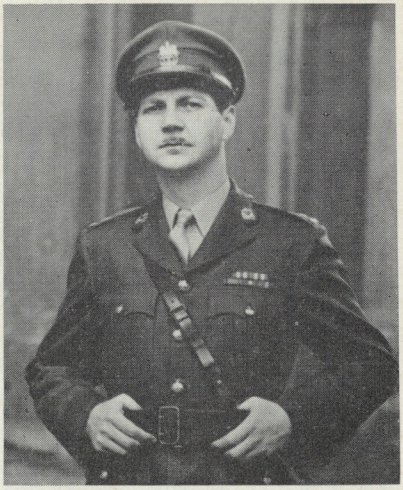
Reviewed by

Lieut.-General H. D. Graham, CBE, DSO, ED, CD (Retired)*

As with other regimental histories, *Battle Royal,* the story of The Royal Regiment of Canada, has in it much detail that will be of interest particularly to those who have served or been associated with the Regiment.†

In this book, however, the author has presented these items of "family concern" in such an interesting (and sometimes amusing) way as to make them easily read, understood and enjoyed by anyone, whether members of the family or otherwise. Here, in fact, is an account of 100 years of Canadian military history.

Antecedents of The Royal Regiment of Canada — the 10th Battalion, Volunteer Rifles of Canada, later known as the 10th Royal Grenadiers — saw service as a unit as far back as 1866, when they were called out to help repel the raids or predatory invasions of the Fenians. As Major Goodspeed so clearly points out, the Fenians were a group of Irish exiles who had escaped from their native land after the abortive rising in 1848.



Major Goodspeed

Some of them conceived the idea of capturing Canada and using this as a bargaining counter for the independence of Ireland! To us today, and perhaps to most people in the 1860's, this was indeed a fantastic and optimistic forecast; however, after the end of the American Civil War in 1865, there were apparently sufficient Irishmen who, having gained battle experience in the Union armies, thought that they, under their General O'Neill, the Fenian leader, could really accomplish their aim. It is generally not known that the force of Canadian militia, including the 10th Royals, which was responsible for repelling the Fenians and finally disposing of their

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**The reviewer formerly was Chief of the General Staff of the Canadian Army.* — Editor.

†*Battle Royal: A History of The Royal Regiment of Canada, 1862-1962,* by Major D. J. Goodspeed, CD. Published by The Royal Regiment of Canada Association (Toronto, 1962). 700 pp. $8.00. Copies may be ordered from Major A. C. Carter, The Royal Regiment of Canada Historical Committee, 511 St. Clements Ave., Toronto 12, Ont.

threat was commanded by Colonel Grant Wolseley, later Field Marshal Lord Wolseley.

Not many years later, the 10th Battalion was again called out to quell the rebellion of the *métis*, or French-speaking half-breeds, in the North-West along the banks of the Saskatchewan River near the communities of Batoche, St. Louis and St. Laurent. The author graphically describes the mobilization of the unit and their journey in the month of April 1885 from Toronto across the north shore of Lake Superior by the Canadian Pacific Railway to Winnipeg, and thence on to Prince Albert and the area of the conflict. This was only thirty years, approximately, before the commencement of the First World War, and yet few people today realize that at that time there were still four gaps in the line of the railway north of Superior—one of 42 miles, another of 17 miles, another of 20 miles, and one of seven miles just east of Nipigon.

It was only a matter of fifteen years after their service in North-West Canada that the Royals contributed their full quota to the battalion which was recruited for service in the South African War. Major Goodspeed reminds us that, in total, Canada raised, for service in South Africa, this contingent of 7300 men, and we read of the first decoration for gallantry being awarded to a member of the 10th Royal Grenadiers. Lieutenant James Cooper Mason, a subaltern, received the Distinguished Service Order for personal courage and leadership in the final assault at Paardeberg.

The ghastly, unimaginative, ineffectual battles of the First World War, in which members of the Royals took part with the Third Battalion of the Canadian Expeditionary Force or later-formed units are dealt with by Major Goodspeed in an interesting fashion. These years of attribution took a dreadful toll, but it is good that younger officers of today should know how their forbears fought.

There have been relatively few First World War histories written, and many a Canadian soldier of today knows nothing of the reason why, or the manner in which, the first world conflict was fought. *Battle Royal* gives an excellent account of both the "why" and the "how". Graphic accounts are given of the mobilization and the days at Valcartier in the fall of 1914, and the long, cold, wet winter months spent under canvas on Salisbury Plain in 1914-1915. Old soldiers, veterans of the first Great War, if they read this book, will see again those places which conjure up nostalgic memories. The story of the first gas attack, the Ypres Salient, Festubert, Mount Sorrel, the Somme, Passchendaele, Vimy Ridge, the Last 100 Days — the stories of all these famous battles are told clearly, simply, and yet with vivid colour.

The Regiment's part in the 1939-1945 war will be read with great interest, and certainly with pride, by all those who fought in it or who served on the home front. Only a few Canadian units experienced the inferno of Dieppe; the story is well told, and, bereft of official jargon, it is indeed difficult to see how surprise could have been achieved, or even expected, after the operation had once been cancelled and then mounted several weeks after. The author has

Red China:

Russia's Eastern Frankenstein?

REVIEWED BY COLONEL ANTHONY J. SCOTTI, MC, CD,
PROVOST MARSHAL (ARMY), ARMY HEADQUARTERS, OTTAWA

The reviewer recommends this book as an excellent source of background information for officers preparing themselves for qualifying examinations. — Editor.

The author of this book*, a well known Australian journalist, is a specialist in Far Eastern affairs for leading Australian and New Zealand newspapers, and a radio and television commentator for the Australian Broadcasting Commission. Each year he travels extensively in Asia covering all major events for Western bloc publications. His recent work examines a subject which now is capturing the headlines in our daily newspapers — China and her role in the communist world's revolution against the so-called "capitalist and imperialist nations".

For many, the strong Chinese stand against Khrushchev's "peaceful coexistence overture in 1959" and the "Camp David spirit" was directly responsible for the failure of the summit meeting in Paris (1959). The "U-2 incident" was seized, it is stated, as a face-saving device by Mr. Khrushchev in view of the mounting pressure exerted by Mao Tse-tung and his cohorts. It is generally conceded that Moscow has always dictated the policies of the Eastern bloc. However, moves by Red China indicate that Russia is not so much in control as formerly it was.

**Hurricane from China* by Denis Warner. Collier Macmillan Canada Ltd., Galt, Ont. 1961. 210 pp. $3.95.

From Batoche to Xanten

(Continued from preceding page)

presented the facts without embellishment and has not blundered into the pitfall of trying to be a military critic. This is the story of a great regiment and is not marred by controversial and provocative "asides".

But not all the life of the Royals was spent on the field of battle; like other militia units, it persevered — that is the right word — through times of peace; had its ups and downs, difficulties in getting officers, lack of funds, little public interest, periods of poor recruiting, and went through the pangs of amalgamation.

Battle Royal in this regard is the story not only of the Royals, but the story of almost every militia unit in Canada. When you read it, you will know something of the trials and tribulations, the service and sacrifice, the virtue and the valour of the Canadian Militia. The author has made good use of private letters, diaries and regimental records which the unit or its friends were wise enough to preserve. Indeed, this is a book in which both the Royal Regiment and the author, Major Goodspeed, can take great pride.

One then wonders whether Russia has created a monster similar to Dr. Frankenstein's which will eventually take over and ultimately destroy its master.

To Mao Tse-tung the world is a great guerilla battlefield in which the principles he applied with such genius and success against Kai-shek can be used for the isolation and ultimate destruction of the United States and its allies in those parts of the world which now are underdeveloped and underfed, but where a new feeling of nationalism is ever growing.

China feels that Russia may well talk in terms of disarmament and of Socialism burying the capitalist system by means of peaceful competition because it has achieved its economic and technological "take-off". Further, Mao denounced this *détente* as contrary to the fundamental teachings of Lenin. Subsequent actions taken independently by China in Asia, Algeria, Latin America, Africa and even Cuba reaffirms that Mao's power is increasing. This supports the view of those who see Russia turning more and more to China before enunciating new policies.

Though Moscow's policies are not being followed blindly as in the past, it would be dangerous to believe that these two powerful nations are competing against each other for world domination. Many of the moves made by China are complementary to those of Russia. Whether this will continue is a matter of conjecture. Perhaps a positive approach by the Western bloc to the problems confronting the neutrals or uncommitted nations will assist in forcing an issue between China and Russia.

The book, as the author explains, is concerned with China's battle in the communistic concept, its nature, and its prospect. It looks squarely at the future menace posed by China. It is factually written and liberally interspersed with actual statements expressed in interviews with leading actors on the world's stage. Comments attributed to Chinese leaders and others are taken from official sources.

The main theme is developed through a journalistic approach. The author describes the advance made by Mao Tse-tung and his party as phenomenal. Not only has the Chinese Red party subjugated the mainland of China but it is now capable of supporting revolutions abroad. Its population, now estimated at 640 millions, will have reached a billion by 1980. Though many problems still confront the Chinese leaders, they have achieved a better standard of living for their people. It must be remembered that old China had little to offer to the common people. Since their assumption of power, corruption in high places has practically disappeared, according to the author.

