Canadian ARMY Journal

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

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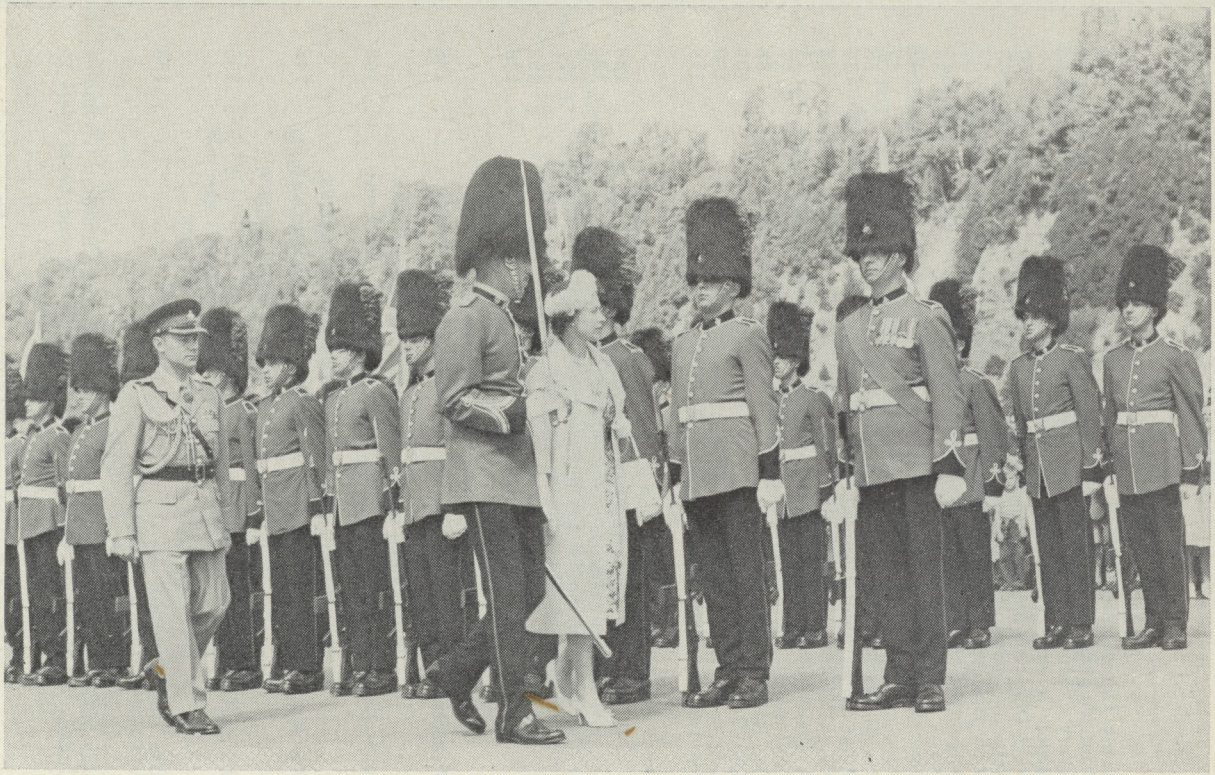
The Cover

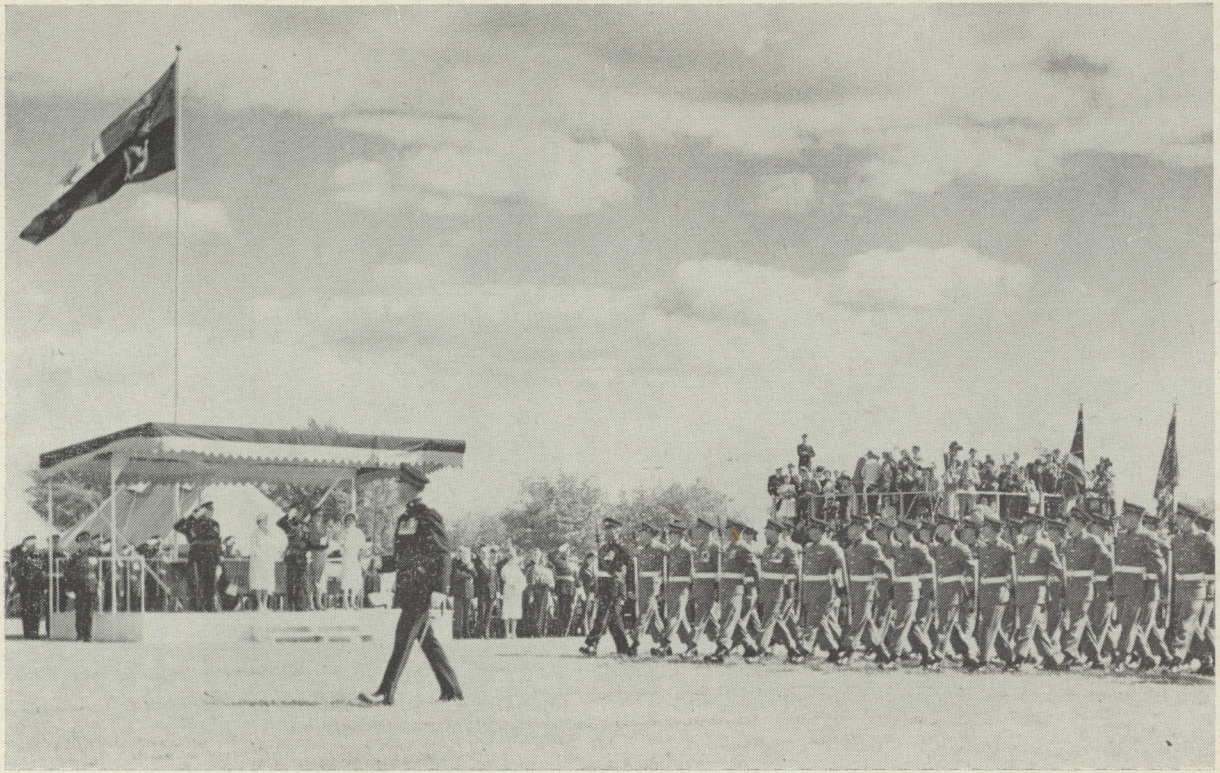
Her Majesty the Queen presents Colours to the Canadian Grenadier Guards of Montreal on Parliament Hill during the royal visit to Ottawa. (See article on page 3).



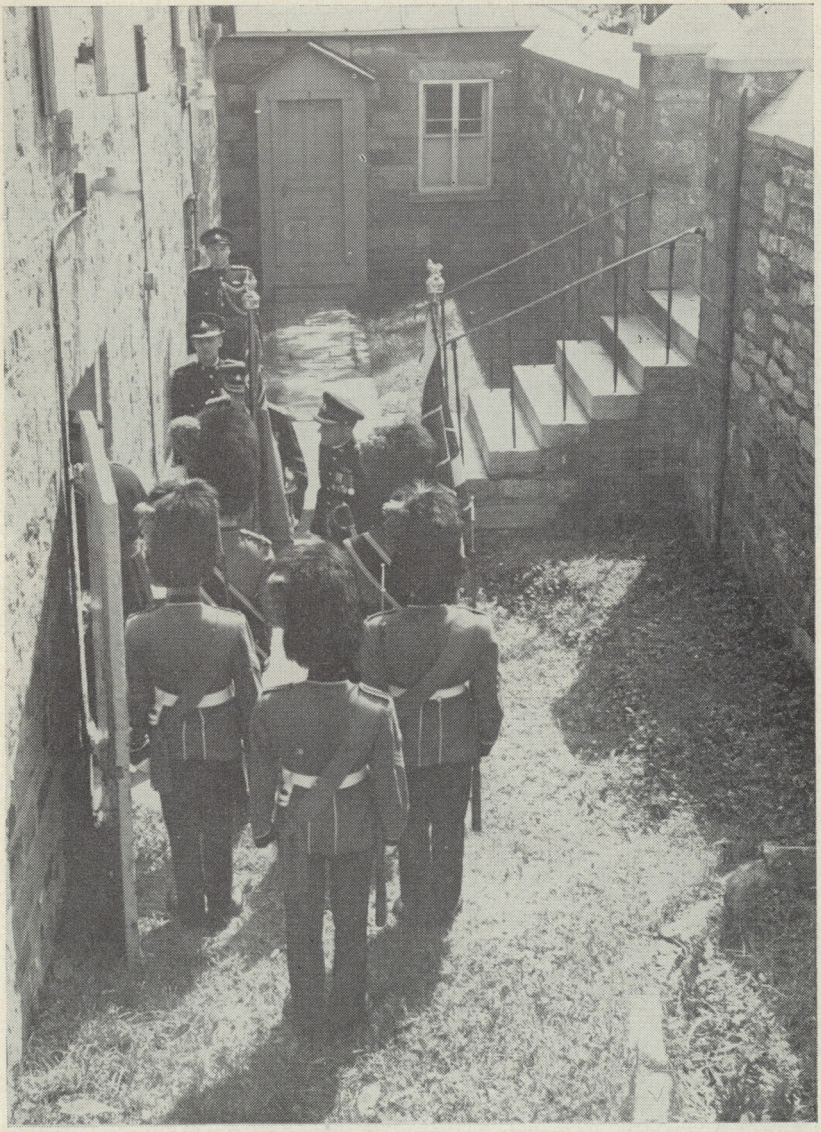
Her Majesty inspecting the Guard of Honour of the Royal 22e Régiment at Wolfe's Cove upon arrival in Quebec City.

ARMY CEREMONIES DURING THE ROYAL TOUR

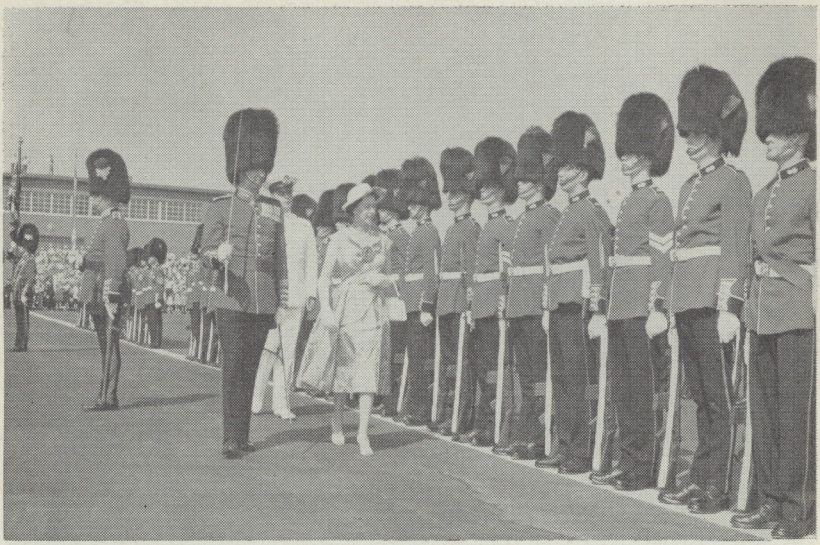
On these pages appears a picture-story of the main Army ceremonies held in Canada during the 1959 tour of Her Majesty the Queen and His Royal Highness Prince Philip—a tour which lasted 45 days, from 18 June when they arrived at St. John's, Newfoundland, until 1 August when they left Halifax, Nova Scotia, to return to England. These pictures follow in geographical order as the royal tour progressed across Canada from east to west.



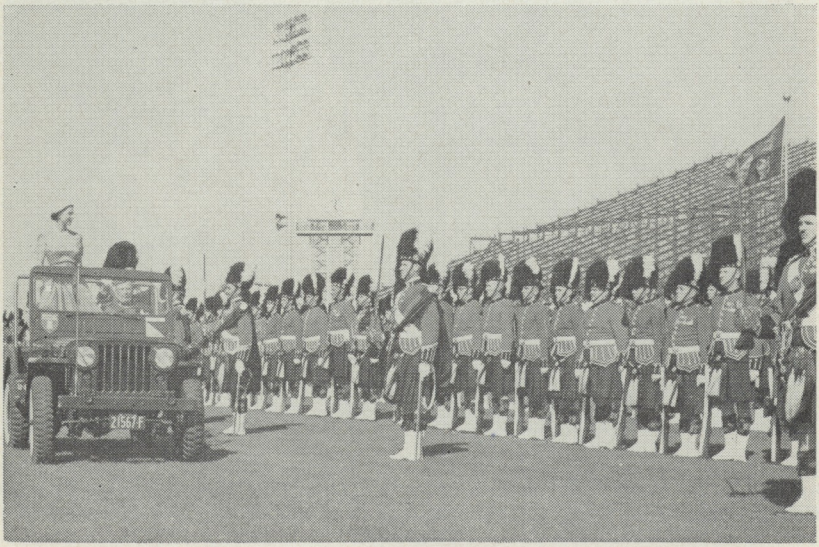
No. 1 Guard of the Royal 22e Régiment marching past the royal dais under command of Lieut.-Colonel J. Berthiaume, Officer Commanding.

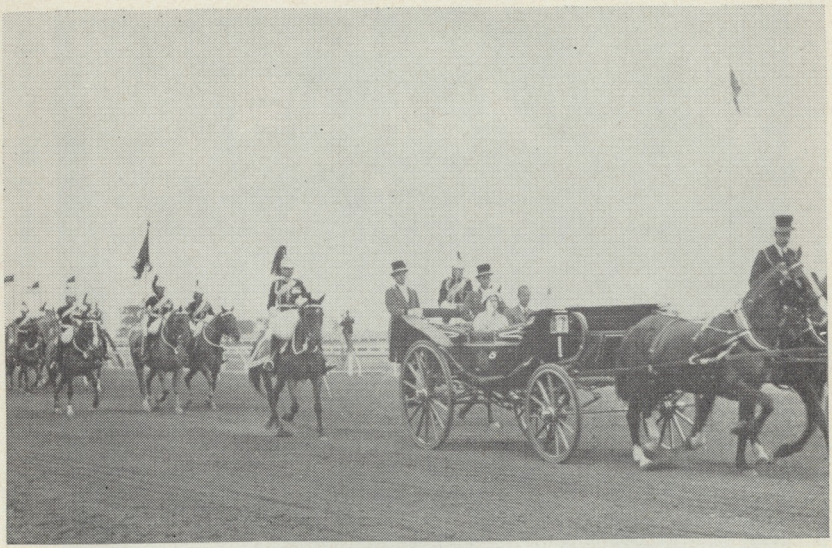


Her Majesty presented the Queen's and Regimental Colours to the three battalions of the Royal 22e Régiment. This photograph shows the old Colours being laid away in the chapel of "La Citadelle", formerly a powder magazine.



Above: Her Majesty inspects the Guard of Honour from the Royal Regiment of Canada at Toronto. *Below:* The Queen inspects the 48th Highlanders following their Trooping of the Colour at Toronto.





Above: Queen Elizabeth and Prince Philip are escorted by the Governor General's Horse Guards at Toronto. *Below:* Queen Elizabeth inspects the Guard of Honour of the Lorne Scots at Malton Airport, Toronto, before leaving for Ottawa.

Her Majesty is accompanied by Defence Minister Pearkes during ceremonies on Parliament Hill, Ottawa. Prince Philip is at the left.

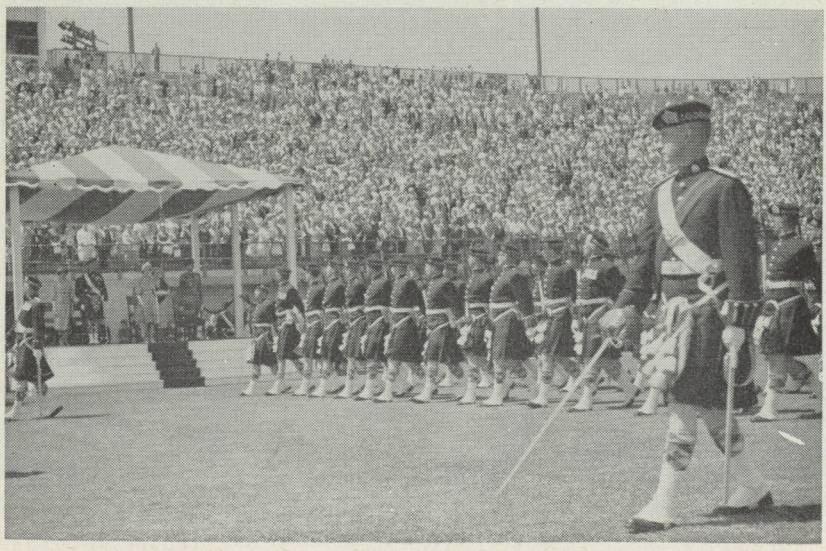
The Canadian Guards march past the royal dais during the Ottawa ceremonies.

The Queen presents Colours to the Canadian Grenadier Guards of Montreal on Parliament Hill.

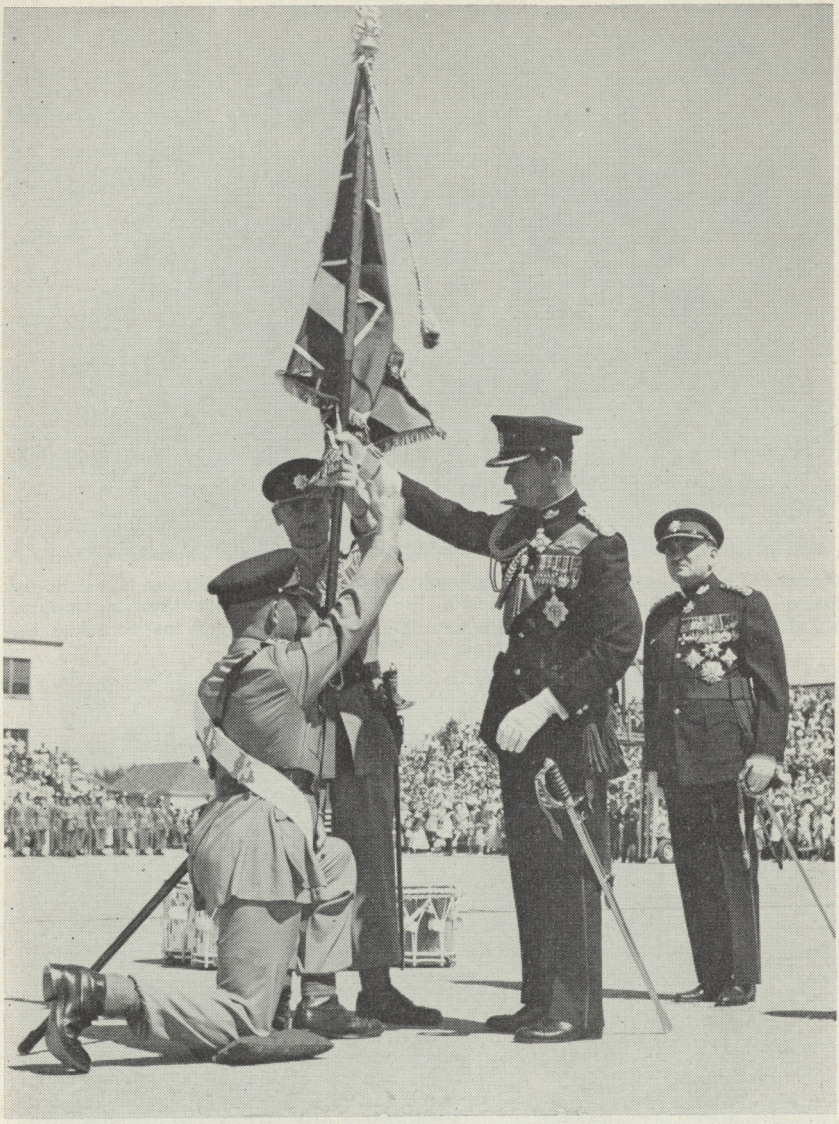
March past of the Colour Party of the Argyll and Sutherland Highlanders of Canada (Princess Louise's) and the Governor General's Foot Guards at Ottawa.

Her Majesty presents Colours to the Argyll and Sutherland Highlanders of Canada (Princess Louise's) at Ottawa.

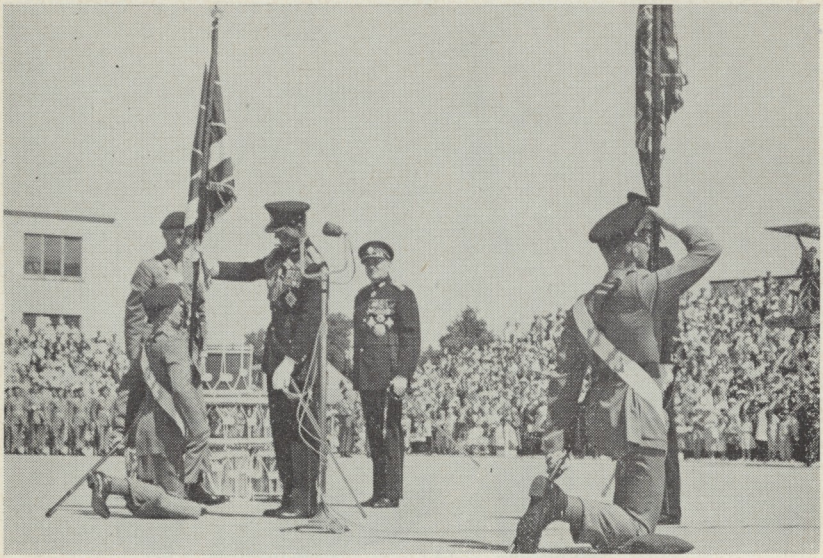
The Queen presents Colours to the 48th Highlanders of Canada (Toronto) at Ottawa.



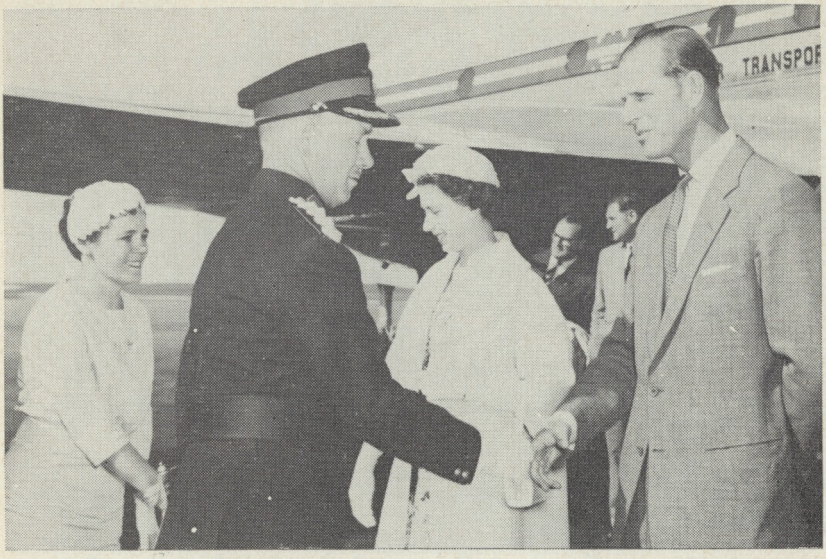
Two views of the march past of the Argyll and Sutherland Highlanders of Canada (Princess Louise's) at Hamilton, Ont. Her Majesty takes the salute following the Trooping of the Colours.



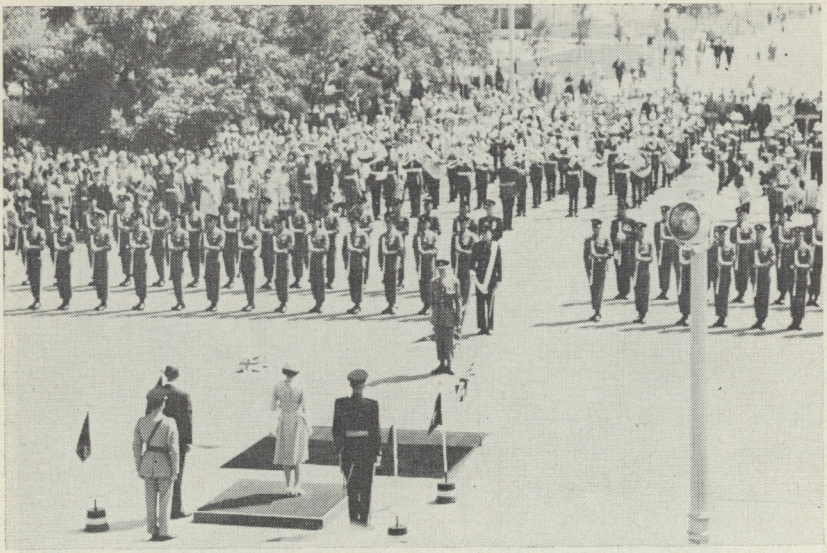
Prince Philip presents the Queen's Colour to the 1st Battalion, The Royal Canadian Regiment, at London, Ont. On the right is General Charles Foulkes, CB, CBE, DSO, CD, Chairman of the Chiefs of Staff Committee, Ottawa, Colonel of The Regiment. His Royal Highness is Colonel-in-Chief of The Regiment.



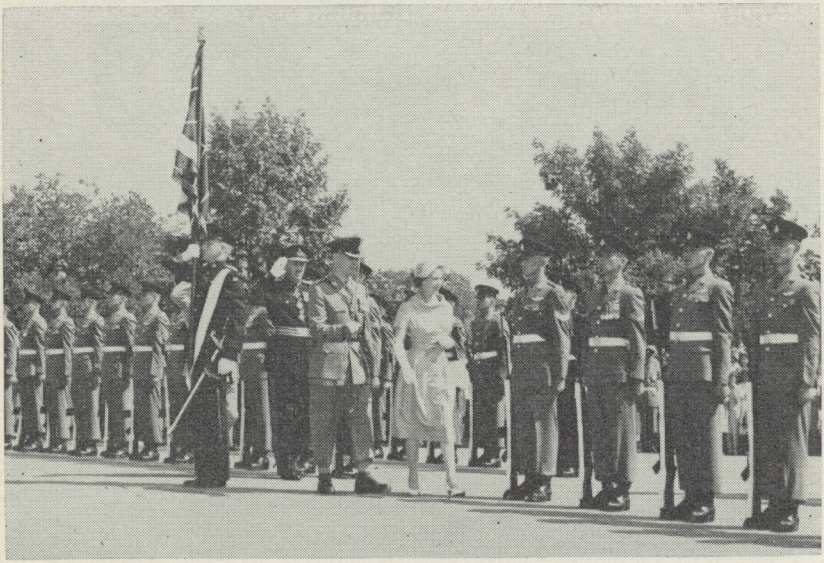
Above: The Queen's Colour is presented to the 3rd Battalion, The Royal Canadian Regiment, by Prince Philip. On the right is the Regimental Colour of the 1st Battalion. *Below:* His Royal Highness inspects the 1st and 3rd Battalions of The Regiment.

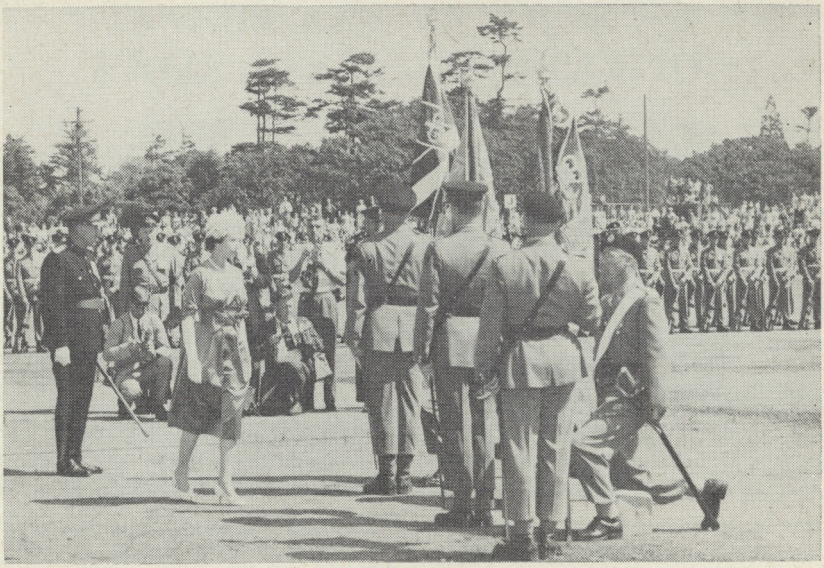


Above: Colonel J. S. Ross, Calgary Garrison Commander, meets the royal couple on their arrival at Calgary. *Below:* Brigadier H. T. R. Gregg, Commander of 22 Militia Group, greets Her Majesty and Prince Philip at Calgary.