Mao has always identified China's corruption and collapse with Western exploitation and the inadequacy of the Confucian system. A quotation from Mao's writing enunciates clearly the basic philosophy of Red China: "Only by breaking the hold of Confucianism, could Chinese society be rebuilt. Only by destroying the power of the United States could the world be made safe for that society". The events which have taken place and their present policies have demonstrated no deviation from Mao's writing.

The Chinese Rome

Reviewed by Lieut.-Colonel J. A. Stairs, MBE, CD,
Army Development Establishment,
Army Headquarters, Ottawa

Hollywood teaches us that ancient history took place partly in Egypt but mostly in Rome. To this we can add the school memories of Rome's 200-year struggle for power, the success and failure of Julius Caesar, the success of Octavian, and the four centuries of Empire between Actium and Adrianople. Yet for all of its importance in Western eyes, the Roman Empire occupied only a small part of the Eurasian continent. At the other end of this land mass, at about the same time, there arose another Great Empire. Some say that it still exists. Leonard Cottrell's latest book tells us how it began.*

The Ch'in Empire was created in 221 B.C. and was finally stabilized under the Han Dynasty 19 years later. Like the Roman Empire it lasted a little more than 400 years, ending in 220 A.D. King Chêng of Ch'in, who as emperor took the name Shih Huang

**The Tiger of Ch'in* (How China Became a Nation), by Leonard Cottrell. Published by Evans Brothers Ltd., London, and available in Canada from British Book Service (Canada) Ltd., Kingswood House, 1068 Broadview Ave., Toronto 6, Ont. $6.00.

Russian's Eastern Frankenstein?

(Continued from preceding page)

By reviewing the struggle, past and present, the author has been able to present what he believes to be the formidable menace that China presents to freedom loving nations. Western policies of isolation and the refusal to recognize China, according to Warner, have not only failed but have spurred China to double its efforts in all spheres. He maintains that because of the grass-root control which is basic in Mao's philosophy, the Western world's approach to China will have to be re-evaluated. Five points are recommended which, if adopted, would contribute much to reducing the Red threat to underdeveloped countries and the Western bloc. These are:

1. Guaranteed minimum price level for materials or commodities found today in underdeveloped countries.

2. Improved agricultural techniques for these countries.

3. Increased technical aid through the provision of qualified technicians.

4. A world-aid programme for economic development of the "have-not" countries sponsored by the "have" countries.

5. The widest possible dissemination of the latest techniques in birth control in these countries.

The author of *Hurricane from China* strongly contends that such a programme, together with a concerted effort to draw China into the community of nations, would be a powerful contribution to peace in a world which today lives in a state of fear and uncertainty.

Ti, was the founder of this new state and the builder of the Great Wall and although he was not assassinated, yet, like Caesar, the empire he had struggled to create collapsed soon after his death. Liu Pang, his successor, like Octavian, learned from his predecessor's mistakes and was able to recreate the empire on a permanent basis.

Ch'in's conquest of the Sinic World, unlike the 200 year-expansion of Rome, was carried through to completion in only 10 years; in this short period the six warring states were subdued and King Chêng became their undisputed master. The Ch'in military power had been built up by fighting the barbarian Huns while the Ch'in administration and economy had become increasingly strong following Shan Yang's abolition of feudalism a hundred years earlier.

It was Shih Huang Ti's abrupt attempt to extend the abolition of feudalism and to destroy Confucianism (The Burning of The Books) that wrecked the Ch'in dynasty. Han Liu Pang, like Octavian, was more subtle. While professing a desire to return to the old order, he skilfully set about building the central power by winning over the philosophers to the public service and by destroying the feudal lords one at a time.

China has received its name from King Chêng's small state of Ch'in, but Shih Huang Ti is perhaps best remembered for the 2000-mile wall that still stands as a silent witness to his imperial power and to the unification of the Sinic World.

These are the bare bones around which Leonard Cottrell builds flesh and blood. Much of the story is told through the lives of individuals, some of whom, like the Prime Minister Li Ssu, remain near centre stage for more than 30 years, while others, like the artist-assassin Master Ching, appear for only a single scene.

The author gives us many glimpses of the ancient legends and myths, the dynasties and tombs, the songs and poems, the religions and philosophies. Among the latter there is the ruthless legalist doctrine that inspired Li Ssu, and through him the leaders of Ch'in.

Several chapters are devoted to the building of the Great Wall which is less a wall than a protected lateral highway joining a long line of forts. These chapters include descriptions of the gruesome attacks that made the Wall necessary and of the 12-year effort and organization that were required to complete the work. There is even a chapter on the mythology that surrounds this great structure. An interesting point: probably only a handful of people have ever seen the entire Wall.

The final chapters deal with the collapse of the Empire after Shih Huang Ti's death in 210 B.C. It is a story of incompetence, intrigue and death in which the potential leaders fail to act and are destroyed by a palace eunuch who feeds the lust of a spineless ruler. But the real cause of the collapse was the widespread revolt of the aristocracy and the intellectuals who were seeking to undo the provincial system and the "Burning of The Books".

In the new struggle the winner was neither an aristocrat nor a philosopher but a peasant from a southern province. The book ends with the rise to

"GENTLEMAN JOHNNY"

REVIEWED BY CAPTAIN F. L. JONES, LATE THE IRISH REGIMENT OF CANADA*

In what was once the dining room in a mansion of Fifth Avenue, New York, there hangs the portrait of a British officer. His loose fitting scarlet coat is thrown open and reveals a buff waistcoat of the latest cut. One hand rests on his sword hilt: the other holds a light dragoon helmet adorned with the Royal Monogram worked in silver. It is a *bravura* piece: dark, rolling clouds in the background accentuate the scarlet of the uniform and bring out the gold in the fringed epaulets. In one corner, an engagement, all red coats and smoke, link the sitter with some splendid feat of arms. The artist has done more than portray an eighteenth century general officer. He has given us an attitude, a state of mind.

Lieutenant General John Burgoyne, painted by Sir Joshua Reynolds, in the uniform of Colonel of the 16th Light Dragoons, gazes coolly down upon the Americans who have come to see the pictures in the Frick Collection. He confronted them in person one hundred and eighty-five years ago across the fire-swept clearings of Freeman's Farm and beneath the dripping trees at Saratoga. His demeanour has not changed.

A playwright as well as a soldier, one likes to think that the presence of his portrait in New York, the city to which he looked for the army which

*For *Want of a Horse*. Edited and with an introduction by Lieut.-Colonel George F. G. Stanley, Chairman of the Arts Division and Head of the Department of History, Royal Military College of Canada, Kingston, Ontario. Published by The Tribune Press Limited, Sackville, N.S.

The Chinese Rome

(Continued from preceding page)

imperial power of Han Liu Pang whose re-created Empire was to last for more than 400 years. Some will say that it still exists for it can be argued that its collapse was much less complete than that of Rome and that the Chinese "dark ages" were only a kind of twilight that was followed by a succession of reconstructions of the original Empire under the dynasties of Tang, Sung, Ming, Manchu and Communism.

The book is well illustrated with 20 half-tones and five maps. Unfortunately, the latter do not adequately complement the text which includes a number of place names which the maps omit.

The reader may find this book disappointing if he is looking for a carefully organized history presenting an overall picture of military and social events in correct perspective and precise chronological order. But if he is looking for a story of the past written around vivid personal happenings, large and small, true and legendary, without much concern for the strictly formal type of presentation, then this book is excellent. The tale of Wu's concubine may be historically unimportant but it does make good reading!

might have saved him, would make an irresistible appeal to his sense of dramatic irony. At the crisis of his military career, his feeling for the theatre did not desert him and the last act at Saratoga has a touch of Drury Lane and the Theatre Royal about it.

The curtain falls on a scene of nocturnal revelry in a sylvan setting. Mercifully, the General's cellar had survived the wreck of his campaign. Just before the surrender "he was very merry and spent the whole night singing and amusing himself with the wife of a commissary who was his mistress and who like him was fond of champagne". If one has lost an army and a war, nothing remains but a Latin tag or a phrase of Bacon's, half-remembered, about martial men being given to love as they are given to wine, for perils commonly ask to be paid in pleasures.

There was that little matter of a wager, too. Before leaving London, a confident soldier had placed it in the betting-book at Brook's Club. "John Burgoyne bets Charles Fox one pony [fifty guineas] that he will be home victorious from America by Christmas Day, 1777." Much more than fifty guineas changed hands when he proffered his sword to the American commander.

The capitulation of a British Army of 5000 men in October 1777 was an event upon which world history turned. It was recognized as such in the mid-nineteenth century. Saratoga finds its place in Major-General Fuller's *Decisive Battles of the Western World* published a few years ago. The surrender of Burgoyne virtually ensured the success of the American Revolution. In February 1778 France entered into formal alliance with the Thirteen Colonies. Spain and Holland followed suit. It was Britannia *contra mundum*.

The literature of the campaign is extensive. Regimental officers like Captain Thomas Anburey ("This war is very different to the last in Germany ... in this action, I found all manual exercises is but an ornament") and William Digby, grenadier lieutenant of the 53rd Foot, have left excellent accounts. In Sergeant Lamb of the Ninth we hear a voice from the ranks. The publication of a Journal by an unknwon British officer which has lain ignored in the library of the United States Military Academy at West Point is a welcome addition to these soldiers' tales.