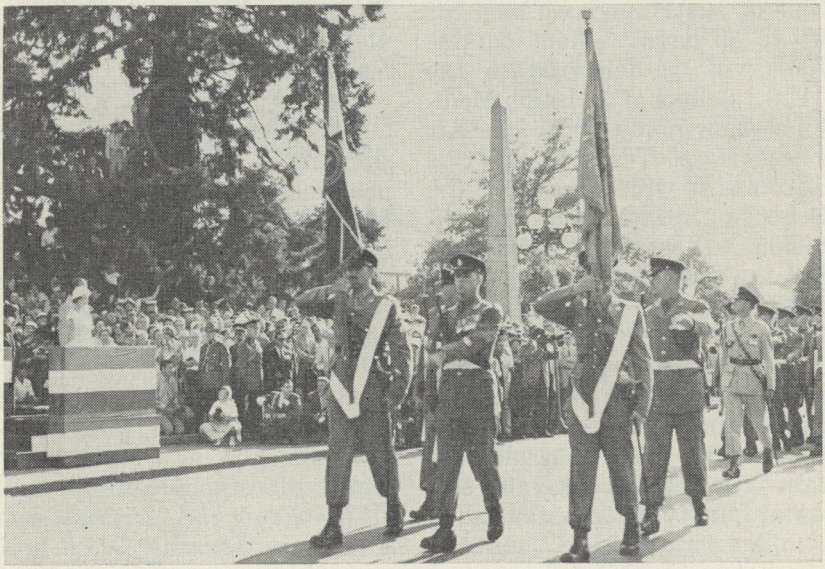


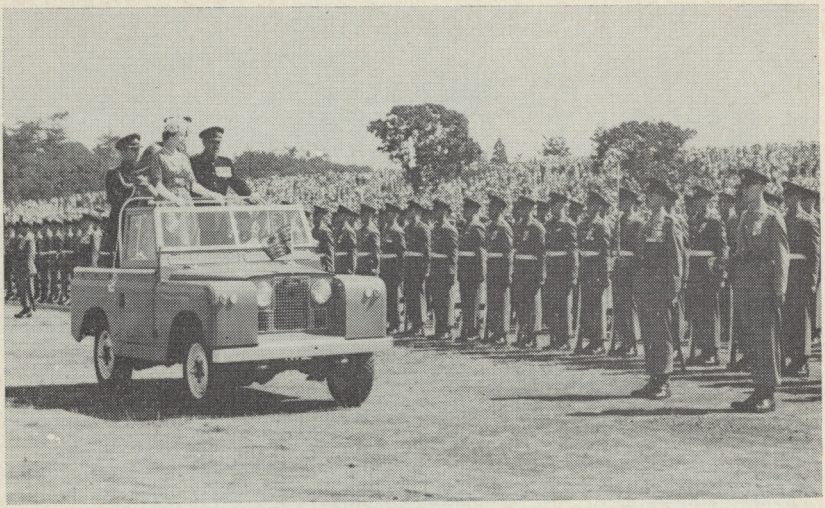
Above: A 100-man Guard of Honour of the 2nd Battalion, Princess Patricia's Canadian Light Infantry, parades on the arrival of Her Majesty and Prince Philip at Edmonton, Alta. *Below:* Her Majesty inspects the battalion. Maj.-Gen. G. Walsh, CB, CBE, DSO, CD, General Officer Commanding Western Command, is seen saluting at left centre.





Above: Her Majesty prepares to present new Colours to the 1st Battalion, Princess Patricia's Canadian Light Infantry, at Victoria, B.C. *Below:* The battalion parades the Colours as they march past the Queen.





Her Majesty inspects the 1st Battalion, Princess Patricia's Canadian Light Infantry, at Victoria.

Space Cabin for Research

A space cabin simulator capable of sustaining two men for up to 30 days without outside help will be delivered to the [U.S.] School of Aviation Medicine's new home at Brooks Air Force Base, Texas, early this autumn. It will be used by the School's Space Medicine Division to establish standards for the selection, training and indoctrination of future astronauts.

Under construction by a team of scientific specialists at the Minneapolis - Honeywell Corporation, the cabin will contain two chair-beds, air and water purifying agents, and a complex system of controls that will enable the occupants themselves to adjust the simulated cabin altitude and climatic conditions.

The new cabin is a refinement of the School's one-man simulator that made world headlines last year when A/1C Donald G. Farrell spent a week inside it.

The new cabin will be 380 cubic feet in volume, approximately four times as large as the one-man cabin. It will reproduce all of the conditions of space flight except weightlessness and the as yet undetermined effects of cosmic radiation—*From the "Army-Navy-Air Force Journal" (U.S.).*

WINNERS ARE ANNOUNCED IN PRIZE ESSAY COMPETITION

Names of the winners of the first and second prizes in the 1958 Prize Essay Competition sponsored by the Conference of Defence Associations have been announced. Details of the competition were published in the October 1958 and January 1959 issues of the Canadian Army Journal.

Winner of the first prize of $200.00 is Colonel B. F. Macdonald, DSO, CD, Royal Canadian Armoured Corps, whose present appointment is Canadian Planner, The NATO Standing Group, Washington, D.C.

The second prize of $100.00 has been won by Major P. A. Mayer, MBE, CD, Royal Canadian Infantry Corps, who is employed at Headquarters Prairie Command, Winnipeg, Man.

The runner-up (not a prize winner) is Captain N. A. Shackleton, Royal Canadian Armoured Corps, who is serving with Lord Strathcona's Horse (RC) at Sarcee Camp, Calgary, Alta.

Subject of the 1958 competition was:

"The advent of nuclear warfare thrusts new responsibilities on the Canadian Militia. Discuss the pertinent roles to be played by it in a future nuclear war and what, if any, changes should be made in its organization and training."

Entries were about equally divided between officers of the Regular Army and the Militia.

The aim of this annual competition is "to stimulate interest and to encourage original thought and good writing on military topics of general interest."

The contest is open to officers of the Canadian Army (Regular and Militia), Canadian Army Supplementary Reserve, and Officer Cadets of the Tri-Service Colleges and the Canadian Officers' Training Corps.

Initial judging in the competition, which was instituted in 1956, was done by a Board of Officers named by the Director of Military Training at Army Headquarters. The final judging to select the two prize winners was done by the Conference of Defence Associations.

Authorship of the entries remained strictly anonymous during the judging.

Executive members of the Conference of Defence Asso-

ARMY COMMANDS REORGANIZED

A STATEMENT BY THE HONOURABLE G.R. PEARKES, VC,
MINISTER OF NATIONAL DEFENCE

The Army's command structure will be reorganized this summer to bring it into line with the Government's new policy on national survival.

In the reorganization Prairie Command, which consists of Saskatchewan, Manitoba and the Lakehead Area of Ontario, disappears. The Manitoba portion of Prairie Command will be designated as Manitoba Area, with headquarters in Winnipeg and reporting to Headquarters, Western Command, Edmonton. Saskatchewan Area, with headquarters in Regina, will also become part of Western Command.

The Lakehead Area will become part of Central Command with headquarters in Oakville, Ont.

The reorganization will become effective on September 1, when Major-General William J. Megill, DSO, CD, General Officer Commanding, Prairie Command, will retire from the Canadian Army. The vacancy for a major-general created by Maj-Gen. Megill's retirement will be filled by Brigadier Arthur E. Wrinch, CBE, CD, recently appointed to direct the Army's national survival operations, who will be promoted on September 1.

Brigadier J. E. C. Pangman, DSO, ED, CD, now Deputy Chief of the General Staff, will assume command of the new Manitoba Area on the same date.

Biographies follow:

MAJ.-GEN. MEGILL

Maj.-Gen. Megill was born in Ottawa and was educated there and at Queen's University,

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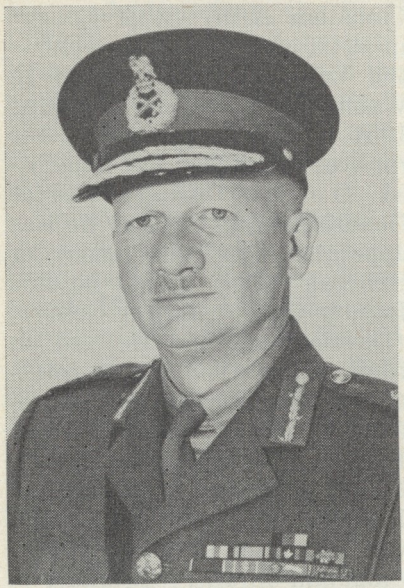
Prize Essay Competition

(Continued from preceding page)

ciations who have played an important part in the sponsorship of this annual competition are Brigadier R. J. Leach, MC, Honorary Secretary-Treasurer; Brigadier A. W. Beament, CBE, VD, CD; and Lieut.-Colonel W. F. Hadley, ED, CD.

Details of the 1959 Prize Essay Competition will be published in the October issue of the *Journal.*



Major-General Megill

Kingston, where he graduated in electrical engineering. He enlisted in the Royal Canadian Corps of Signals in 1923 at the age of 16 and has served continuously in the Canadian Army since that date except for the first two years of his course at the university.

He was appointed a lieutenant in the Royal Canadian Corps of Signals in May 1930. He attended Staff College at Quetta, India, in 1939, and the Imperial Defence College at London, England, in 1949.

During the Second World War he held various staff appointments at Army Headquarters, Ottawa; Canadian Military Headquarters in London; Headquarters, 3rd Canadian Infantry Division; and Headquarters, 1st Canadian Corps. In October 1943 he assumed command of the Algonquin Regiment. In February 1944 he was promoted to brigadier to command the 5th Canadian Infantry Brigade and commanded that formation during the fighting in North-West Europe.

Since the war he has served as Deputy Chief of the General Staff at Army Headquarters; Commander, British Columbia Area, Vancouver; Commander, 25th Canadian Infantry Brigade Replacement Group, Wainwright, Alta.; and Senior Military Advisor to the Canadian Commissioner of the Canadian Supervisory Commission, Viet Nam, Indo-China. On his return from Indo-China in 1955 he was appointed General Officer Commanding, Prairie Command.

* * *

BRIG. WRINCH

Brig. Wrinch was born in Hazelton, B.C. He attended Royal Military College, Kingston, Ont., and is also a graduate of Queen's University. He is a qualified Army pilot.

In 1931, Brig. Wrinch was commissioned as a lieutenant in the Royal Canadian Corps of

Brigadier Wrinch

Signals, Permanent Force.

He went to the United Kingdom in Nov. 1941, and by April 1942 was Commanding Officer, 1st Canadian Corps Signals, in the rank of lieutenant-colonel. From July 1943 until January 1945 he was Commanding Officer, 5th Canadian Armoured Divisional Signals, in Italy. In January 1945 he was appointed Chief Signals Officer, Headquarters 1st Canadian Corps. In September 1945 he was posted to Canadian Forces, Netherlands, and the following year was appointed Director of Signals in the rank of colonel.

Brig. Wrinch attended the Canadian Army Staff College in 1949, after which he went to the Canadian Army Staff in Washington, D.C. In June 1951 he was promoted to the rank of brigadier and appointed Deputy Quartermaster General, and in October he was appointed Vice Quartermaster General. He again became Deputy Quartermaster General (Development and Design) in 1952 and in 1953 was appointed Vice Quartermaster General for the second time. In early 1955 Brig. Wrinch went to the United Kingdom to attend the Imperial Defence College. He was appointed Commander, 1st Canadian Infantry Brigade, in December 1955.

He assumed the appointment of Director General of Army Personnel in 1958 and in 1959 was appointed to direct the Army's National Survival Operations.

* * *

BRIG. PANGMAN

Brig. Pangman was born in Toronto and educated at the Harbord Collegiate Institute, Toronto. He served with the Queen's Own Rifles of Canada (NPAM) prior to the Second World War and joined the Active Service force in June 1940 as a major. In 1942 he was appointed second-in-command of the Queen's Own Rifles of Canada. Following

his graduation from the Staff College, Camberley, in 1943, Brig. Pangman commanded the Carleton and York Regiment in Sicily and Italy. Later he commanded the Essex Scottish in North-West Europe.

On his return to Canada in the rank of colonel he served at Headquarters, Eastern Command, Halifax, and later was Director of Staff Duties at Army Headquarters. In 1947 Brig. Pangman attended the Joint Services Staff College, United Kingdom, and in 1949 was appointed a director of the National Defence College, Kingston, Ont.

In 1951 he was promoted to brigadier to command the 25th Canadian Infantry Brigade Replacement Group at Camp Wainwright, Alta. The following year he was appointed Commander of the 27th Canadian Infantry Brigade in North-West Europe.

Brigadier Pangman

He was appointed Army Member, Canadian Joint Staff, London, England, in 1953, and in 1956 was appointed Deputy Chief of the General Staff.

The Changing Pattern of Warfare

The student of military history generally is aware of the changing pattern of warfare in the past two World Wars, but more often than not, the significance of these changes is lost. He fails to comprehend that in the past 50 years, *no major war has been fought with the same tactics, equipment, and techniques as the war which preceded it* and oft-times mistakenly looks to the past for solutions to the future. It is a poor military scholar indeed who fails to keep pace with the future.

Major-General Vokes Retires

NEW QMG, GOC APPOINTED

FROM A STATEMENT BY THE HON. GEORGE R. PEARKES, VC, MINISTER OF NATIONAL DEFENCE

One of Canada's most distinguished wartime commanders, Major-General Christopher Vokes, CB, CBE, DSO, CD, retired from the Canadian Army on June 30.

Maj.-Gen. Vokes, whose brilliant record as a commander in Sicily, Italy and North-West Europe is well-known, was General Officer Commanding, Western Command, Edmonton, from February 1951 until reaching retirement age after 34 years service with the Regular Army.

Major-General Geoffrey Walsh, CBE, DSO, CD, Quartermaster General of the Canadian Army since September 1955, has succeeded Major-General Vokes as GOC Western Command.

Major-General Robert W. Moncel, DSO, OBE, Commander of 3rd Canadian Infantry Brigade Group at Camp Gagetown, N.B., since March 1958, was promoted to his new rank of major-general and appointed Quartermaster General.

Both appointments were effective July 1.

Major-General Vokes

Biographies follow:

MAJ.-GEN. VOKES

Maj.-Gen. Vokes was born in Ireland and was educated at the Kingston, Ont., Collegiate Institute; Royal Military College of Canada, Kingston; and McGill University.

He was commissioned in the Royal Canadian Engineers, Permanent Force, in 1925 on grad-

uation from RMC.

In the years before the war, he attended staff courses in Canada and the United Kingdom and served as District Engineer Officer at Regina and Winnipeg and as a staff officer at Army Headquarters. He was a major at the outbreak of war and was one of the first officers to go overseas. He became Deputy Assistant Adjutant General at Canadian Military Headquarters, London, England, in December 1939.

Maj.-Gen. Vokes subsequently became Assistant Adjutant and Quartermaster General, Headquarters, 1st Canadian Infantry Division; Commanding Officer, Princess Patricia's Canadian Light Infantry; Commander, 2nd Canadian Infantry Brigade; General Officer Commanding, 1st Canadian Division; Acting General Officer Commanding, 4th Canadian Armoured Division; and General Officer Commanding, 3rd Division, Canadian Army Occupation Force.

During the war, Maj.-Gen. Vokes had a brilliant record as a commander of Canadian infantry and armoured formations in action in Sicily, Italy and North-West Europe.

After the war, Maj.-Gen. Vokes became General Officer Commanding, Central Command, Oakville, Ont., and remained in this appointment until February 1951 when he became General Officer Commanding, Western Command, at Edmonton.

Major-General Walsh

* * *

MAJ.-GEN. WALSH

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

He was commissioned in June 1930 as a lieutenant in the Royal Canadian Engineers. In

the early 1930's he served in the United Kingdom at the School of Military Engineering, and on attachments to the British Army. After his return to Canada in 1933, he served in various appointments in Eastern Canada, and upon the outbreak of the Second World War was District Engineer Officer of Military District No. 2 in Toronto.

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

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

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

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

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

Maj.-Gen. Walsh returned to Canada in August 1945, and was appointed Deputy Quartermaster General at Army HQ in October of that year. In April 1946 he was made the first commander of the North-West Highway System.

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

Upon his return to Canada in January 1953, he was appointed Director General of Military Training at Army Headquarters in Ottawa.

On 1 September 1955, he was promoted to his present rank and appointed Quartermaster General of the Canadian Army.

During the Second World War, Maj.-Gen. Walsh was made a Commander of the Most Excellent Order of the British Empire and won the Distinguished Order, the Unit-

ed States Legion of Merit and Commander of the Orange Order of Nassau (Netherlands). Maj.-Gen. Walsh was also twice mentioned in dispatches.

* * *

MAJ.-GEN. MONCEL

Maj.-Gen. Moncel was born in April 1917 and was educated at Selwyn House School, Bishop's College and McGill University.

He enlisted in the ranks of the Victoria Rifles of Canada (Militia) in 1935 and was commissioned in the same regiment in February 1937. He joined the Active Army as a lieutenant in September 1939 and went overseas shortly afterwards with The Royal Canadian Regiment. He went to France with The RCR in June 1940, but returned to England with the regiment when France was overrun.

He remained with The RCR until January 1941 when he attended a junior staff course in the United Kingdom. On graduation he transferred to the Royal Canadian Dragoons and became Commanding Officer of the 18th Manitoba Armoured Car Regiment in January 1943. He remained in this appointment until August 1943.

Maj.-Gen. Moncel then went to Headquarters, 2nd Canadian Corps, as General Staff Officer, Grade 1 (Operations), and landed in France shortly after D-Day in June 1944. He remained in this staff appointment until August 1944, when he became Commander, 4th Canadian Armoured Brigade, in the rank of brigadier.

Major-General Moncel

He was at that time the youngest brigadier in the Canadian Army (27).

Maj.-Gen. Moncel remained in command of the brigade until the end of the war and saw extensive action.

At a single Buckingham

Palace investiture, he received the Order of the British Empire for his services with the 2nd Canadian Corps, and the Distinguished Service Order for his personal gallantry and leadership in the Hochwald fighting in Germany. Maj.-Gen. Moncel was also mentioned in dispatches for his part in the Battle of Falaise. The French Government made him a Chevalier of the Legion of Honour and awarded him the Croix de Guerre.

Maj.-Gen. Moncel left the Army in 1945 but returned in 1946 in the rank of colonel. In 1948 he was appointed Director of Military Training at Army Headquarters and in 1948-49 was Acting Deputy Chief of the General Staff.

In August 1950, following a course in the United States, he was appointed Army Member, Canadian Joint Staff, London, England, in the rank of brigadier. He returned to Canada and was appointed Deputy Chief of the General Staff in January 1954.

He vacated this appointment in September 1956 and became Senior Military Adviser, Canadian Delegation, Viet Nam, Indochina. In March 1958 he was given command of 3rd Infantry Brigade Group at Camp Gagetown.

* * *

NEW DCGS, VAG TO BE APPOINTED

Two new senior appointments have been announced by Army Headquarters, Ottawa.

Brigadier W. A. B. Anderson, OBE, CD, of Kingston, Ont., and Ottawa, Vice Adjutant General, will be appointed Deputy Chief of the General Staff, September 1. He will replace Brigadier J. E. C. Pangman, DSO, ED, CD, who has been appointed Commander, Manitoba Area.

Brigadier J. A. W. Bennett, CBE, CD, of Ottawa, Director General of Plans and Operations, will be appointed Vice Adjutant General on the same date.

Biographies follow:

Brigadier Anderson

Brigadier Anderson, a member of one of Canada's most distinguished military families, was born in Montreal. At an early age he moved to New Brunswick and received his early education at Rothesay Collegiate School. He graduated from Royal Military College, Kingston, in 1936, and from Queen's University the following year with a Bachelor of Arts degree.

He was commissioned in the

Royal Canadian Artillery in 1936 and obtained leave to attend university in 1937. During 1938 and 1939 he held various RCHA appointments in Canada. In December 1939 he went overseas as adjutant of the 3rd Field Regiment, Royal Canadian Artillery.

In 1941 Brigadier Anderson attended the staff course at Camberley, England, and subquently held staff appointments at Canadian Military Headquarters, England, and at National Defence Headquarters, Ottawa.

He returned overseas in January 1943 and by July 1943 was commanding the 15th Field Regiment, Royal Canadian Artillery. The following year he was appointed General Staff Officer, Grade 1 at Headquarters, First Canadian Army.

After the war, Brigadier Anderson attended the United States Army and Navy Staff College, and later served for a time as General Staff Officer (Grade 1) at the Royal Military College. He was appointed Director of Military Intelligence at Army Headquarters in February 1946, and attended National Defence College from October 1949 until July 1950.

In August 1950, he was appointed Director of the Canadian Army Staff College, and the next year was promoted to

Brigadier Anderson

the rank of brigadier and appointed Commander, Western Ontario Area.

In November 1953, Brigadier Anderson went to Germany to command the 1st Canadian Infantry Brigade. After a two-year tour of duty there he was selected to attend the Imperial Defence College in England and was appointed Vice Adjutant General at Army Headquarters in January 1957.

* * *

BRIGADIER BENNETT

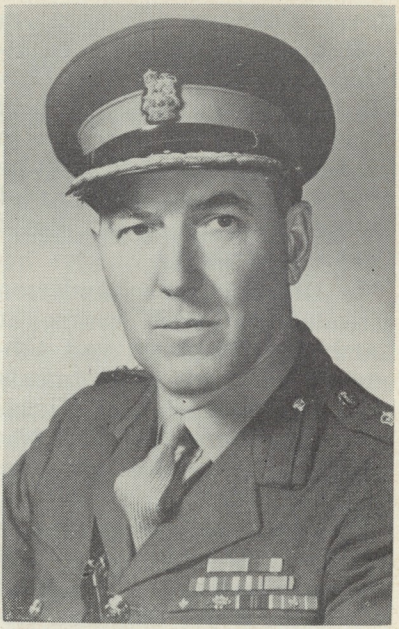
Born in Ottawa, Brigadier Bennett was commissioned in the Royal Canadian Ordnance

Corps in 1933 on graduation from the Royal Military College, Kingston, Ont. During the next six years he served in various stations in Canada with his Corps and also attended the Military College of Science in the United Kingdom.

At the outbreak of the Second World War, he was promoted to the rank of major, and during the next six years served in various staff and field appointments overseas, in the United Kingdom, Sicily, Italy, and North-West Europe. By the end of the war he had attained the rank of brigadier.

On his return to Canada in June 1945 he served at Army Headquarters until 1948 when he attended the United States National War College. He was appointed Commander, Western Ontario Area, London, Ont., in July, 1949.

In October 1951 Brigadier Bennett was appointed to command Saskatchewan Area, Regina, and in 1954 he became Commander, Newfoundland Area, relinquishing this appointment to attend the National Defence College in 1957.



Brigadier Bennett

Brigadier Bennett assumed the appointment of Director General of Plans and Operations at Army Headquarters in August 1958.

In the Hands of the Soldier

In view of the present political situation, there exists almost insurmountable obstacles to a general disarmament and honest outlawing of war. A difference of opinion, based on the principles that involve the future of mankind, can hardly be decided by protocol or agreements, and the safety of the capitalistic as well as the proletarian order lies in the hands of the soldier.—*Dr. Hans K. Gunther in "Wehrwissenschaftliche Rundschau" (Germany).*

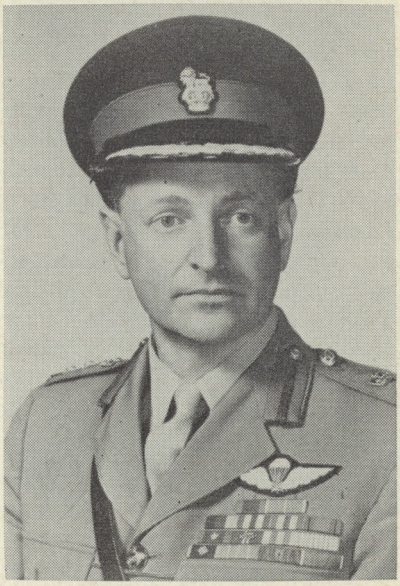
BRIGADE GROUP APPOINTMENTS

The promotion of three senior Canadian Army officers and their appointments to command brigade groups have been announced by Army Headquarters, Ottawa.

Brigadier E. D. Danby, DSO, OBE, CD, of Vancouver, was promoted to that rank to take command of 3rd Canadian Infantry Brigade Group, Camp Gagetown, N.B., at the end of June. He succeeded Brigadier R. W. Moncel, who was promoted to the rank of major-general and appointed Quartermaster General. Brigadier Danby formerly was Director of Military Training at Army Headquarters.

Colonel G. A. Turcot, CD, of Quebec City, will be promoted to the rank of brigadier and appointed commander of 1st Canadian Infantry Group, Calgary, in the fall. He succeeds Brigadier C. B. Ware who will attend the Imperial Defence College. Colonel Turcot is now Officer in Charge of Administration at Headquarters, Quebec Command, Montreal.

Colonel W. S. Murdoch, OBE, ED, CD, of Vancouver and Ottawa, will be promoted to the rank of brigadier and appointed commander of 2nd Canadian Infantry Brigade Group, Camp Petawawa, Ont., in August. He succeeds Brigadier H. E. Brown, who will attend the National Defence College course commencing August 31. Colonel Murdoch is now Director of "Q" Operations and Planning at Army Headquarters.



Brigadier Danby

Biographies follow:

BRIGADIER DANBY

Born in New Westminster, B.C., Brigadier Danby was educated in Vancouver. He joined the Seaforth Highlanders as a cadet, and in 1936 was commissioned in the Regiment.

Overseas he was ADC to Maj.-Gen. G. R. Pearkes, VC, from July 1940 to April 1941, and then served in junior staff appointments at HQ 1st Canadian Infantry Division. Following attendance at Staff College at Camberley he went to Italy with the 1st Canadian Infantry Division, and in August 1943 he was appointed second-in-command of the Carleton and York Regiment, then in Sicily. He commanded the battalion from February to September 1944, during which time he was awarded the DSO.

In November 1944 he was appointed GSO 1 Headquarters 1 Canadian Corps, and served in that capacity in Italy. In February 1945 he was appointed GSO 1 HQ 1 Canadian Army in North-West Europe.

He returned to Canada to take an appointment in the Pacific Force. In September 1945 he was appointed Assistant Quartermaster General at Army Headquarters, and in April 1947 he joined the Directing Staff of the Canadian Army Staff College.

He later served as GSO 1 of the 1st Commonwealth Division in Korea, and was awarded the OBE. In 1952-53 he attended the National Defence College, Kingston, and on completion of the course was promoted to the rank of colonel and appointed a director of the College.

Colonel Turcot

He was appointed Director of Military Training in September 1956.

* * *

COLONEL TURCOT

Born in Quebec City, Colonel Turcot was educated at Laval University. Prior to the Second World War he served with Les Voltigeurs de Québec in the Non-Permanent Active Militia.

He went overseas at the beginning of the war with Le Royal 22e Régiment and rose in rank to become its commanding officer in Sicily, Italy

and North-West Europe.

Following the war he attended the Canadian Army Staff College, Kingston, Ont., and then held senior appointments at Army Headquarters, Ottawa, and at the Canadian Army Liaison Establishment, London, England.

In 1952 Colonel Turcot was promoted to the rank of colonel and appointed Director of Military Operations and Planning at Army Headquarters. During the period 1956-57 he attended the National Defence College at Kingston. In August 1957 he was appointed to the International Truce Supervisory Commission in Indo-China.

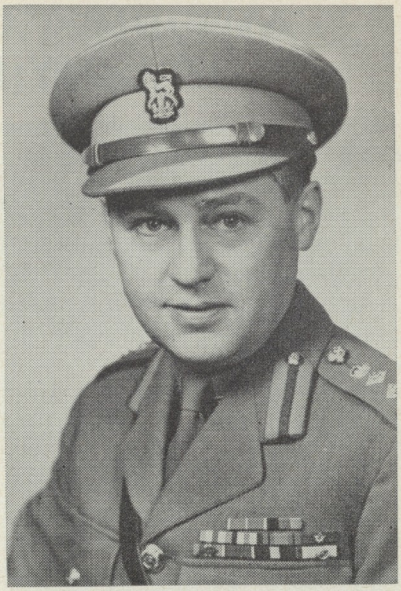
Colonel Turcot was appointed Colonel in Charge of Administration at Headquarters, Quebec Command, in October 1958.

* * *

COLONEL MURDOCH

Colonel Murdoch was born in Birmingham, England, and educated there and in Vancouver, B.C. Prior to the Second World War he served in the Non-Permanent Active Militia and in 1939 proceeded overseas as adjutant of the Seaforth Highlanders of Canada.

During the remainder of the war he served in the United Kingdom, Italy, Alaska and North-West Europe on headquarters staffs at the brigade, division and corps level.



Colonel Murdoch

From November 1943 until August 1944 he commanded the Royal Rifles of Canada.

Since the war, he has served in senior appointments in Halifax, Ottawa and Edmonton. Colonel Murdoch attended the Joint Services Staff College in the United Kingdom in 1949, and in 1951 was appointed Director of Staff Duties at Army Headquarters in Ottawa. He received promotion to his present rank in November of that year.

In 1956 he was selected to attend the Imperial Defence College in the United Kingdom, and upon termination of the

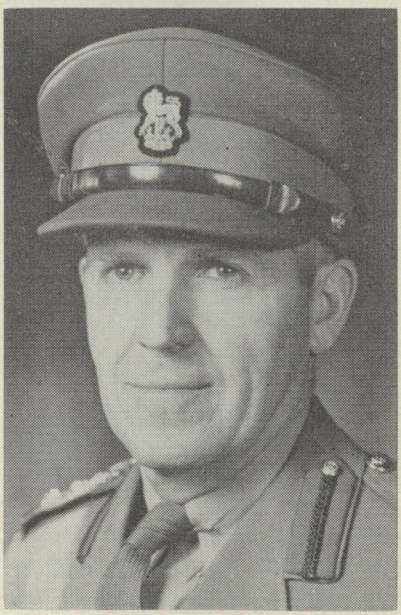
NEW DIRECTOR GENERAL OF ARMY PERSONNEL

Brigadier Teryl A. Johnston, OBE, ED, CD, of Ottawa and Cookshire, Que., formerly Deputy Adjutant General, has been promoted to this rank and appointed Director General of Army Personnel, it has been announced by Army Headquarters, Ottawa.

He succeeds Brigadier Arthur E. Wrinch, CBE, CD, who has been appointed to direct the Army's national survival operations and who will be promoted to the rank of major-general 1 September.

Born in Cookshire, Que., Brigadier Johnston attended Cookshire High School and Stanstead College, receiving his Bachelor of Arts degree from the University of Bishop's College.

A captain in 1940, he was on the staff of Headquarters, Military District No. 5, Quebec City, and then was posted to National Defence Headquarters where he served until 1943.