It has been edited and given an Introduction by Lt.-Col. George F. G. Stanley. Colonel Stanley's is the large canvas. The unknown diarist, however, takes you into the campaign in a manner only possible by an actual participant. Reading the Journal is to enter a world not unfamiliar to anyone who has been a soldier. "Few Shot exchanged by some lurking parties of theirs and our Advanced Centinels by which we had two Men Wounded and one killed. We wounded and took of theirs 3 or 4." Similar entries appear time and again in regimental War Diaries of the Second World War. There is one comment in the Journal which the reviewer cannot bring himself to believe: "Oct. 3rd The Soldier's Ration was diminished — to which the Army submitted with the greatest cheerfulness."

Colonel Stanley draws attention to a factor in Burgoyne's defeat which has not been given sufficient emphasis

by historians. This was the breakdown of the transport system. There were other reasons for the disaster besides the logistical one but it has been lost sight of in the light of Lord George Germain's fumbling: Howe's junketting to Philadelphia when he should have gone to Albany: the discomfiture of Barry St. Leger in the Mohawk Valley and the appearance of a man like Benedict Arnold, that whirlwind of a soldier.

The pertinent point is made that much too frequently the significance of horses and wagons in war have been obscured by the glamour of guns, drums and bayonets. Burgoyne had something to say on this score after he had returned to England, a general in discard: "How zealously soever a General may be served... for one hour he can find to contemplate how he shall fight his army, he must allow twenty to contrive how to feed it."

The transport and supply problem bedevilled him even before the offensive, which was to have ended the Revolutionary War, had been launched from Canada. His minimum requirement was 500 carts with two horses apiece: and these would barely carry fourteen days' provisions. Under the heading of provisions, the commissary-general at Montreal was called upon to produce 1000 gallons of rum without which no British army could be expected to take the field. Horses were required in number for his large artillery train. Animals and vehicles were procured on civilian contract, an unsatisfactory state of affairs but the normal practice of the period.

It is interesting to note that when the army was in extremity, no less than thirty carts were still in use for the General's personal baggage, camp equipage and everything else necessary to sustain him while on campaign. This may appear excessive but the man must be looked at in a gilt, rococo frame. He made war in the grand manner in a landscape Watteau never knew. In spite of the murderous intensity of its close-range fighting, the eighteenth century insisted that even in the butchery of warfare, etiquette and a sense of form be maintained. It was the mode.

The Goncourts gave perfect expression to this feeling when they wrote of war parading in its Sunday clothes: the fashions of the town carried over into the camp. "Officer's trunks are opened for the morning toilet. Young beauties alight from wagons, exquisitely fresh without a crease in their lace caps. There are stylish La Tulipes and Manons who flirt between cannon shots. It is the art of killing between drinks. The armies of Fontenoy and Rossbach sketched at their most debonair and nonchalant."

Whether or not the author of the Journal bore himself in the wilds of North America with an air of *insouciance* is a mystery. He gives no personal details. If there were any Manons or La Tulipes on the shores of Lake George or on the Hudson, they do not appear in the Journal. The identity of the officer, even his unit, is not revealed. Internal evidence in his writing suggests that he served in Fraser's Brigade. The frequent references to scouting, patrols and foraging parties point to his belonging to one of light infantry companies. These had been drawn from the line

A War of Fury and Blind Rages

Reviewed by Major W. R. Chamberlain, MC, CD (Retired)*

It is from a stirring tale that W. Baring Pemberton takes the material for this *Battles of the Crimea* — a tale many times told.† And all the points made by other authors are retold: the bravery and enterprise of the British private soldier, the individual heroism of the British regimental officers, and, finally, the unbelievable stupidity of the British generals and their staffs. In contrast stand the bovine stolidity of the Russian enemy and the lack of zeal of the French private. To complete the picture is recounted the superior staff planning of the French and even of the Russian staffs and the more professional aspect of both the French and Russian officers.

Mr. Pemberton recalls that the Crimean War has been called "the last great war to be fought without the help of modern resources of science". He might have added that it was also the outstanding example of war fought on a subjective basis, abounding in "prestige, honour, dash, colour, fury and blind rages". The aims and objectives of the war were badly enmeshed on these side issues.

**At the time of his retirement this year, the reviewer was employed in the Directorate of Militia and Cadets at Army Headquarters.*—Editor

†Battles of the Crimean War *by W. Baring Pemberton. Published by B.T. Batsford Ltd., London, and available in Canada from British Book Service (Canada) Ltd., Kingswood House,* 1068 *Broadview Ave., Toronto* 6, *Ont.* $5.25.

"Gentleman Johnny"

(Continued from preceding page)

regiments and formed into a composite battalion under Lord Balcarres.

The pleasure of reading the Journal is enhanced by the footnotes. Military antiquarians who enjoy the minutiae of army life two centuries ago will seize eagerly upon the little known facts which appear on practically every page. To choose two at random, a comparison between the German Jäger rifle and the weapon carried by Morgan's men faces a note that Colonel Hill of the 9th Foot hid the regimental colours in his baggage and took them to England when he was exchanged. The parade states and the casualty returns which bring the Journal to a close will please historians.

"As to Burgoyne's campaign at large," wrote Sir John Fortescue, the Historian of the British Army at the turn of this century, "it seems to me that no more honourable attempt of British officers and men to achieve the impossible is on record." Since then, two World Wars have furnished innumerable instances in which the soldiers of the Commonwealth have shown a courage in adversity the equal of that displayed by the nameless redcoats who followed "Gentleman Johnny" to his fate at Saratoga.

The individual chapters follow in normal order of events. That entitled "Peace and War" is an interesting commentary on the decayed state into which the British Army had fallen after 40 years of peace. The consequent lack of planning for even the most elementary requirements was to prove disastrous.

Chapter 2, "The Alma", demonstrated the triumph of the principles of Mobility and Fire Power and the results of the failure to Exploit. Here for the first time in the book is described the lack of generalship that is so prominent a feature in later chapters.

In "Balaclava", the action of the Heavy Brigade is a stirring one, filled with the dash and fury of a cavalry charge. Somewhere one catches the heady feeling of conviction that the British heavy cavalryman was invincible — as indeed maybe he was. The tragedy of the Light Brigade is presented as a series of vignettes which may have been an appropriate method of describing this disjointed affair.

The action at Inkerman repeated the earlier errors of failure to reconnoitre, to which was added the dangerous habit of "editing" reports for the commander by the elimination of distasteful items or withholding news of an unpleasant nature. As a result, the commander was never in possession of the full facts, but only of those favourable to his plan. Much is made of the superiority of the Minie bullet, used by most of the British troops and there is no doubt that it was a great improvement over the old round ball. One cannot help wondering if the Minie superiority hasn't been given more credit for British successes than was its due. The superiority of the British soldier over his more stolid Russian enemy is highlighted by many feats of bravery and daring. The use of the bayonet — so dreaded by the Russian and so dear to the British — is described in the best style of a Chum's Annual blood-and-thunder yarn. One hopes that this comparison will be maintained in the nuclear field.

One very enlightening remark concerns the heavy losses of the Russians which were, however, absorbed by the large size of their forces. British losses, on the other hand, while comparatively light, were crippling to a relatively small force. The modern application of this observation is inescapable.

The "Winter" is a chapter of horror, describing as it does conditions almost beyond modern imagination. There is a repetition of the tale of neglect and ignorance, of failure to plan and of contrast with the better staff planning of the French.

Mr. Pemberton's work is an addition to a long list of books on the Crimean War. As such it adds little to the printed knowledge of the subject. Its style is unfortunately clumsy and rather immature. The anecdotes are strung together in a hurried manner and fail to present a smoothly coordinated whole. His sentence structure is marred by frequent and lengthy subordinate clauses. Mr. Pemberton has the unfortunate but well-meaning habit of padding his descriptions with irrelevant matter. For example, he speaks of a VC won by Alex Dunn, "a man of immense wealth who went to the assistance of a stricken sergeant!!." Of what significance was his

The British Army in Canada

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

One of the reasons for the military history of Canada being inadequately written has been the dearth of source material on the British Army. The author of a volume timed for the 200th anniversary of the capture of Quebec could not find a relevant British Army List in the Public Archives or elsewhere in Ottawa and had to procure a 1759 List from a London bookseller. The Library of the Department of National Defence, however, now holds an almost unbroken set of British Army Lists from then to the present. Its Librarian, Mr. Charles H. Stewart, has also collected regimental histories of virtually all the British units that served in Canada, the published autobiographical reminiscences of many of their officers, and numerous volumes on uniforms and weapons.

All this, however, is far more than merely interested readers require. Mr. Stewart now comes to their assistance with a compilation entitled *The Service of British Regiments in Canada and North America.** Its 464 pages, written while he was on five months' sick leave, provide a separate summary of each regiment's activities, and lists known coloured prints of uniforms and source books. Page 388, for example, deals with the 100th (Prince Regent's County of Dublin) Regiment of Foot, which was disbanded in Canada following the War of 1812, and the 100th Royal Canadian Regiment of Foot raised in Canada in 1858 for service overseas.

Copies are available in the principal university, municipal and military libraries across Canada. Mr. Stewart knows only too well that there are still details to be learned. Thus he plans to issue replacement pages from time to time. Ultimately, it is to be hoped, there will be a proper hard cover edition.