Brigadier Johnston

In May 1944 he was appointed General Staff Officer

(Continued on page 38)

Brigade Group Appointments

(Continued from preceding page)

course was appointed Commander Headquarters Canadian Base Units Europe, after which he was appointed to the 4th Canadian Infantry Brigade Group in West Germany as Officer in Charge of Administration.

Colonel Murdoch assumed his present appointment as Director of "Q" Operations and Planning in September 1958.

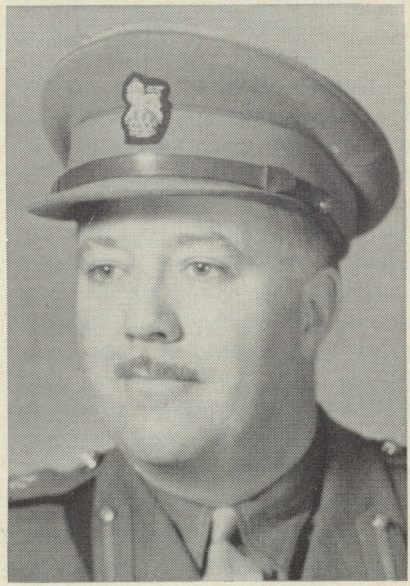
APPOINTED TO INTERNATIONAL TRUCE COMMISSION

Brigadier George C. Leech, OBE, CD, of Miami, Man., and Kingston, Ont., will leave for Saigon, Indo-China, at the end of August for a year's tour of duty as Senior Military Adviser to the Canadian component of the International Truce Commission there.

Brigadier Leech has been attending the National Defence College, Kingston, Ont. An officer of the Royal Canadian Corps of Signals since 1935, he served overseas with his corps during the Second World War.

Returning to Canada in 1946, he served with the Directorate of Signals in Ottawa, and as Commandant of the Royal Canadian School of Signals at Kingston. In October 1950, he was appointed Director of Staff Duties at Army Headquarters.

In November 1951 he returned to Kingston as Director, Canadian Army Staff College, and in August 1954 was appointed Assistant Commandant at the College.



Brigadier Leech

In August 1955 Brigadier Leech was promoted to his present rank and served as Director General of Plans and Operations at Army Headquarters until nominated to attend the current course at the National Defence College.

Research Assistance

Both the Communist Chinese and the Eastern Germans have operational cyclotrons built with Soviet assistance. The Chinese cyclotron is reported to be a 20-million electron-volt installation, and the East German unit is of 25 million volts. —*News item in the "Military Review" (U.S.).*

Army's Responsibilities

Plans for National Survival

A REPORT BY THE DIRECTORATE OF PUBLIC RELATIONS (ARMY), ARMY HEADQUARTERS, OTTAWA

Details of the Army's plans for carrying out its new responsibilities for National Survival have been outlined by Army authorities in Ottawa. These plans emphasize that the Militia, as well as the Regular Army, must continue to do a considerable amount of military training as these new responsibilities can be performed only by units organized, equipped and disciplined along military lines. In the words of the Prime Minister, the new responsibilities involve "difficult and frequently dangerous tasks, requiring trained and disciplined forces".

On 1 September 1959 the Army becomes directly responsible for the tasks of warning civilians of enemy air attack, determining the location of nuclear explosions, assessing the damage, carrying out the initial entry into areas damaged by nuclear weapons or

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New Director General of Army Personnel

(Continued from page 36)

Grade One at Canadian Military Headquarters in London, England. In October 1944 he underwent a serious operation and was returned to Canada on medical grounds, later being appointed General Staff Officer Grade One with the Directorate of Weapons and Development at Army Headquarters, Ottawa.

Brigadier Johnston attended the Canadian Army Staff College at Kingston, Ont., in 1948, and in January 1949 he was appointed Assistant Adjutant General in the Directorate of Administration, Army Headquarters. In August 1950 he was promoted to the rank of colonel and appointed Director of Army Personnel, and in April 1951 became Canadian Military Attache to the Netherlands.

On his return to Canada in September 1954, Brigadier Johnston was appointed Director of Administration at Army Headquarters.

In January 1957 he was appointed Deputy Adjutant General, in which position he served until receiving his present appointment.

affected by radio-active fallout and conducting rescue operations in the areas. In addition, the Army is responsible for co-ordinating the activities of civilian agencies such as police and fire that will also have to operate in a damaged area once it has been entered.

The broad policy on how the Army will train for and carry out its new responsibilities will be produced by a small staff which has been set up at Army Headquarters. This staff is headed by the Director General of Survival Operations. However, as most of the detailed planning done by other agencies involved with Civil Defence or Survival Operations is done by provinces and municipalities, most of the Army's detailed planning will be carried out by the existing Command and Area Headquarters whose boundaries in most cases correspond to provincial boundaries.

An area which has been subjected to nuclear attack will be severely damaged and contaminated. Roads will be impassable and danger from radio-activity may be met anywhere. For these reasons the entry into such an area will have to be made in a manner similar to an attack on a conventional battlefield. Approaches may have to be made across country or through the air. They will have to be made quickly and on a broad front if the lives of people in the damaged area are to be saved; therefore, the troops will require equipment to give them mobility and they will have to know how to use the instruments which detect radioactivity. The results of their reconnaissance will have to be passed quickly to a co-ordinating headquarters, which must in turn be able to issue orders to bring all the troops available into action at the best points; therefore, the troops must be well equipped with wireless. Finally, the troops must have an administrative organization which can sustain their activities without relying on civilian facilities.

Present plans see the Army tackling the problems outlined above with groups known as mobile columns. These columns will be made up of sub-units drawn from existing Regular Army or Militia units. They will not have a fixed strength but will consist of a number of rescue companies, a support company and a headquarters company. The support company will consist of technical troops such as engineers, medicals, signals, etc., carrying out their normal roles. The headquarters company will provide supplies and repair and administrative

facilities. The rescue companies, which will be provided for the most part by armoured, infantry or artillery units, will be the "attacking" troops. A column, fully mobile and administratively self-supporting, will be able to carry out the following tasks within the area of destruction:

1. Reconnaissance, assessment of damage and casualties.
2. Area and close-in radiological reconnaissance.
3. Traffic control and movement of people.
4. Direction of police and fire services.
5. Rescue and initial evacuation.
6. First aid to the injured.
7. Maintenance of internal communications.

The Army plans to organize these mobile columns using both the Regular Army and the Militia. In the event of an attack, both Regular Army and Militia columns will be directed into the damaged area by the local Command or Area headquarters.

To function effectively these columns must consist of well disciplined, well trained sub-units. In the opinion of Army authorities, this discipline and training can only be obtained by rigorous training along conventional lines. Once a sub-unit is capable of operating and maintaining itself in the field it can soon be taught the rescue and radiation monitoring skills required for survival operations.

It is because of this need for "conventional" military training to produce disciplined and well organized units that the Militia will retain its present unit organization and continue much of its present type of training. Indeed, the new role will give units greater opportunities to exercise their command and communications structure, their deployment drills and their administrative organization.

While the Militia will gradually lose some of its heavier equipments not suitable for Survival Operations, it will have to retain enough to enable it to carry out the basic training outlined above. The equipment that is withdrawn will be replaced with the specialized equipments for radiological detection, communications equipment and the vehicles necessary to give units the mobility they must have.

During the past few years the Army has been devoting a considerable amount of time and effort to training members of the Regular Army and the Militia in the special skills required for survival operations. Over 600 Rescue Instructors

and 700 staff officers have been trained at the Civil Defence College at Arnprior. At the Joint Atomic, Biological and Chemical Defensive Warfare School at Camp Borden an additional 1500 instructors and 170 staff officers have received training in radiation monitoring. In addition, members of the Army have attended courses conducted by provincial civil defence organizations. These instructors have been passing on their knowledge during training at unit stations.

Almost 1000 members of the Royal Canadian Navy and Royal Canadian Air Force have also received specialized training in rescue work or radiation monitoring.

As mobile columns may have to operate from areas remote from possible target areas, it is likely that militia units and columns will have to work with Regular Army units located away from these areas. This will call for increased co-operation between the Militia and the Regular Army. This need for co-operation and the tremendous amount of co-operation that will be required between the Army, the other services and the civilian agencies with responsibilities for National Survival will undoubtedly require many more of the practical exercises that have been held in various parts of the country during the past few months.

The Value of Defence on the Nuclear Battlefield

To achieve decisive victory using the offence [on the nuclear battlefield] the attacker must concentrate a superior force at the decisive point on the battlefield. When the attacker concentrates his troops, this superior force can be destroyed by nuclear firepower. To achieve decisive victory in the defence the defender must canalize the attacker into areas where he can destroy him by fire, by manoeuvre, or by both. Thus it appears that the characteristics of the nuclear battlefield favour the defence, since the defender can achieve decisive results with dispersed units while the attacker must concentrate. Students of the offence will rebut this statement by saying a decision in war can be won only through attack. History does not support this contention.—*Lt.-Col. Stephen E. Gordy in the January 1959 issue of the "Military Review" (U.S.).*

THE NEW STAFF COLLEGE COURSE

By

BRIGADIER R. ROWLEY, DSO, ED, CD, COMMANDANT OF THE CANADIAN ARMY STAFF COLLEGE, FORT FRONTENAC, KINGSTON, ONT.*

My predecessor, Major-General M. P. Bogert, wrote in this magazine last year of the changes which have taken place at the Canadian Army Staff College since the Second World War. He went on to say that the appearance of new weapons automatically creates changes in tactical concepts; these in turn demand adjustment in the Army's organization and in the administration that supports it. All of these changes must be introduced while retaining the Army's capacity to fight non-nuclear or limited wars.

The introduction of these changes has occurred over the past few years, keeping pace with the development of our ideas on future war. The result has been a gradual accumulation of new material in the curriculum, while instruction in the old conventional aspects of war remained almost unchanged. Inevitably, the course, which was designed to produce a staff officer capable of dealing with the military problems of 1945 has, through evolution, become divided into three distinct parts.

First are studies of staff skills, such as appreciations, written orders, movement tables and graphs and numerous similar staff duties. Also included here are studies of the organization and characteristics of the arms and services and many other basic subjects. Second are studies of non-nuclear or conventional war and its associated administration, and the many other new aspects which attend it. Some of these are battlefield surveillance, target acquisition and analysis, the use of many air forces in the tactical area, the perils of electronic countermeasures, the use of automatic data processing machines to assist in control of the battle, and a multitude of new and complicated techniques and processes.

As this fund of new material grew, the day was bound to come when the syllabus became overcrowded. This point was reached in 1958. These were the questions we began to ask ourselves: Are today's students

**This article appeared in the 1958 issue of the Canadian Army Staff College publication "Snowy Owl". It is reproduced by courtesy of the Editors of that publication.*—Editor.

as experienced as the wartime or immediate post-war students? Do they require precisely the same instruction? Are the students assimilating as much as they should of the actual instruction being given? Is all the instructional material up-to-date and worthy of retention in the course? Is the course sufficiently comprehensive for the Regular Canadian Army Officer of today? Has the student sufficient time at his disposal to become familiar with contemporary writings on the conduct of nuclear war, remembering that this is a war for which there are as yet no battle-proven techniques and no established procedures?

The answers to the first four questions may be debatable, but the answer to the last is unequivocally no. If the student's discussion of matters of future war is to be rewarding and coherent, his arguments penetrating, and his proposals imaginative, then a good portion of his time must be devoted to reading, thinking and expression.

It therefore seemed that the time had come to seek authority from Army Headquarters for a complete revision of the course. The decision by the CGS to reorganize the Army on a brigade group basis, combined with his willingness to accept the provisional pamphlet "The Infantry Brigade Group in Battle" for teaching throughout the Army, confirmed that sufficient progress had been made in studies of nuclear warfare and other forms of future military activity to justify the belief that a re-examination of the Staff College curriculum should be undertaken. This authority was granted, and it was announced in September that the Staff College course would be increased to two years duration, the first of the new courses to begin in September, 1959.

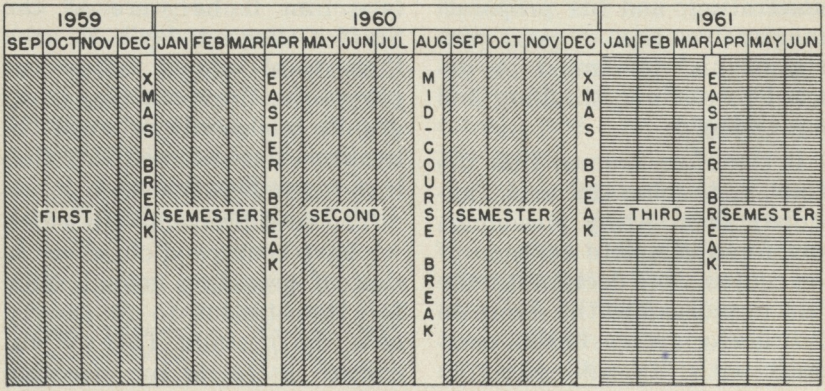
In General Bogert's article of 1957, to which I have already referred, he made mention of the fact that "an officer who attended the Staff Course or served on the Directing Staff a few years ago may well be thankful that he is not called upon to undertake the tremendous task that would face him if he were at the Staff College today". I echo these words and it will be my purpose in the remaining paragraphs to describe what is being done here at the Staff College to produce this new course.

The first problem with which we have concerned ourselves is that of providing enough time for the student to follow his own line of study. This we will endeavour to do by inserting

breaks from organized instruction at key points in the course, and also by establishing certain restrictions on the time to be demanded of the student during the working week. The chart on this page, which shows the division of the course into three semesters of study, also shows where the major breaks will occur.

The working week will be so organized that the student will have more time on his own during the day-hours for preparation of daily assignments. The key restriction here which governs our planning is that after 5 o'clock from Monday to Friday, and on week-ends, there should not be more than a weekly total of 10 hours mandatory study; time will be available during day-hours for the additional mandatory study that will be required. Students of earlier courses will contrast this with their experience of four or more hours nightly study, and week-ends of precis and questionnaires. With more time at their disposal we will expect students to do more reading and thinking on their own.

The aim of the course is to train officers for staff appointments in all branches of the staff in war. To achieve this aim the course will be designed to prepare the Canadian Army officer to be able to function in the various environments in which he may find himself in war. Accordingly, the general scope of the course will prepare the student for staff appointments within field formations in various overseas theatres, appointments in joint or combined Allied headquarters, assignments to headquarters involved in operations of national survival, and, because



war is becoming more difficult to define these days, staff appointments in para-military situations in support of United Nations, Geneva Pact, and other similar agreements. In addition, we consider that the staff officer who is being trained in peacetime must have a basic knowledge of the relationship between Government and the Armed Forces, be familiar with the nature and course of scientific development and its likely effect on future war, and be up to date on national and international affairs.