*Charles H. Stewart (Comp.), *The Service of British Regiments in Canada and North America.* A Résumé with a chronological list of uniforms portrayed in sources consulted. Department of National Defence. Ottawa, 1962.

A War of Fury and Blind Rages

(Continued from preceding page)

wealth? Or his description of the encouragement of the troops to repel an attack by "the pious Major Champion". Of what significance his piety? Similar tid-bits of irrelevant information are a feature of this tale. Unexplained and unrelated to the incident they have an annoying influence on the reader. It they were inserted as a device to arouse interest or colour a description, they failed in their aim.

One cannot resist the query, why was this book written in the first place? It is of dubious historical value, and much personal speculation and assumption by the author leaves it in the "light reading" category. In an attempt to be interesting or to cater to the general public the author has failed to produce a work of merit useful to the serious student of the Crimean campaign.

Kiwi Sappers at War

Reviewed by Major A. S. Millen, Royal Canadian Engineers (SR)*

Compiled from a wealth of material in the form of diaries, letters and official documents, J. F. Cody's book† presents a detailed account of the Second World War exploits of the New Zealand Sappers during their service in the Middle East.

Commencing with the organization and development of the Sappers in New Zealand following the outbreak of war, the author leads his readers through the early action in Egypt, Greece and Crete back to the Battle of the Western Desert, then on through the Italian Campaign to the close of the war.

Very little generally is known of the role of the New Zealand Army in the Second World War, and in particular the part played by the New Zealand Engineers. It will come as a surprise to many readers to learn of the magnitude of the contribution made by the Kiwi Sappers, both as Divisional and as Lines of Communications troops, to the Allied success in the Middle East Campaign.

This is an intensely personal account of New Zealand Engineer operations. One becomes easily absorbed in the day-by-day battle as it unfolds, and follows with interest the activities of the sub-unit and even, in many cases, the individual. In its way, it is a novel presentation of story and data, being close to a series of anecdotes authenticated by official records. Nevertheless, the participants are New Zealanders and the style of narrating is, as it should be, distinctly Kiwi.

The reader will discover, as the author admits, that it is difficult at times to follow the main theme of the action due to the interjection of activities of units not neccesarily related to the immediate picture. This sometime disjointed compilation, coupled with the lack of uniformity in the designation of participating units, could perhaps have been rectified to produce a smoother flow to the narrative. It does not, however, distract from a readable and factual account of New Zealand Sapper operations. This history should be of interest to both the professional soldier and layman alike. It is well illustrated and the text is supported with easy-to-follow maps.

New Zealand Engineers, Middle East, is the thirty-ninth publication produced by the War History Branch of the New Zealand Department of Internal Affairs and would appear to be one more step toward their goal — a history of every New Zealand unit.

The reviewer is Editor of Technical Publications and Curator of the RCE Museum, Royal Canadian School of Military Engineering, Camp Chilliwack, Vedder Crossing, B.C.

†*New Zealand Engineers, Middle East (Official History of New Zealand in the Second World War),* by J. F. Cody. Published by Whitcombe and Tombs Ltd., P.O. Box 1465, Christchurch, New Zealand, 1961. Price $2.60 (17/6 N.Z.).

Ad Infinitum

It is possible that the attacking missile might carry a small missile to shoot down the anti-missile missile. This then would be an anti-anti missile missile missile.—*Boeing Magazine.*

Journal of The Royal United Service Institution

Officers of the Canadian Army (Regular), as well as members of the Militia, are again reminded of the valuable information contained in articles published in the *Journal of the Royal United Service Institution.* Information of great military interest and importance appears in this leading military journal, reference to which has been made in past issues of the *Canadian Army Journal.*

Every Officers' and Sergeants' Mess would be well advised to subscribe to the RUSI *Journal.* The annual non-member subscription rate for messes, institutes, libraries, etc., is £3-3-0. Officers may apply for full membership in the Institution and for this the annual subscription is only £3-0-0. This sum includes a subscription to the RUSI *Journal* and entitles the member, when in London, England, to make full use of the Institution's facilities such as the Library and Museum and to attend lectures by prominent persons.

Subscriptions for the *Journal* and applications for membership in the Institution should be forwarded, together with remittances, direct to:

The Secretary,
Royal United Service Institution,
Whitehall,
London S. W. 1, England.

A LIGHT-HEARTED LOOK AT WARTIME LIFE

Memoirs of an Old Sweat by Doug Smith. A book about people who have served in the Armed Forces and with whom the author deals in a light-hearted way as he tells of the many little incidents that could only occur in times of war. Forty-five such incidents are related in the book, which takes the reader from Canada to the fighting fronts in Europe during the Second World War. A wartime manager of the Canadian Army's frontline newspaper *The Maple Leaf,* and a regular contributor to *The Legionary* (the national magazine of the Royal Canadian Legion) for the past 15 years, Doug Smith's memoirs touch on the experiences of "the little man who served unsung and unpraised but whose service life was full of humor, pathos and quiet courage." Evergreen Press Limited, 1070 S. E. Marine Drive, Vancouver, B. C. $4.50—*J.G.D.*

Booklets on Armour Development Available

The *Editor* has received five booklets from Brigadier A. W. Brown (Retired), Curator of the Royal Armoured Corps Museum, which contain a very informative illustrated record of the development of tanks and other armoured fighting vehicles during the past 56 years.

A valuable source of information for reference purposes, and particularly useful for those engaged in historical research, these booklets bear the following titles: "Tanks, 1915-1918: The First World War"; "Tanks, 1919-1939: The Inter-war Period"; "Tanks, 1940-1946: The Second World War"; "Armoured Cars, 1900-1945"; "Tanks of Other Nations".

The price per set is $3.50, including postage at letterpost rate, or $3.00 by printed matter rate. These sets may be obtained from The Curator, Royal Armoured Corps Tank Museum, Bovington Camp, Wareham, Dorset, England.

The Battle of Britain

The Battle of Britain by Basil Collier. An account of the famous battle which, while not minimizing the skill and courage of the young fighter pilots in the dark days of September 1940, emphasizes the fact that the Battle of Britain was not won by isolated acts of heroism. The reader is told that the British victory should be traced back to the early recognition of radar as the key defence weapon, and to the organization of Fighter Command under Sir Hugh Dowding during the years immediately preceding the war. This is the theme of the book. Forty-seven illustrations, including maps. Published by B.T. Batsford Ltd., London (1962), and available in Canada from the British Book Service (Canada) Ltd., Kingswood House, 1068 Broadview Ave., Toronto 6, Ont. $5.25.

A Formidable Requirement

The officer today must fulfil two main requirements. He must be such a man as it is proper to put in command over other men, and he must be capable of acquiring the appropriate professional skills. He must, that is to say, have a mind sufficiently developed to discharge effectively his obligations in respect of command over men and everything that this implies, and be able at the same time to learn the craft of field soldiering and master the technical processes, mechanical, electrical, and electronic, it now involves. This is a formidable double requirement. — *Maj.-Gen. J. W. Hackett, Commandant, Royal Military College of Science.*

CANADIAN ARMY ORDERS AND BRANCH INSTRUCTIONS

Listed below is a résumé of Canadian Army Orders and Branch Instructions for the information of military personnel. Details of these Orders and Instructions are available in all Army units.—Editor.

CAO 62-4

Short Service Commsisions—CA(R)—Officers of the Reserves of the Canadian Army

(Issued: 19 Mar 62)

This instruction sets out the conditions under which selected officers of the Reserves will be granted three-year short service commissions in the Regular Army.

CAO 79-12

Service Detention Barracks, Detention Rooms and Guardrooms

(Issued: 11 Jun 62)

This revision brings up to date the list of detention facilities in the RCN, Army and RCAF.

CAO 93-2

Extraneous RCEME Commitments

(Issued: 9 Jul 62)

This amendment permits RCEME to provide emergency vehicle repair and recovery services, on a recoverable basis for civilians in the Fort Churchill area.

CAO 213-2

Pensionable Service Canadian Forces Superannuation Act

(Issued: 14 May 62)

This amendment to Annex A notifies additional service under the Support Organizations Superannuation Regulations that may be counted towards pension under the CFSA.

CAO 217-2

Federal Elections

(Issued: 30 Apr 62)

This new order amplifies and supplements the Canadian Forces Voting Rules (Schedule II of the Canada Elections Act) which came into force on 23 Mar 61 and articles 19.44 and 29.09 of QR (Army), in respect of federal general elections and federal by-elections.

CAO 218-7

Official Mail — Methods of Mailing

(Issued: 9 Jul 62)

This revision advises that the restriction to eight ounces in weight for consolidated correspondence will apply only when air transmission will expedite delivery.

CAO 218-8

Rental of Post Office Lock Boxes

(Issued: 14 May 62)

This new order outlines the conditions warranting authorization of rental of post office lock boxes and the method of claiming for expenditures.

CAO 225-30

Ordnance Manual

(Issued: 11 Jun 62)

This revision provides that establishments and units requiring copies of the Ordnance Manual will submit demands for same as for other ordnance stores.