The subjects to be covered in the course can be classified in three major sub-divisions. Under "basic knowledge" we group such subjects as the organization and characteristics of all arms, not only of the Canadian Army but of the United States, United Kingdom and other NATO forces and of the USSR; administration; fundamentals of nuclear, biological and chemical warfare; air and naval forces; economic, historical, national and international affairs; geopolitics; and other similar subjects. Study of these will take up approximately 34% of the course period. Under "staff skills" we group such subjects as remedial reading, effective speaking, military writing, and the staff duties of preparation of orders, instructions and appreciations. By themselves, these studies will take up approximately 22% of the course, but the application of these skills will be continued throughout the course. Finally, the remaining 44% of the course will be taken up with studies of staff and practical aspects of war, and staff studies of situations short of war. Not only will we study operations of armed forces in the field but also problems of national survival in the homeland. Operations in the field will be studied in many likely theatres of operation around the world, and some of the more distant ones will involve the use of strategic air- and sea-lift.

During the first semester most instruction will be indoors, and will include a large proportion of "basic knowledge" subjects and the development of staff skills. The second semester will include principally instruction in tactics at the brigade group level, and this will be outdoor work. The third semester will deal largely with the employment of corps and higher formations, specialized and joint operations and, most important, problems of national survival in all-out nuclear war.

We are fortunate that there is a break without courses from December 1958 to September 1959 and, as a result, it is possible to consider a complete re-write of all instructional material. This, in fact, is essential. But the task we have set ourselves is a very large one and, even with this break from instruction, it is a conservative estimate to say that the work of re-writing the entire course will take up to July 1960.

There will, I am sure, be many who will disagree with the steps that are being taken. Such criticisms have always attended change. Major-General Lionel C. McGarr, USA, Commandant of the USA Command and General Staff College, said this in justification of his decision to adjust the College programme: "Our chance of progress, our very hope of survival lies in moulding the minds of our leaders in the direction of progress." This is good and inspiring counsel which demands acceptance by its simple logic. A like realization of our responsibilities will, I hope, be reflected in our new course.

Night Operations

There are three major problem areas in night operations, regardless of the type, size or scale. Fighting at night presents difficulties in the control of units, the direction of fire-power and the detection of targets for weapons from the rifle on up. The solution to all three of these problems depends upon the ability of the individual soldier to fight during the hours of darkness.

Before entering the Army, a large number of our soldiers spent most of their lives in towns and cities. They rarely venture beyond the range of street lamps. When such men are first taken into the dark, they are relatively helpless. They are startled by every shadow, stumble even on level ground, make a considerable amount of noise, and are generally so confused or nervous that they certainly are not effective. Yet, by a short course of instruction in darkness adaptation, these same men can be trained to work together confidently, even on the darkest night. Once they have gained confidence, it is comparatively easy to train them further — *Lieut.-Colonel John P. Reames in "Infantry"* (U.S.)

PLEASE SEND US A GARRISON

J. MACKAY HITSMAN, HISTORICAL SECTION, ARMY HEADQUARTERS, OTTAWA*

Although the strength of the British garrison in Canada continued to register, "like a barometer",[1] the condition of Anglo - American relations, Great Britain's repeal of the corn laws in 1846 and her adoption of free trade suggested the need for change and economy in colonial military policy. The taxpayers of a *laissez-faire* Britain could see no reason why four-fifths of colonial expenditure should be for military purposes, or even why they should be burdened with colonies at all. Thus we find the Colonial Secretary in a dispatch of 22 March 1848 writing to Lord Elgin: "I confess I think that now the Canadians have self Govnt so completely granted to them they ought also to pay all its expenses including military protection. . ."[2] But the Canadian government passively resisted such suggestions, and the natural desire to keep down taxes was not the only reason. There was a genuine belief that an elaborate and expensive military organization was unnecessary in peace-time.[3]

Yet this widely-held attitude completely ignored the advantages to the province when British regulars had been widely dispersed in small garrisons. In the absence of proper police forces, maintenance of law and order had devolved upon the British soldier who also had been frequently employed in the construction of roads and canals. Officers and men had to be fed and maintained, providing a source of ready money to local merchants in an economy which was not long removed from the pioneer stage. And while the other ranks may have been most popular with the local tavernkeepers, their officers provided a welcome addition to what society there was.

That these advantages had not completely escaped the notice of certain more astute inhabitants of Canada West is, however, evident from the correspondence received by Lieutenant-General Sir Fenwick Williams during the months following the outbreak of the American Civil War. Among the first to see possible advantages to his own municipality

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was Mayor James Dougall of Windsor, whose letter of 28 June 1861, addressed to Sir Fenwick Williams, reads very much like any present-day attempt to entice new industry or business to an up-and-coming Canadian community:

"I see by the public press that several Regiments of Troops are coming to Canada, and that it is proposed to send a Company of the Royal Canaian Rifles[4] to Amherstburg.

"I beg to call your attention, to the fact that Windsor would be a much more eligible place to send them to than Amherstburg.

"The Barracks in the latter place are at present occupied as a Lunatic Asylum and could not be appropriated for military purposes without a great amount of inconvenience, the only other buildings there belonging to the Government are the old Commissariat Stores and these are not fit for quartering troops, it would cost more to put them in a suitable state to receive them than new ones could be built here.

"Windsor being immediately opposite Detroit is more liable to sudden invasion than any other part of this frontier, and being the Terminus of the Great Western Railway and the principal business place on the frontier more damage could be done in a short time than anywhere else, our Railway Communiciations might be cut off or interrupted—and immense damage could be done by the burning of the Railway Depot, Cars, Worshops, etc.

"This Municipality some years ago bought the old Barrack property from the Govt after the buildings had been destroyed by fire, subject to being resumed by the Govt if required for Military purposes.

"The property never has been used since and Barracks sufficient to accommodate a Company could be erected very Cheaply as the Materials—Lumber as well as Labour are very low at present.

"Submitting these reasons for sending the Troops here instead of to Amherstburg for your favorable Consideration."[5]

By 27 December 1861, when Mayor Dougall penned his next appeal, the situation had become critical: as a consequence of the "Trent Affair", the United States and Great Britain had moved close to a state of war and the first contingent of a large reinforcement of British regulars had just arrived in the lower St. Lawrence. This letter, therefore, seems to have been motivated more by patriotism and fear of actual invasion:

"I had the honour some time

ago of Communicating with your Excellency in regard to Sending troops to this place for the defence of this portion of the frontier—which includes the Terminus of the Great Western Railway—from any sudden invasion from the United States, and duly received your reply that no troops were then intended to be sent here.—

"The great danger of War with the United States induces me again to trespass on your Excellency's time for the purpose of laying before you the wants of this portion of the Frontier.—

"It is the general opinion in Detroit (with the principal inhabitants of which I am on intimate terms) that it would be absolutely necessary for the defence of their City that on the first breaking out of War they should send over a force sufficient to hold Windsor and thus gain control of the Western Terminus of the Great Western Railway as a protection for their City and also as a means of aggression on Canada, and there is no doubt but they would be successful unless we have a small body of regular Troops and Artillery round whom the Volunteers and Militia could rally.

"I may also state to your Excellency that it is the general opinion here that in Case of War this Frontier will not be defended, what foundation there may be for this I cannot say, but I presume it has mainly arisen from your Excellencys not having visited this place on your recent tour to the west, and from the former opinions of Military authorities stationed here that it would not be protected.

"I need not say that this idea has a very depressing effect on the inhabitants, and will make it difficult to procure volunteers, as they feel that a small force of volunteers and Militia would have no chance of a successful defence from invasion from Detroit which numbers about 50,000 inhabitants and is a place of great wealth and importance.—

"With these views I would respectfully represent to your Excellency the great importance of sending a few regular troops and a Battery of Artillery to this place, which would at once give confidence to the inhabitants and a great impetus to volunteering as also a discouragement to the inhabitants of Detroit.

"With a Couple of Companies of say the Royal Canadian Rifles and a Battery of Artillery together with the volunteer force that could be raised here we would be amply able to

protect the place except in case of the advance of a large body of troops, in which case we could hold the Railway open for reinforcements or for retreat as you might deem most advisable under the circumstances.

"Should your Excellency think it advisable to send troops here, I beg to tender on behalf of the Corporation of Windsor the free use of our Town Hall as a Barracks—it is a large two Storey Brick Building with cellars capable of comfortably accommodating two Companies of Troops.—

"There is a pretty large hotel adjoining which could be rented very reasonable I think which would do for officers quarters—if required.—

"My only motive in again applying to your Excellency is the deep interest I feel in the defence of the Country, as an evidence of which I may mention that when the Rebellion broke out here in 1873 and we were threatened with immediate invasion by large bands of Armed Sympathisers from Detroit under the self styled General Thellar,[6] there were neither Arms, Ammunition or Provisions on this Frontier to supply the volunteers and Militia and we had no time to send to Toronto the nearest point where they could be got in Canada, under these Circumstances I advanced to a Committee of Magistrates appointed to take measures for our defence $12,000 in cash which I had past me, with which with the greatest exertions we were enabled to purchase in Detroit Arms, ammunition and provisions and were thus enabled to arm the volunteers and Militia and supply them with other necessarys—towards which end I also advanced about $14,000 —of Blankets, Clothing and other necessaries at Cost Prices.—Had it not been for this it would have been quite impossible for us to have defended this frontier from the assaults of General Theller which were made immediately after at Amherstburg where he and his vessel and men were captured with the Arms that I under providence was enabled to procure for them".[7]

Fortunately the crisis had been resolved before this and similar appeals from other communities in Canada West had time to reach the "Lieutenant-General Commanding in British North America" at his Montreal Headquarters. Thus Sir Fenwick Williams was able to dispose the additional regiments and batteries in a proper military fashion. Instead of doling them out in small detachments along the border

where they might be gobbled up one by one, the units assigned to Canada West were concentrated at Kingston, Hamilton, Guelph and London, from which places they might launch counter-attacks against any invading force which a further crisis in Anglo-American relations might produce. No time was lost, however, in dispatching Colonel J. W. Gordon of the Royal Engineers to visit and examine all points in the province likely to be menaced in the event of war. And Colonel Gordon and his associates were instructed to begin their investigations in the western portion of the province, with both Windsor and Amherstburg being listed among the first centres to be visited.[8]

Notes

1. C. P. Stacey, *Canada and the British Army 1846-1871.* A study in the Practice of Responsible Government (London, 1936), xi.

2. Sir Arthur G. Doughty (ed.), *The Elgin-Grey Papers* 1846-1852 (Ottawa, 1937), I, 126.

3. Stacey, op. cit., 115-6.

4. A regiment of the British Army authorized in 1840 for permanent garrison duties in Canada. It was recruited from and maintained by men who had already seen not less than seven years service in the British Army.

5. Public Archives of Canada, C 696, Dougall to Williams, June 28, 1861.

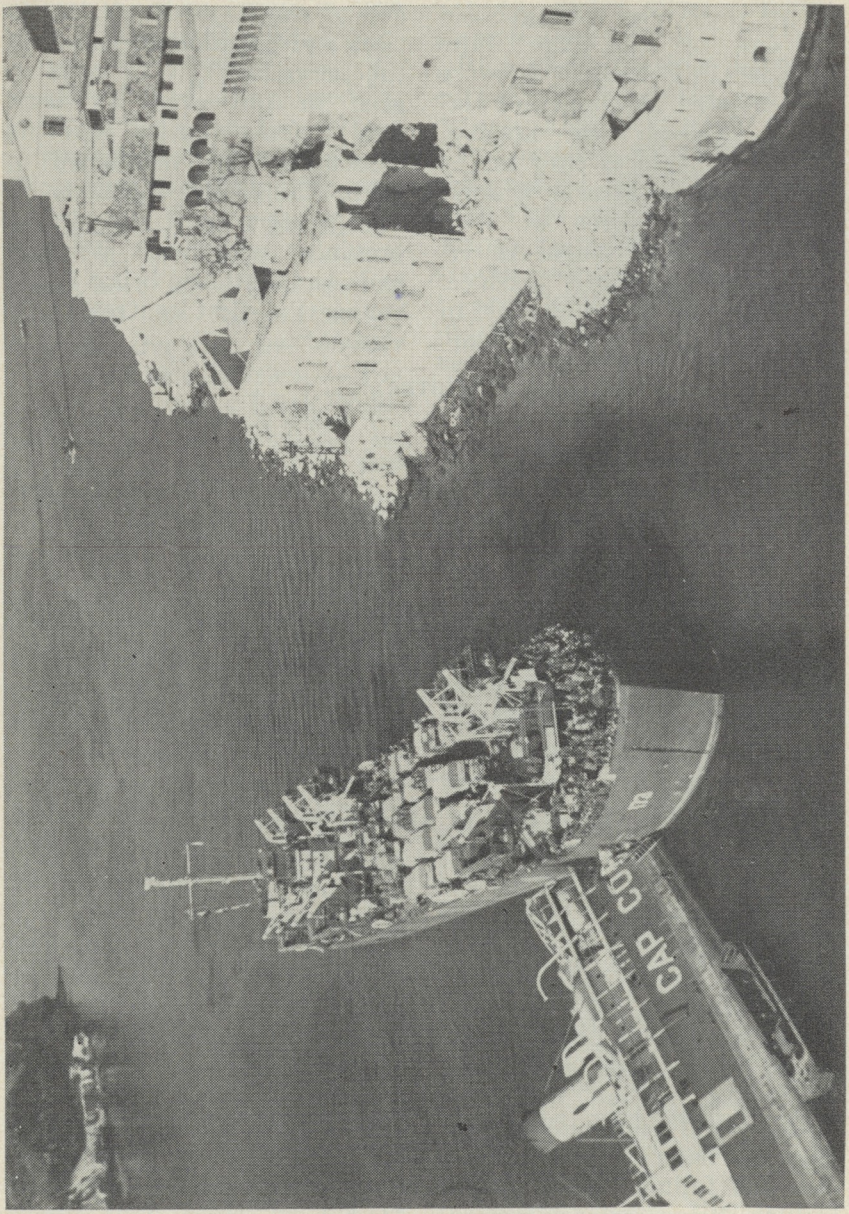
6. George F. G. Stanley, *Canada's Soldiers 1604-1954. The Military History of an Unmilitary People* (Toronto, 1954), 204-5, gives a brief account of these happenings along the Detroit frontier.

7. P.A.C., C 696, Dougall to Williams, December 27, 1861.

8. P.A.C., C 1323, Memorandum of instructions for Colonel Gordon, Royal Engineers, and the Field Officer of Artillery who will accompany him, January 23, 1862.

Engineers in Atomic Warfare

All aspects of field engineering will be affected by the use of atomic weapons. Of all the implications, two stand out. First, the ground contaminated by radioactivity will never stop well-trained men under determined leaders from completing their task. Second, that camouflage and concealment will hold the balance between success and failure. These should include all aspects of deception, such as alternate and dummy positions, and should be coordinated at all levels of command. Finally, all engineer commanders must be able to advise other arms on the very extensive engineer implications of a strike or movement through a stricken area. — *Major A. E. Younger, DSO, in the June 1959 issue of "The Royal Engineers Journal" (U.K.).*


CAP COD

Flashback No. 27

Operation "Goldflake", 1945

NARRATIVE SUPPLIED BY THE HISTORICAL SECTION,
ARMY HEADQUARTERS, OTTAWA

The picture on the opposite page shows the Royal Navy's Landing Ship Tank No. 173 squeezing past the remains of the French passenger ship *Cap Corse* at the mouth of the inner harbour at Marseilles on 19 February 1945. The LST was carrying units of the 1st Canadian Corps in Operation "Goldflake", the transfer of the corps from Italy to North-West Europe.