CAO 225-36
Manual for S & T
(Issued: 11 Jun 62)

This revision notifies introduction of the revised "Manual for S & T" which has been published and distributed in seven Volumes superseding Parts A, B, C, D and G of the Manual for S & T (Canada). Procedures for user units have been consolidated in Volume 1 which is titled "Unit Procedures".

CAO 242-3
Reports — Candidates on Courses and Observers at Exercises or Demonstrations Outside Canada
(Issued: 11 Jun 62)

This revision provides that reports are to be submitted by candidates in greater detail and within two weeks of the completion date of the course, exercise or demonstration.

CAO 251-16
Disposal of Ammunition and Explosives
(Issued: 23 Jul 62)

This revision details the responsibilities of the Canadian Army for the disposal of ammunition and explosives in Canada.

CAO 256-3
Terms of Service — Officers of the Canadian Army (Regular)
(Issued: 30 Apr 62)

This amendment authorizes the GOC in an emergency, other than a riot or insurrection, to make promotions in temporary rank to lieutenant-colonel.

CAO 256-3
Terms of Service — Officers of the Canadian Army (Regular)
(Issued: 9 Jul 62)

This amendment provides for licensed graduates in pharmacy, other technical non-medical university graduates and all female officers, except dietetic interns, to be promoted to the rank of lieutenant on enrolment and commissioning in the RCAMC.

CAO 257-13
Nomenclature of Radio Nets — Canadian Army in the Field
(Issued: 28 May 62)

This revision standardizes the nomenclature for the main radio nets in the field as used by the Canadian Army.

CAO 270-9
Selection for Pilot Training
(Issued: 28 May 62)

This new order sets out the selection standards and method of application for officers wishing to apply for Army Pilot Training.

CAO 270-10
Language Training
(Issued: 11 Jun 62)

This new order details the policy for the training of members of the CA(R), less Military Attaches, in languages other than French, English and Russian.

CAO 271-10
Postings and Detachment Postings Approving Authorities
(Issued: 2 Apr 62)

This amendment provides that on completion of courses, schools may notify parent units the candidates ETA home station, but, in such cases information copies to formation HQs are not required.

CAO 271-3
Postings, Attachments and Courses in Britain
(Issued: 16 Apr 62)

This revision sets forth the current procedures to be followed when members proceed on posting, attachment or course to Britain, and the related entitlements and administrative procedures.

CAO 273-8
Movement To and From Selected Places of Residence
(Issued: 30 Apr 62)

This revision eliminates various procedures and references which have become obsolete. The order has been revised to clarify entitlements and conditions in moves to and from selected places of residence in Canada. In addition, the order now includes the entitlements and conditions surrounding moves to and from selected places of residence in Britain or Continental Europe and on posting to "limited accommodation areas" on return to normal duties in Canada.

CAO 288-5
Entertainment of Visitors at Public Expense
(Issued: 23 Jul 62)

This new order prescribes the conditions whereby public funds may be expended for entertainment purposes.

CAO 298-3
Canvassing — Charitable Organizations
(Issued: 9 Jul 62)

This new order sets forth the Service policy in respect of permitting the canvassing or the collecting of moneys by certain charitable organizations within military establishments during working hours.

AGI 62-3
Exchange Postings for Language Training
(Issued: 9 Mar 62)

The provision of this AGI will explain the "A" policy and procedures governing the interchange of English-speaking and French-speaking infantry officers to enable the English-speaking officers to learn French and for French-speaking officers to improve their English.

AGI 62-5
Promotion Policy — Canadian Army (Regular) Lieutenant to Captain — ROTP & OCP
(Issued: 2 Apr 62)

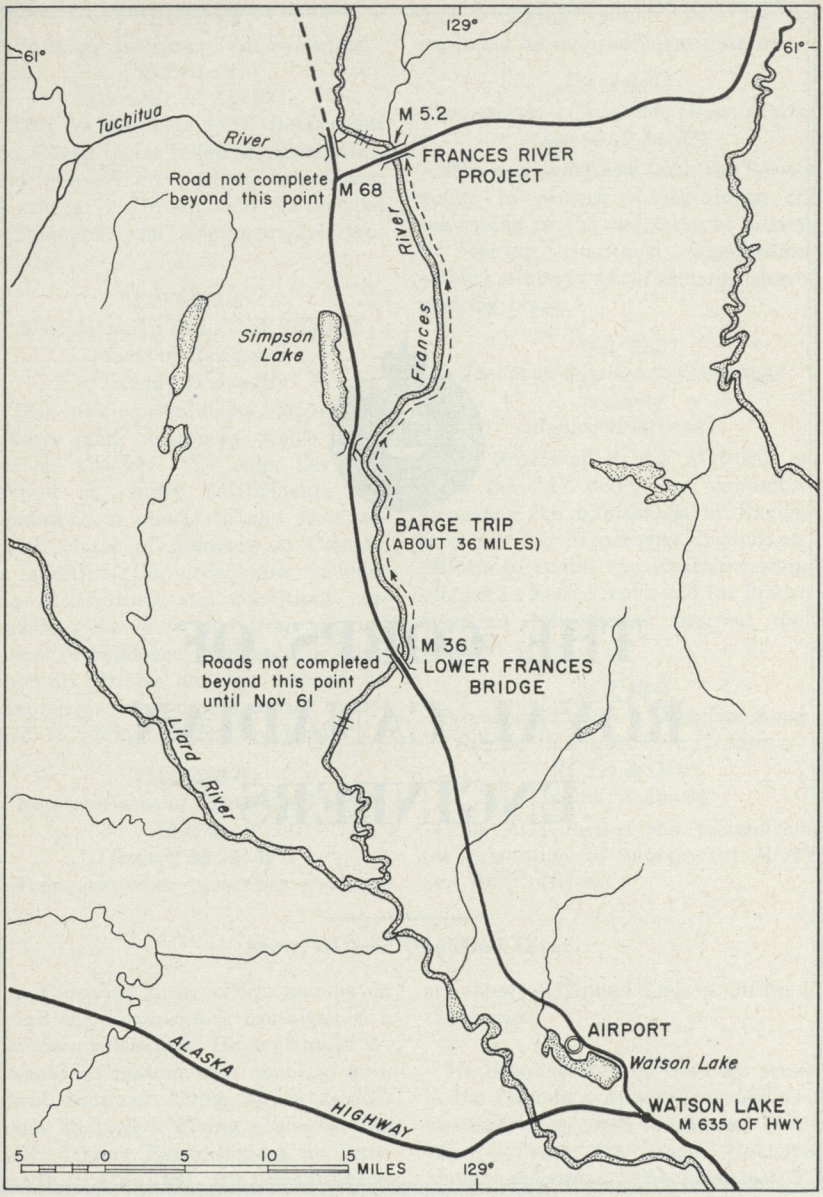
This AGI revises the prerequisites for promotion to captain for ROTP and OCP officers.

Army Officer Qualified Diver

A Canadian Army officer serving on board the *Bonaventure* has attained a unique qualification. He is Captain W. Donald Creighton, who qualified as a naval clearance diving officer (ships) when he took a diving course at the RCN Diving Establishment at Dartmouth in May 1961. His normal duties are those of Ground Liaison Officer in the carrier.

He is believed to be the only person in the Canadian Army to qualify as a clearance diver since the Second World War. — *From the Royal Canadian Navy's magazine "The Crowsnest".*

THE CORPS OF ROYAL CANADIAN ENGINEERS


129°
61°
61°
Tuchitua River
M 5.2
FRANCES RIVER PROJECT
Road not complete beyond this point
M 68
Frances River
Simpson Lake
BARGE TRIP
(ABOUT 36 MILES)
M 36
LOWER FRANCES BRIDGE
Roads not completed beyond this point until Nov 61
Liard River
AIRPORT
Watson Lake
ALASKA HIGHWAY
WATSON LAKE
M 635 OF HWY
5 0 5 10 15 MILES
129°

ENGINEERS BUILD A BRIDGE IN THE YUKON

By

LIEUT. C. F. HUNTER, 3RD FIELD SQUADRON,
ROYAL CANADIAN ENGINEERS, CAMP CHILLIWACK, B.C.

The last half of 1961 saw a party of Canadian sappers engaged in a somewhat unique project — the construction of a semi-permanent bridge for the Department of Public Works. The project involved the design and construction of a 290-foot broken span Bailey bridge across the Frances River in the Yukon Territory. The bridge is located 75 miles north of Watson Lake, a town at Mile 635 of the Northwest Highway System, and ties together two sections of northern development road being pushed in the heart of the Yukon and tapping the great natural wealth of the area. It was built in two stages, the first stage under Lieutenant John McDougall in July and August and the second stage under Lieutenant Carl Hunter in November and December, by personnel of 3 Field Squadron, Royal Canadian Engineers, stationed at Camp Chilliwack, B.C.

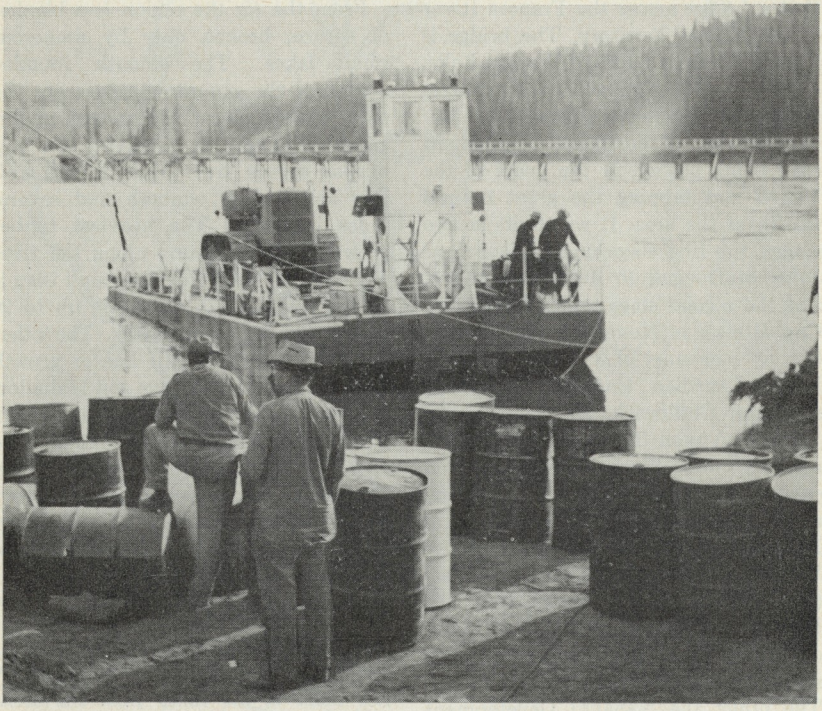
In the Yukon Territory the Department of Public Works is organizing and supervising construction of development roads for the Department of Northern Affairs. In the area north of Watson Lake two large road construction projects are underway. One, the Ross River Road, joins Watson Lake direct to Ross River, a distance of some 175 miles through virgin country. The other, the Nahanni Development Road, branches eastward from the Ross River Road about 68 miles north of Watson Lake to the border, and here lies the Nahanni Valley (or "Headless Valley")* which is as rich in minerals as it is in tales of tragedy. The bridge constructed by the Royal Canadian Engineers is at Mile 5.2 of the Nahanni road — 75 miles from the nearest sign of civilization.

From the air the region is a blanket of spruce, broken only by numerous small lakes. The smooth rounded domes of the mountain ridges are the only places where the mossy undergrowth manages to outstretch the ambitious spruce tree. Most of the valleys are shallow, smooth and several miles in width. The heaviest timber growth is to be found along the river edge and on the numerous small islands in the rivers. Butt diameters up to 20 inches can be found easily. The other areas are covered with lighter growth of 10-12 inch timber; the soil is shallow and will support only small growth. Rock outcrops, scattered about the area, verify the shallow soil covering. The development roads are relatively free to wander through the valley and open-plain areas, but they must pick their way carefully through the passes and muskeg portions.

**A name given to the valley following the discovery in 1916 of the headless skeleton of a man. Many trappers and hunters have met death in the valley from starvation, cabin fires, drowning and other causes over the years. An interesting account of these tragedies is contained in an article entitled "Valley of No Return" published in the January 1960 issue of the RCMP Quarterly.* — Editor.

The source of the Frances River is about 30 miles upstream from the bridge site. Because it is the outlet for the Frances Lake drainage area the river obtains sizable dimensions almost immediately. Some 60-odd miles below it joins the Liard which, in turn, flows on to the mighty Mackenzie River. The Frances has an average width of 200 to 300 feet during low water and of up to 500 feet at flood time. Certain sections are channelled by rock outcrops and vary little throughout the year. The water moves quickly at from eight to 10 miles per hour and runs to a depth of 15 feet at the bridge site. The estimated high-low water differential is about 13 feet.

Very little specific information could be obtained at the selected bridge site. Maximum water level was estimated from markings on trees and banks. As the Frances River flows into the Liard, considerable use was made of the water level readings taken where the Liard crosses the Northwest Highway System. From these sources and from one year's previous readings on



A barge loading at Mile 36 (lower end). This was to have been used to move equipment to the construction site, but when the river level dropped, plans had to be changed. The bridge in the background is the temporary Lower Frances River bridge.

the Frances River, the Department of Public Works survey crews estimated the flood level to be used for design. A sub-surface exploration along the bridge centre line was attempted by the Department of Public Works; however, the water-jet unit was unable to penetrate a heavy layer of 8-to-10-inch boulders extending from shore to shore.

With the initial site reconnaissance completed in early June, plans were made for starting the project. The timber piles were to be prepared by the RCE and all Bailey equipment and plant required for construction were to be moved by road from Watson Lake to Mile 36 of the Ross River Road. There, loads were to be transferred to a barge and moved another 35 miles up the Frances to the building site. The barge had to be trucked to the Frances early in the spring and was to be operated by the contractor who obtained the contract for the Nahanni Development Road. It was intended that the barge would move in and maintain both the construction company and the RCE party.

With the very indefinite accumulation of knowledge gained from the site, Lieutenant John McDougall, now of the Army Survey Establishment, began the bridge design. Specific construction plans could not be made because of the many undeterminable factors at the bridge location. A total bridge length of 290 feet was considered necessary, and this was to be divided into four separate spans of 70, 100, 60 and 60 feet, respectively. Spans were to be broken to avoid danger to the entire bridge should ice take out one of the midstream piers. The two abutments and the three mid-stream piers would be constructed of piles and sheeted with cut lumber from a local lumber mill. As no sub-surface information was available, the use of piles was based on judicious estimation and hoped for economy. The only reasonable alternative to pile construction would be cribbed piers but with the deep fast water the positioning of the piers would be a very difficult task.

In accordance with the agreement with the Department of Public Works, the plans were checked and approved by that Department. A general understanding existed between the Army and the Department that design changes which seemed inevitable would be worked out when the problem arose. The extra wide Bailey bridge equipment required for the project was shipped from Montreal by rail to Dawson Creek. The 180 tons of bridge components were carried in 20-ton loads to the barge loading point on the Frances River. There the bridging was stacked to await the difficult trip up the river. By the end of July some 30 tons had been ferried up to the site. The remaining portion was moved to the project site after a road had been completed.

Late in June 1961 Lieutenant McDougall, Lieutenant Hunter (the author of this article) and Lance-Sergeant John Derry arrived at Watson Lake and began bridge design, organization of supplies, transport and clearance of site. Because of the complicated and extended supply system, Lieutenant Hunter remained at Watson Lake where telephone communication was available with the Northwest

A small raft is used to guide the piles.

Highway System Headquarters in Whitehorse, Y.T. The barge made its first trip up the river on 8 July taking a dozer unit required to clear a camp and material storage area. The statistics did not give cause for optimism. The trip upstream took 15 hours and, due to the shallow sections on the river, the barge capacity was halved to 20 tons. The trip downstream took five hours. However, this was the first time the river had been navigated, so it was expected that times would improve as the shipper gained experience.

The 40 sappers required for the project were airlifted by RCAF C-119 to Watson Lake and then most of them moved to the bridge site by float-equipped Beaver Aircraft. Other members of the crew covered the last leg of the journey by water, taking with them stores, equipment and a heavy motorboat required at the site. A tent camp was soon set up under the light of the long Yukon summer days and preparation of 180 piles began. Working alongside each man was an equally ambitious group of mosquitoes who were only slightly discouraged by various repellents used by the crew!

The barge loads and trip times did not improve. As the water-level went down the barge capacity had to be lowered. Optimistically, preparations were made for the arrival of a track-mounted crane, which was to be the pile-driver, and for lumber for sheeting. The water-level dropped each day; by August the barge could not bring in sufficient fuel to keep the contractor's heavy equipment operating.

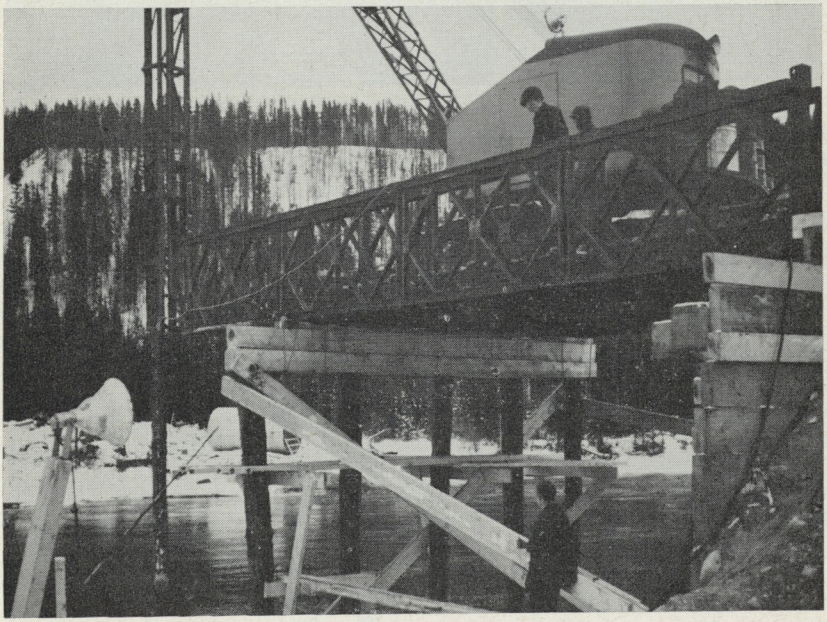
Some 45 days after the expected date of arrival, the pile-driver, after an

adventurous trip made partly on water and partly along the shore, struggled into camp. By this time it was obvious that a more satisfactory method of supply would have to be provided. Insufficient bridging and cut timber was on the site to do no more than drive piles for the west abutment. The piles were driven with moderate success and the RCE party moved back to Chilliwack on 20 August to await construction of a road to the site.