Marseilles surrendered to the French Army on 28 August 1944, but the Germans had blocked the port, the sinking of the *Cap Corse* being one of their measures. By the early weeks of 1945 the harbour was clear enough to serve as the gateway for reuniting the Canadians from Italy with First Canadian Army.

LST 173 carried troops of the 11th Army Field Regiment RCA, No. 41 Army Transport Company and the 5th Armoured Divisional Transport Company RCASC, and No. 16 Field Dressing Station RCAMC.

The 5th Canadian Armoured Division was the first formation to move, followed in order by the 1st Armoured Brigade and the 1st Infantry Division. By the end of March, 58,172 Canadian officers and men had moved from Italy to North-West Europe. The successful completion of "Goldflake" brought all Canadian troops in operational theatres together for the final phase of the war against Germany.

During Operation "Goldflake" a cover plan, known as "Penknife", was adopted in Italy to conceal the shifting from one theatre to another of such a large body of troops. For this plan, personnel from disbanded units drove hither and thither putting up formation and unit signs and pulling them down again; widely scattered detachments of the Royal Canadian Signals filled the air with dummy messages; all Canadian clubs, leave centres and hospitals were kept open and *The Maple Leaf* continued to be published in Rome. Examination of German intelligence records reveals that the enemy was completely hoodwinked by "Penknife".

WHAT IS MILITARY GENIUS?

CAPTAIN B. H. LIDDELL HART IN THE *Marine Corps Gazette* (U.S.)*

All famous figures become men of legend. The legend often passes for history. It is the duty of the historian, an arduous one, to search for the historical reality that underlies the popular impression; if the passage of time produces a cooler atmosphere, it is still hard labour to unwind the memorial gravecloths in which the figure has been wrapped.

One of the most common tendencies of mankind is the desire to create idols, and the tendency has increased in the last two generations. A time of stress increases the common need for a "great man" to whom faith can be pinned. Achievement or mere position serve to indicate a suitable hero who is then transformed into a symbolic figure, until few traces of reality survive.

If one scans the newspaper files of World War I, it will be found that "military genius" sprouted everywhere, and apparently bore several crops a year. It was applied in turn to all the higher commanders of each and every country—including some who looked as unmistakably wooden as they were found to be in retrospective analysis. In World War II it was used at the outset to describe General Gamelin, the French Commander - in - Chief. But the infrequency of its application after the fall of France to any of the Allied leaders showed how relatively cautious the press and public became with experience.

In wartime the people tend to crave for a hero-leader, and as a natural consequence the leaders of the moment are invested with the properties of genius—until disillusionment strips them. Because of the dangers that follow in the train of disillusionment, the best guarantee of a nation's staying power may be that its people should be chary in expecting miracles and looking for miracle-workers. Genius is best gauged in retrospect.

This raises the question

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*This article is reprinted from the *June 1959 issue of the* Marine Corps Gazette *(the contents of which are copyrighted) by permission of the Editor of that publication and also the author. As the readers of the* Journal *will know, Captain Liddell Hart is one of the world's leading military analysts. He has written no fewer than 30 volumes on military history and tactics, the latest being "The Tanks", a two-volume history of the Royal Tank Regiment, which was reviewed in the April 1959 issue of the* Journal.—Editor.

"What is military genius?" The attempt to define genius in any sphere has produced innumerable definitions and led to endless controversy. So far as the military sphere is concerned, the simplest course is to take the list of those to whom the description is generally applied in history—the list of the "Great Captains"—and examine their credentials.

It is clear that enduring fame is a primary qualification. There have doubtless been many "village Cromwells" who had as much or more innate genius as those who are known as "Great Captains", but they left an insufficient mark on events to engrave their names on the roll.

On the other hand, enduring success is not an essential condition. Any list of the "Great Captains" would include Hannibal and Napoleon—and in many lists they would probably be the first two names. Yet both ended their campaigns in defeat; and their careers in failure.

Similarly, the victorious Northern generals in the American Civil War have been overshadowed ever since by the defeated leader of the Southern armies, Robert E. Lee. And as a result he is usually singled out as the most striking example of military genius which that war produced—although the outward characteristics of genius, and perhaps the inner quality too, were more marked in Sherman, who was on the opposite side, and Forrest, who was on the same side.

It thus becomes clear that the secret of enduring fame for a soldier lies in the achievement of such a temporary domination of a man's contemporaries as to captivate the imagination of succeeding generations. This suggests that, to ensure such fame, it is more important for a general to win victories than to gain the victory. As with an artist, his ultimate standing depends not on whether success crowned his career, but on the masterpieces he produced in practising his art.

In the great struggle between Rome and Carthage, it was Fabius Cunctator ("the Delayer") who, by his shrewd strategy of evasion, paralyzed Hannibal's invasion and paved the way for Rome's final triumph. But because he achieved no striking success in battle, no military historian has ever included him in a list of the Great Captains.

Even Scipio Africanus, who extended the process of undermining Hannibal's position by cutting away his "props", and then overthrew him in the bat-

tle of Zama, has been eclipsed in the eyes of posterity by the man he defeated. This is the more strange since the brilliance of Scipio's earlier campaigns match those of Hannibal, and bear evidence that he was fully as great an artist of war.

How are we to explain the paradox that the loser in this battle of giants has subsequently wrested the laurels from his conqueror? That outcome would seem to show that the imagination of mankind is more impressed by the flash of a meteor than by the more permanent radiance of a star that stays remotely in the sky. The career that ends with a sudden descent to earth, there to merge in the common dust, has a more human appeal.

It is hard to make emotional contact with a saviour who remains on high. In common language, "Olympian" carries a note of complaint—expressive of the feeling that "it must be chilly up there." By contrast, it is easy to understand what the spread of Christianity, the "religion of the common man", has owed to the Crucifixion.

While this reflection serves to remind us of the irony of history in making supreme fame dependent on dramatic failure, it does not carry us far towards determining the nature of genius, as distinct from fame. It does, however, enable us to widen our survey and to include certain suggestive cases which have suffered the disqualification of success—soldiers whose work has had a lasting effect.

Napoleon cited seven names in his list of Great Captains—Alexander, Hannibal, Caesar, Gustavus Adolphus, Tureene, Eugene, and Frederick. It is worth noting that all the first five came to an untimely end, their achievements crumbling before or soon after their death, while the last two lived to see the tide of war turning against them. If this result heightened their dramatic appeal to posterity, it casts a significant shadow on "the path of glory" and the pursuit of fame by conquest.

Napoleon's list, however, omits a number of great commanders who, if his study of history had matched his pretensions, or been less influenced by prejudice, should have been mentioned. Hannibal cannot reasonably be listed without including Scipio; nor Frederick without including Epaminondas, who, two thousand years earlier, had found his key to victory in the "oblique order" which Frederick imitated. Another outstanding claimant in ancient history is Belis-

arius; and if he be included, it is difficult to omit his great contemporary, the eunuch Narses.

When we come to the Middle Ages, the scale and skill of the Mongol campaigns compel the inclusion of Genghis Khan and Sabutai—whose super-mobile forces swept over Asia and Europe in turn, overthrowing every army they met between the Pacific and the Baltic. And the East can provide other claimants, both earlier and later. But this sphere of military history was outside Napoleon's orbit of study.

More surprising is his omission of Gonzalo de Cordoba, for whom the title of "the Great Captain" was first coined, and whose description as "the first modern general" is almost as well known. Then, if Gustavus is to be included, it is difficult to omit Wallenstein, who, by shrewd strategy, undermined the ascendency that Gustavus had attained by his development of new tactics.

Again, many critics would argue that Turenne should be accompanied by his brilliant contemporary and rival, Conde. And if any of these seventeenth-century generals be included, it would be irrational to omit Cromwell, who won more brilliant victories than either, and left a more lasting impression on history, not merely in England.

Coming to the eighteenth century, it is hardly justifiable to include Eugene while ignoring his partner, Marlborough. And a fair claim can be made for the French Marshal Villars, who, when he had the chance, proved a match for both of them, and at Denain won the last great battle of the war.

Napoleon himself must also be added to the list. And there are more grounds than the result of Waterloo for including the man who beat him there, Wellington. Half a century later came the American Civil War, where, it is generally conceded, Lee by his art earned a place in the roll of the Great Captains.

Strong claims, too, have been made for "Stonewall" Jackson's inclusion. For my own part, I would support the inclusion of Sherman, whose superior sense of strategy was the decisive factor in nullifying the results of Lee's brilliant tactics.

I would also stake a claim for Bedford Forrest, who appears to me to have had the greatest natural genius for war of any of the commanders on either side—by his paralyzing strokes against the enemy's communications, deep in the rear of the armies, he foreshadowed the essential ele-

ments of *blitzkrieg* strategy.

Then, taking account of the swiftness of the Prussian victories over Austria in 1866 and France in 1870, and of their far-reaching effect on the subsequent history, it is difficult to exclude Moltke. As for the war of 1914-1918, though none of the supreme commanders succeeded in dominating its course like the acknowledged Great Captains of the past, and though even the most masterful of them, Ludendorff and Foch, made amazingly stupid blunders, it is questionable whether the old masters would have proved more effective in coping with the conditions that developed — conditions more cramping to generalship than any previously known. And the war outside Europe produced at least one man of unmistakable military genius — T. E. Lawrence.

Examining this wider list, can we find any quality, or qualities, so marked in all of them as to represent a common denominator, and provide a key to their outstanding performance?

Originality is generally regarded as a sign of genius. But one finds it to have been comparatively rare among the great commanders. Gustavus was one of the few who clearly set out to provide himself with new means and methods. Epaminondas, Scipio, Gonzalo de Cordoba, and Cromwell were others, in varying degree—but they do not figure in Napoleon's "short list".

Most of the acclaimed masters of the art of war seem to have been content to use the tools that came to their hand. Alexander certainly owed his victories less to his tactical art than to his tactical mechanism; but he had inherited this from his father, Philip of Macedon.

Napoleon owed almost as much to new ideas and reforms which had been inspired by revolutionary pre-Revolutionary military thinkers in France such as Bourcet and Guibert. Yet although as a youth he was quick to appreciate their value, he did practically nothing during twenty years of command to develop them further, and was astonishingly neglectful of fresh possibilities that might have doubled the effectiveness of his forces. In all those years of power and of ever-growing war experience, no significant change was made in the training doctrine of the French army. Marshal Saxe, if manifestly inferior to Napoleon as a commander, showed far more inventiveness and intellectural curiosity—though his campaigns were fought before the French Revolution had

burst the dam of traditional conservatism.

Such a contrast does not imply that originality has played an unimportant part in military history. Far from it. It is all too clear that the fate of nations has repeatedly been decided, and the most epoch-making changes in history determined, by changes in weapons and tactics—especially the latter. Creative thought has counted for more than courage; for more even than gifted leadership.

It is a romantic habit to ascribe to a flash of inspiration in battle results that often have been due to seeds long sown—to previous adoption of some new technique by the victors, or to avoidable stagnation in the military technique of the losers. But such developments have usually been due to some original military thinker, and his influence upon a number of the more progressive soldiers of his generation, rather than to the action of any great general. In the history of war, the former class has been less numerous than the latter, but has probably had more lasting effect in proportion to its numbers.

This is a reminder that there are two forms of military genius, the executive and the conceptive—or as it might be expressed, with a greater aptness, the destructive and the constructive (of destructiveness.)

The two forms are distinct, but not separate. Nor is each confined to one of the two classes. While the outstanding military thinkers have seldom been generals—or, at least, not generals in supreme command — and thus have rarely had the opportunity to put their ideas in practice direct, commanders - in - chief necessarily combine the conceptive and executive roles. Even if their conceptive power be poor, the combination is inherent in the very nature of their job—since action begins from a plan.

When we analyze the campaigns of the Great Captains it will be found that some owed their success more to their plan than to their execution, while others had a knack of making the best of an indifferent plan by their skill in carrying it out or in changing it on the spur of the moment.

Broadly speaking, this is the difference between the commander who is predominantly a strategist and the commander who is predominantly a tactician. For, although a plan is needed in tactics as well as in strategy, success on the battlefield is often more de-

pendent on instinctive or intuitive action to meet the unexpected and to seize a fleeting opportunity.

That is why in earlier times, where armies were small and fought with short-range weapons, and when the battlefield rather than the theatre of war was the general's arena, the quality most prized in a commander was *coup d'oeil*—an expressive term for the combination of acute observation with swift-sure intuition. All the Great Captains possessed in high degree this faculty of grasping instantly the picture of the ground and the situation: of relating one to the other, and the part to the whole.

As the range of weapons lengthened, and armies became more extended as well as larger in scale, so the need increased for a faculty wider and deeper than *coup d'oeil*—for *insight*. The power of penetration, as Wellington aptly expressed it, into "what was going on upon the other side of the hill"—behind the enemy's lines, and in the enemy's mind. In the present, even more than in the past, a leader must have a deep understanding of psychology in general, and of the opposing commander's psychology in particular.

Such a psychological sense is in turn the foundation of another essential, and more positive, element of military genius—the power of creating surprise, of producing the unexpected move that upsets the opponent's balance. For full effect, as history shows, it must be reinforced by an acute time sense, and by the capacity to develop the highest possible degree of mobility.

Speed and surprise are twin qualities. They are predominantly the "hitting", or offensive, qualities of true generalship. And their development, like that of the informative sense, depends on a faculty which may be best, and briefly, defined as creative imagination.

Since war is a two-party affair, however, it is not enough to possess these positive qualities unless the opposition is weak and passive. A shield is required as well as a sword. In seeking to upset the enemy's balance, a commander must not lose his own balance. He needs to have the quality which Voltaire described as the keystone of Marlborough's success — "that calm courage in the midst of tumult, that security of soul in danger, which the English call a cool head".

But to it he must add the quality for which the French

have found the most aptly descriptive phrase—*le sens du practicable*: the sense of what is possible, and what is not possible—tactically and administratively. It is what we really mean when we talk of "realism". The combination of both these two "guarding" qualities might be epitomized as the power of cool calculation.

The sands of history are littered with the wrecks of finely conceived plans that capsized for want of this ballast. And the chequered career of one of the most famous leaders of the modern world was acutely summed up in the comment—"his conceptions have often been brilliant; his calculations almost always wrong."

Creative imagination is the essential characteristic of genius, in the military as well as in other spheres. When coupled with dynamic energy, it produces an executive genius. When balanced by cool calculation, it makes a Great Captain.

And when he loses that balancing power, through overweening ambition, his dramatic downfall creates another Great Legend—that, like the Sirens' song, lures the pilots of future generations in turn on to the rocks.