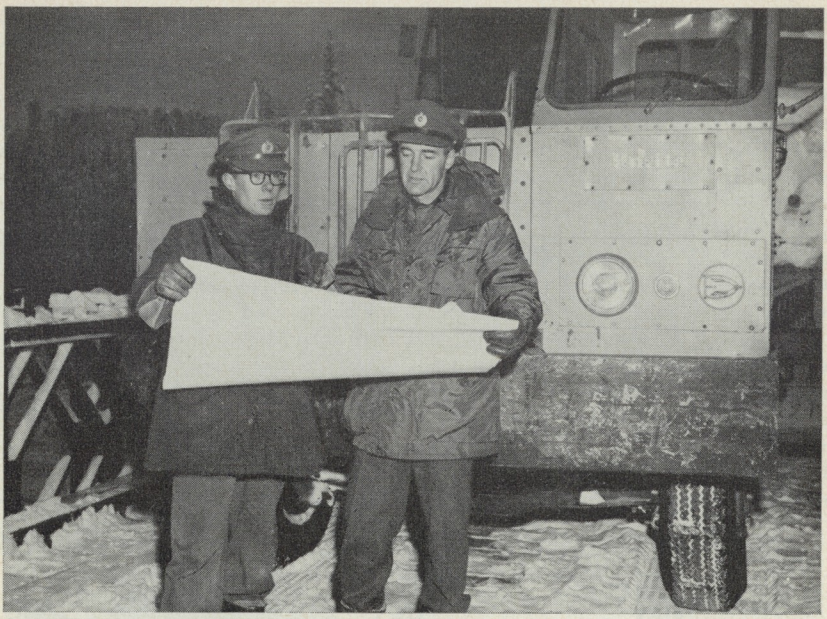
As all the piles had been prepared and were at the bridge site, a much smaller crew was adequate for the actual bridge construction. On 1 November Lieutenant Hunter arrived back at Watson Lake to begin the second attack on the stubborn Frances River. One week later a party of 15 sappers arrived by C-119 with Sergeant Stewart MacMillan in charge.

The change in climatic conditions was striking. The summer temperatures had reached 80 above and the sun shone 19 hours a day. Now the men were greeted with a temperature of 20 below and sun for only five or six hours. As time went on they were to find that 20 below was relatively warm.

Trailers used during the summer by Highway Maintenance Establishment crews in the area were taken from storage at Watson Lake and moved by road to the old, familiar site. Camp was set up, consisting of trailers, three marquee tents and an aldershot shelter for use by the Watson Lake



With part of the first bay constructed, pile driving for the second construction pier is started.



Canadian Army Photograph

Major Robert MacDiarmid (right), Commanding Officer, 3 Field Squadron RCE, checks the bridge plans with Lieutenant Hunter, the author of the accompanying article.

Advanced Workshop Detachment in maintaining the equipment. After the long rest, heavy equipment stored at the site, such as the generator and crane, now reared into life again.

At last, after four months of frustrated effort, the bridge was to be started. Construction began the day after arrival.

The crew quickly adjusted to the isolated camp life. To further chances of completion by Christmas, the working day lasted from seven to five o'clock with work after supper whenever it would see a phase or section of construction completed. Any spare time existing between the working and sleeping hours was spent telling "war stories", reading and, of course, playing bridge. Trips to Watson Lake were infrequent because the 75 lonely miles separating camp from town presented not only a long drive but a potentially dangerous one. As in most camps, life revolved about the dining trailer, and for a good reason: the cook was rated highest among those of the several construction crews in the region. Visitors soon realized that mealtime was the time to do business and check construction.

The first section of bridge was launched off the abutment and was

rested on a 5-pile temporary bent* located 30 feet away. The short, 30-foot section of the first span was jacked down and the end secured to the abutment. The pile driver was then moved onto the span. Construction continued, using temporary bents every 20 feet forward of the bridge end. A further 10 feet between temporary bents would have been desirable, but the pile driver was not able to make a 30-foot reach. As each bent was completed Bailey sections were added and secured, and the pile-driver was moved forward to the next permanent or temporary pier.

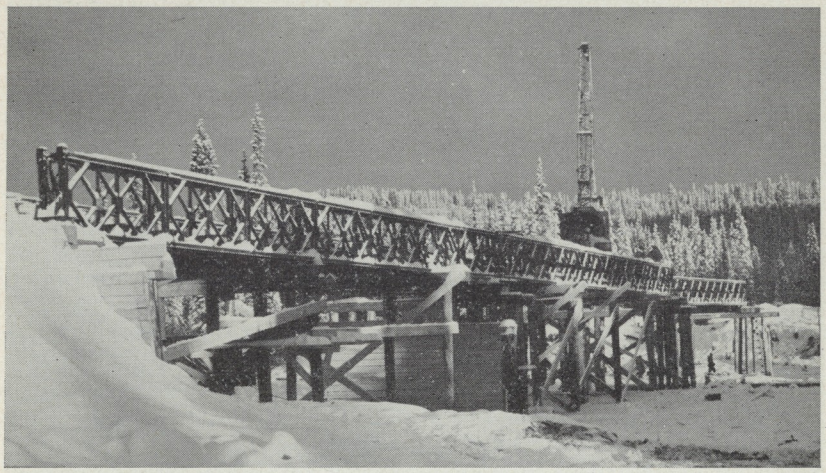
Initial progress was not rapid because of difficulties with the counterbalance on the pile-driver. However, under capable instruction from Highway Maintenance Establishment project section bridge foremen, Hector Rail and, later, Phil Glarad, Sergeant MacMillan and the crew began to gain confidence in piled pier construction. A further retarding factor was the still-open water which, because of its speed, had not yet frozen even though the temperature remained well below freezing. This made extra caution on the part of those working above the water necessary and, at the same time, made pile location time-consuming, there being no firm anchor available to guide the pile.

By the end of November about one-third of the bridge had been constructed and progress suggested that by Christmas the bridge would be open to traffic. However, further work on ice protection might carry the project past Christmas — a bleak thought for those who would have to remain.

A wooden pier.

Canadian Army Photograph

Lifting the third span of the Bailey bridge into position.



Canadian Army Photograph

A general view of "Christmas Bridge" (so named because it was completed shortly before Christmas) with two bays completed and the third being lifted into position.

to just below the end of the bridge for the first severe attack by winter. The temperature dropped to 40 below for several days, then finally reached 55 below zero. All equipment was kept running 24 hours a day because restarting is extremely difficult in such low temperature. Attempts were made to continue, but it was found that, with bulky clothing, slippery footing and numbed fingers, and using artificial light, work on the bridge was not feasible.

Strangely enough, the river was not yet frozen over. Some 80 feet of open water still remained. A fall into the water under such severe conditions could easily be fatal. During the latter part of the cold week the open channel was blocked and by the first of December "slush ice" had filled the channel and men could walk from shore to shore.

From this point forward progress was rapid, for all had increased confidence and were spurred on by the thought of Christmas at home. Though the extremely cold weather had meant a definite setback it was, in the end, to prove a blessing in disguise. With ice fully across the river positioning of the piles was simple and stores could be skidded with the small D-4 tractor to just below the end of the bridge for easy handling by the crane. The ice depth was from 18 to 20 inches six days after freeze over.

The track-mounted crane proved awkward to manoeuvre and damaging to the bridge deck, so a truck-mounted crane was moved in from Watson Lake. Aided by the very cold weather, an ice bridge abandoned by the contrac-

Canadian Army Photograph

Decking the bridge. *Left to right*: Sapper L. F. Wollshlager, Sapper J.P.G. Morettin, Lance-Cpl. J.D. Howie.

tor was suitably reinforced with lumber and the tracked pile-driver was moved to the other side. The location of the third permanent pier was well off the centre of water flow, and consequently the ice was thick enough to allow pile driving off the ice. With the third pier complete and no temporary bents necessary to reach the position, the method of constructing forward, panel by panel, was not required. Therefore, the complete span was assembled on the ground and lifted into position upon the piers.

Problems of design modification were not yet over. The far abutment caused further concern. In late September approach fill had been placed onto the area where the abutment piles would be driven. Breaking through this frozen material required dynamite in bore hole charges and a 25-ton tractor with one large "ripping" tooth fixed to the back.

Once having broken through to the unfrozen ground it was possible to drive the abutment piles. Unfortunately, the maximum penetration was only six feet, about nine feet short of the desired design depth and four feet less than the minimum acceptable depth. Permafrost seemed to be the problem, and the solution very hard to find. Because of hauling plans of several companies the bridge opening could not be delayed and no suitable timber was available for construction of a crib pier dug into the permafrost. Therefore, after consultation with the Department of Public Works, the piled abutment was continued and extra piles were driven to improve the low sta-

Canadian Army Photograph

Engineers warm their hands over a fire on the river below the bridge. *Left to right*: Sapper L. G. Mjerke, Corporal D. E. Reeves, and Sappers W. B. Wehittles, H. W. Hawes, J. C. Pelletier.

bility caused by shallow pile penetration. It is planned to place gravel and moss covering about the abutment in an attempt to preserve the permafrost layer. This abutment construction can only be considered temporary until tests for a season indicate whether adequate support can be maintained through the summer.

The last span could not be lifted as a unit onto the piers because the steep bank would not allow convenient pre-assembly near the gap. Still another method of construction was therefore employed. All the panels of the double-single Bailey were assembled as two large girders. The panel girders were lifted into position and the transoms placed in afterwards. The mobile crane handled the complete operation with no difficulty. This method of assembly proved to be very efficient, but with the limitation that when only one crane is available it must be positioned between the two supporting piers.

Design modifications occurred frequently throughout the project. Each was necessary to absorb or avoid conditions which had arisen. The most significant change was the decision on the part of the Department of Public Works to protect the piled piers with rock-filled cribs instead of with a tight cluster of 12 piles, called "dolphins", driven immediately up stream of each pier. As material for the cribs would not be available until February 1962 the sappers' job was somewhat short-

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THE ROYAL CANADIAN ARMY SERVICE CORPS

Colonel McQueen Award

The Diamond Jubilee Competition

CONTRIBUTED BY THE DIRECTORATE OF SUPPLIES AND TRANSPORT, ARMY HEADQUARTERS, OTTAWA

To stimulate progressive thinking and to encourage continuous improvement of the Royal Canadian Army Service Corps in peace and war, Colonel M.V. McQueen OBE, ED, B.Sc., FCIC (retired), has established an annual competition to be known as "The Diamond Jubilee Competition".

Colonel McQueen has had a long and distinguished career as an educationist and soldier. He was commissioned in the then Canadian Army Service Corps in Toronto in 1916. Unable to obtain an overseas posting, he transferred to British infantry. He returned to the RCASC in 1926 in the rank of Captain, was promoted to Major in 1931 and to Lieutenant-Colonel in 1935. In August 1940 he went overseas as CRASC, 2nd Canadian Division, was promoted to Colonel on 1 July 1942 and appointed Deputy Director of Supplies and Transport, 1st Canadian Corps, on 1 October 1942. He held this appointment until the end of hostilities. Colonel McQueen is now principal of Westdale Secondary School in Hamilton.

The Diamond Jubilee Competition is an annual contest for the best proposal, suggestion or invention which will benefit or improve operations of the Corps in peace or war. It is open to all officers and Regular Officer Training Plan/Officer Candidate Plan cadets of the RCASC (Reserve).

Entries are to be submitted by 1 June each year in the form of a military paper or brief describing the proposal, suggestion or invention in detail.

The closing date for the first competition is 1 June 1963. Entries are to be addressed to:

The Secretary,
Colonel M.V. McQueen Award Committee,
c/o Director of Supplies and Transport,
Army Headquarters,
OTTAWA 4, Ontario.

Judging will be completed by 1 September each year and the winner will be notified. Other officers and officer cadets whose submissions are adopted will receive a letter of commendation.

The prize, which will be known as "The Colonel M. V. McQueen Prize", will take the form of a gold wrist or pocket watch or a silver tea service, according to the wish of the winner.

New Snow Vehicle

Army engineers in Sweden are reported to have developed a new over-the-snow vehicle to replace the U.S.-made Weasels now in use. The Swedish vehicle has four-track drive and rear steering and can traverse snow regardless of its depth or consistency. It can climb a 35-degree slope on solid ground and has a limited water-crossing capability. — *Military Review (U.S.)*.

Canadian Army Photograph

Colonel McQueen

Canadian Army Photograph

Major F.C. Davies, Commanding Officer of No. 154 Company, RCASC (Militia), receives the Commonwealth Shield for his unit from Lt-Col. D.A. Harper, MBE, CD, Assistant Adjutant General (Manning), Western Command.

Edmonton Unit Wins Commonwealth Shield

A REPORT ISSUED BY THE DIRECTORATE OF SUPPLIES AND TRANSPORT, ARMY HEADQUARTERS, OTTAWA

The Commonwealth Shield, awarded annually to the most efficient Royal Canadian Army Service Corps Militia Company in Canada, was won this year by No. 154 Company of Edmonton, Alberta.

The national winner is selected by a team of judges from Army Headquarters, Ottawa, following eliminations conducted by Command Supplies and Transport Officers, who select the best RCASC Militia Company in each Command.

No. 154 Company has represented Western Command in the national competition finals for the past four years, and was also the national winner in 1959 and 1961. This Company now has the distinction of being the first unit to win the competition three times, a signal achievement.

The shield was hand-carved by native craftsmen on the island of Mia-Jima, Japan, from a solid piece of oriental chestnut. Measuring approximately 14 by 12 inches, it bears carv-

ed replicas of the Imperial Crown and the badges of the Royal Army Service Corps, the Royal New Zealand Army Service Corps and the Royal Canadian Army Service Corps. The shield thus perpetuates the good relations between the Army Service Corps units that served in Korea as members of the First Commonwealth Divisional Column RASC.

Lieutenant-Colonel D.A. Harper, MBE, CD, formerly Command Supplies and Transport Officer, Western Command, and now Assistant Adjutant General (Manning), Western Command, presented the trophy to Major F.C. Davies, Commanding Officer, No. 154 Company, on behalf of the Director of Supplies and Transport, Army Headquarters, Ottawa, at the RCASC Memorial Day parade in the Prince of Wales Armoury in Edmonton on 3 June last.

RCASC Greetings to Colonel-in-Chief

On behalf of the Honorary Colonel Commandant, Brigadier G.E.R. Smith, CBE, CD, birthday greetings were dispatched to Field Marshal HRH The Duke of Gloucester, Colonel-in-Chief of The Royal Canadian Army Service Corps.

Text of the signal follows:

"All ranks of the Royal Canadian Army Service Corps send their best wishes on the occasion of the birthday of their Colonel-in-Chief."

Following is the reply received by the Corps from His Royal Highness:

"Please thank all ranks Royal Canadian Army Service Corps for sending me their best wishes on the occasion of my birthday. I much appreciated your message. — *Henry.*"

Atomic Clocks

A new system for measuring time down to millionths of a second on a global scale has been worked out by a group of U.S. Army Signal Corps scientists who flew ultra-accurate atomic clocks on journeys totalling nearly 45,000 miles.

These experiments revealed that the clocks were synchronized within an average of 3.5 millionths of a second of each other during tests between New York State, South America, Hawaii and Australia.

The experiments, known as World-Wide Synchronization of Atomic Clocks (WOSAC), were started in 1959 by the U.S. Army Signal Research and Development Laboratory, Fort Monmouth, in cooperation with Harvard University, the U.S. Navy, the U.S. Air Force and the British Post Office.

The atomic clocks, or Atomichrons, obtain their seemingly uncanny accuracy from the natural resonance frequencies of atoms or molecules of suitable elements.

Among other purposes, the close measurement of time thus achieved will be of great value in tracking satellites and intercontinental ballistic missiles, for global communication systems and radio wave studies. — *From "Army" (U.S.).*

Two Types of Limited War

With the capability of fighting two limited wars as a goal, it is obvious that the 16-division, million-man [U.S.] Army now in being should not be considered as having been formed solely because of the Berlin crisis or the current troubled international scene. It rather should be considered as the result of an assessment of our entire military posture and the desire to bring about a better balance to our military power.

In our planning, we must consider that a major—but limited—war might be fought with the use of tactical nuclear weapons on a rather large scale, in view of the strength and flexibility of firepower now possessed by the Sino-Soviet bloc. To these limited war possibilities we must also add the possibility of the guerrilla type of warfare occurring in a number of localities simultaneously.

The pattern of aggression indicates that the test will always be a valid one — that a difficult problem will be presented.—*General Herbert B. Powell (U.S. Army).*

Engineers Build a Bridge in the Yukon

(Continued from page 130)

ened. Another change saw an 80-foot second span replacing the 100-foot span. This modification was necessary because pile penetration at the 100-foot mark was stopped at two feet by what appeared to be a wide rock or rock outcrop. The area was explored with test piles at 110, 90 and, finally at 80 feet. At this last distance driving was possible. To maintain the total bridge length the two 60-foot spans were each lengthened to 70 feet. As the first span was of double-single construction and 70 feet long, the critical load capacity was not reduced by the span modification. These were the three major points of change. Many smaller items such as bracing design and timber size were modified to comply with the material available.

The Frances River Project, having many complications, provided excellent experience. The gain to the group of sappers cannot be easily measured. For the younger members of the crew, the project meant development of confidence and chance to display initiative. To the NCOs, it was an opportunity to apply several years of learning in equipment and non-equipment bridging. To the officers, it was a challenging and interesting task.

Many of the effects of the project apply equally to all members of the crew. To see a permanent bridge of this size completed is a pleasure seldom enjoyed by the field engineer units in Canada. A point by no means incidental to the project is that of experience in low-temperature working conditions. The men learned that construction can continue even in temperatures of 30 and 40 below zero.

On the 22nd of December the small and very happy crew climbed aboard an RCAF C-130 B and winged back to the Fraser Valley, to a festive season with wives, sweethearts and friends.

The name given the bridge across the Frances? — "Christmas Bridge"!

Capt. Ruddock

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