Military Geography

When Alexander the Great made plans for conquering the world he had in his mind a definite picture of that world—its configuration, barriers, corridors of access, population and resources. His campaigns were conceived within the framework of this picture and formulated in terms of available manpower, tactics, supplies and manpower logistics. Geography has been equally present in the thinking of Julius Caesar, Napoleon, George Washington, Montgomery, or any other strategist.

If the last war has taught us any lesson at all, it is that war strategy is essentially geographic, and can, therefore, be best made by men trained to think geographically, and after such men have c r e a t e d strategy, it is up to the military mind to modify, revise, and implement geographic concepts into war operations.—*S/Sgt. P. G. Gittins in the "Australian Army Journal".*

NEAR-DISASTER AT CUT KNIFE HILL, 1885

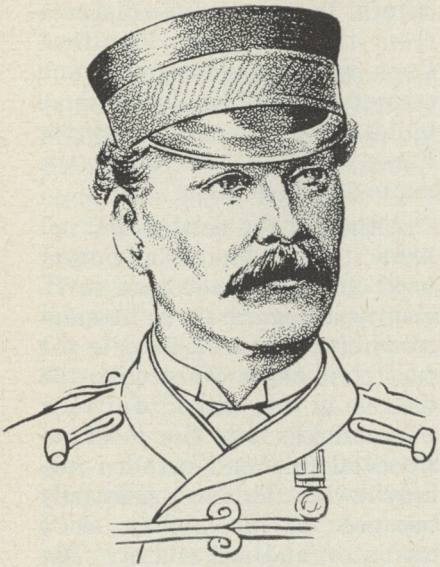
By

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

On June 25, 1876 Lieut.-Colonel (Brevet Major-General) George Armstrong Custer's personal command of 225 officers and enlisted men of the 7th U.S. Cavalry was annihilated by an overwhelming force of Sioux and Cheyenne Indians on the Little Big Horn in Montana. On May 2, 1885, Lieut.-Colonel William Dillon Otter failed to surprise an encampment of Crees and Stonies near Cut Knife Creek in Saskatchewan under very similar circumstances, but managed to extricate his column of 325 Canadian Militia and North-West Mounted Police with the loss of only eight killed and 14 wounded. Yet the latter operation lies buried in detailed histories and official reports, while Custer's costly blunder continues to be a subject for Hollywood films and popular magazine articles.

News of the Custer massacre quickly reached the North-West Mounted Police, which then maintained close liaison with the United States Army's frontier posts, and was soon followed by Sitting Bull's band of Sioux who sought and obtained sanctuary in Canada until 1881, when they were induced to return peaceably to American territory. At Duck Lake, Saskatchewan, on March 26, 1885, Louis Riel and Gabriel Dumont similarly attempted the "Indian surround" against Superintendent L. N. F. Crozier's detachment of Mounted Police and settlers. But Superintendent Crozier managed to form line quickly and subsequently withdraw before the half-breed métis and Indians could achieve their object.

That the peaceful settlement of the Canadian west should be interrupted in 1885 by an armed uprising of métis and Indians must be blamed on the inept policies and indifference of the Canadian Government, which paid no attention to long-standing grievances until too late to prevent rebellion. The news of Duck Lake travelled fast and was regarded as an omen: only fear of the White Man's power, as exemplified by the small and scattered detachments of North-West Mounted Police, had prevented the In-



Lieut-Colonel Otter

dians from rising on several earlier occasions. And only the indecision of Chiefs like Poundmaker and Crowfoot, who realized that the old nomadic way of life was finished, however much they disliked being confined to reservations and resented the need of accepting the inadequate assistance provided by the Indian agents in the face of a succession of crop failures, now prevented the rebellion from becoming widespread.

Major-General F. D. Middleton, the British officer serving as General Officer Commanding the Canadian Militia, who had been belatedly dispatched from Ottawa to Winnipeg, decided to take the field immediately with the local militia units. While waiting for the arrival from Eastern Canada of the 3323 all ranks hurriedly mobilized and forwarded over the still-incomplete Canadian Pacific Railway, General Middleton devised a plan of operations. Three columns would converge on Batoche, the centre of métis resistance and capital of the provisional government which Louis Riel had proclaimed in Saskatchewan. Although General Middleton was later accused of conducting the campaign with excessive caution, there was reason to worry about the potentialities of the volunteer militiamen, some of whom "had never pulled a trigger" before proceeding to the west. Moreover, on April 15, the Minister of Militia and Defence was warned by Mr. Sandford Fleming, a civil engineer who knew the west well, that the country facing Middleton was well adapted to the style of fighting favoured by the métis and Indians, and that an ambush might be expected at some least expected spot. "Even a momentary check at the crisis," he wrote, "would cause thousands of Indians who are at present quiet to rise. The great danger is haste. Would it be possible to make General Middleton aware that

what is needed at the moment is not courage but a superfluity of caution, much very much depends on the first meeting, one mistake would be followed by the most disastrous consequences. A little delay will strengthen the General and weaken the rebels and better delay a week or more than risk even a partial reverse." This warning was immediately telegraphed to General Middleton.

Unfortunately, however, this advice does not seem to have been passed on to Lieut.-Colonel Otter, whose column of 543 all ranks was diverted to the relief of Battleford, a settlement on the North Saskatchewan River. Here 365 non-combatants (mostly women and children) had been cooped up in the Police Barracks since late March, inadequately protected against any determined Indian attack by 43 members of the N.W.M.P., 45 officers and men of the local company of *ad hoc* Battleford Rifles and 134 other residents with weapons of one description or another. Following his arrival on April 24, Lieut.-Colonel Otter discovered that there actually had not been a "Siege of Battleford". Although the nearby Crees and Stonies had plundered every dwelling in the settlement and made nightly bonfires of stores or houses, the braves had been careful to keep a safe distance from the barracks. Fortifications were now improved and came to include the local school building, which was used for Force Headquarters under the name of "Fort Otter".

Although the settlers did not know it, Poundmaker and other local chiefs had not been sufficiently antagonistic to attempt a combined attack. Despite the fact that there were only 165 braves in his band of Crees, Poundmaker was the most influential chief in Northern Saskatchewan. This was primarily because of his ability as a mediator and negotiator. The "farm instructor" attached to his reserve described him as "tall and good looking, slightly built and with an intelligent face, in which a large Roman nose was prominent; his bearing was so eminently dignified and his speech so well adapted to the occasion as to impress every hearer with his earnestness and his views. Indeed, for the time being, I believe, he impressed himself". Unfortunately, however, once the news of Duck Lake had spread, Poundmaker proved unable to restrain the exuberant spirits among his own warriors and those of the band of Stonies who had attached themselves to his reserve, which was along the banks of Cut Knife Creek,

about 35 miles west of Battleford.

The half-breeds' successful delaying action against General Middleton's main column at Fish Creek on April 24 encouraged Riel and Dumont to send further appeals for help to both Poundmaker and Big Bear. They suggested that Big Bear, whose braves were responsible for a massacre at Frog Lake, should join Poundmaker in destroying Battleford; then both bands should hurry to Batoche. But Poundmaker suspected that all was not going well with Riel: where was the promised aid from the United States, and in particular the rifles and ammunition which were needed before Battleford could be attacked? About the end of April, therefore, Poundmaker replied to Riel's latest emissaries that "he would send to Fort Pitt, to Big Bear's camp, and he would wait for a while before he would go down to Riel".

Meanwhile, at Battleford the rumours collected by the Mounted Police scouts had convinced Lieut.-Colonel Otter and his brigade major, Superintendent W. M. Herchmer, N.W.M.P., that Poundmaker and Big Bear were going to join Riel at Botache. But "peace" and "war" factions were still believed to be contending for control of Poundmaker's band and Otter evolved the notion of striking first to clarify the situation. Unlike Custer who had commanded a division in the American Civil War with the rank of major general, Otter's active service had been limited to the abortive Fenian raids of 1866 and 1870. Only in 1883, and when almost forty years of age, had he left the Militia to assume the command of the Infantry School Corps then added to the tiny Canadian force of Permanent Active Militia. Presumably be-

Courtesy Public Archives of Canada
Chief Poundmaker

lieving that it was more important to obtain the permission of the civil authority responsible for the administration of Indian Affairs than to consult his own military superior (who might refuse), Otter sent off the following telegram in cypher to Lieutenant-Governor Edgar Dewdney of the North-West Territories on April 26:

> I would propose taking part of my force at once to punish Poundmaker, leaving one hundred men to garrison Battleford. Great depredations committed. Immediate decisive action necessary. Do you approve?

Dewdney telegraphed his approval at once, but added some words of caution:

> Think you cannot act too energetically or Indians will collect in large numbers. Herchmer knows country to Poundmaker's reserve. Sand hills most danergous ground to march through. Be sure to secure good reliable scouts.

On the morning of April 29 scouts reported back to Battleford that about 200 Cree and Stoney braves were encamped in the valley of Cut Knife Creek, near Poundmaker's reserve and about 38 miles distant. This creek flowed from the west and skirted the foot of the prominent Cut Knife Hill, before running in a northerly direction to meet the Battle River. On both sides the creek had steep banks, which were covered with brush, while the surrounding countryside was broken by ravines and deep coulées. Both the creek and the hill had received their name from a Sarcee chief who had been killed there many years earlier in an engagement with Poundmaker's Crees.

Otter now wired to Dewdney that he was about to undertake the approved operation. Lieut. R. S. Cassels of the Queen's Own Rifles noted in his diary on Friday, May 1, that it was "not thought that there will be any fighting to do, and if there is Poundmaker has we hear only two hundred men and ought not to be able to do very much. The Brigadier [Otter] and staff evidently think that Poundmaker will surrender if we get near him at all". Lieutenant Cassels later recorded that the Mounted Police had become "accustomed to look upon them [the Indians] as arrant cowards".

After a noon-day dinner the colourful column of 325 all ranks formed up and by 4.30 p.m. was moving along the rough track which crossed the prairie. In the lead were 75 members of the North-West Mounted Police, dressed in brown field service uniforms and armed with Winchester carbines and revolvers; including those deployed as scouts, 50 were mounted. They were fol-

lowed by "B" Battery, Regiment of Canadian Artillery, with a strength of 80 all ranks, wearing blue uniforms with red facings. The 45 officers and men of "C" Company of the Infantry School Corps, also belonging to the Permanent Active Militia, and the 20 members of the Governor General's Foot Guards were wearing scarlet tunics. The 60 all ranks of the Queen's Own Rifles were in dark green, while the 45 members of the local Battleford Rifles were in typical (civilian) western costume. Unlike the Mounted Police, the Militia were still armed with single-shot Snider rifles. Although the Canadian Government had recently purchased 10,000 Martini-Henry magazine rifles from the British Government and the métis were known to be armed with repeating rifles, General Middleton had not considered it wise to put a new weapon "into the hands of men just entering a campaign, particularly one which was known to have a much greater recoil".

Having been told that it would not be practicable to transport guns over the rough route to be followed, Lieut.-Colonel Otter had ordered "B" Battery to substitute two light 7-pounder mountain guns belonging to the N.W.M.P. for its own 9-pounders. The latter were rifled muzzle-loaders of a pattern just then being replaced in the British Army, but as early as 1881 the limbers and carriages of the older 7-pounders had been found unserviceable and their replacement unsuccessfully recommended. The single Gatling gun was an up-to-date weapon, capable of indirect fire at ranges up to 3500 yards, but one whose capabilities had not yet been thoroughly tested. Transport for supplies and the infantry was provided by 48 wagons driven by armed teamsters.

The column halted at dusk and the wagons formed a laager. The troops then ate supper and rested for about four hours. It was a chilly evening and fires were kept blazing for warmth. About 11.30 p.m. the advance was resumed by the light of a full moon, in the hope of reaching the enemy encampment by dawn. Many of the men walked beside the wagons in order to keep warm and there was the inevitable question as to whether they would take the Indians by surprise. Lieutenant Cassels recorded that there was not a chance of this, for "signal fires have been burning all afternoon on the distant hills, but

CUT KNIFE HILL
2 MAY 1885
INDIAN CAMP
GUNS
HORSE CORRAL
WAGON CORRAL
Indians to hill overlooking position
CUT KNIFE CREEK
Rolling prairie for 10 miles East
THICK WOODS HELD BY ENEMY
SITE OF RECENT INDIAN CAMP
LEGEND
OTTER'S MOVEMENTS
INDIANS' MOVEMENTS
WOODED COULEES OR RAVINES
500 0 500 1000
YARDS

Courtesy Public Archives of Canada

A panoramic view of the battlefield.

we want to reach him before he has time to move off".

Poundmaker was well aware that his camp might be attacked in retaliation for the depredations against the settlement at Battleford, and to rescue the score of peaceful half-breed families being held prisoners. Therefore, he had posted scouts and issued instructions that, should attack come, none should remain in one place but rather move quickly from one point to another, in order to create an impression of greater numbers. Unlike the well-armed Sioux who had vanquished Custer's force from a distance with the fire from their Winchester repeaters, the Crees and Stonies mostly possessed rifles which had a shorter range than those of the Militia, or shotguns, and had an inadequate supply of ammunition. Their battle dress consisted of a shirt, leggings, blanket over the shoulders, war paint and feathers.

During the twilight which preceded dawn Otter's Column passed through Poundmaker's reservation, where there were a few dwellings but no sign of habitation. About 4.30 a.m. the site of the reported encampment was reached. Obviously this had been only recently abandoned for the marks left by numerous tepees and fires were visible. Here the column halted, while the scouts searched for the Indian trail of withdrawal. By the time they returned it was light enough for everyone to see a herd of "liberated" cattle grazing on the farther of a pair of hills about two miles distant. Also visible on the skyline were a couple of mounted Indians. Obviously Poundmaker had moved his encampment to this higher ground.

Lieut.-Colonel Otter decided to cross the creek and follow the trail to the top of Cut Knife Hill, where the men could stop for breakfast and rest the horses. The stream proved rather hard to cross, however, and there was about 500 yards of marshy, scrub land to traverse before the troops began to climb the hill. Strangely enough, the scouts were now riding close to the guns, while others of the Mounted Police and Artillery had dismounted and were walking their horses in twos and threes along the trail. Suddenly, just as the scouts had reached the crest of the lower rise, there were scattered shots from Indian lookouts. The police and gunners sprinted to the crest of Cut Knife Hill, and throwing themselves to the ground, began to fire at warriors who were streaming out of the encampment about a

mile distant. The remainder of the column hurried up the hill and occupied the hurriedly assigned positions. The two 7-pounders and the Gatling gun were unlimbered just behind the crest and their fire directed against the Indian encampment. The remainder of the Artillery and the Mounted Police formed to the front. "C" Company of the Infantry School Corps was ordered to protect the right flank and clear the ravine, beyond which was a stretch of open ground. The similar task assigned the Queen's Own Rifles and the Governor General's Foot Guards on the left flank proved the more difficult of the two, as there was a wide stretch of rolling and bushy ground beyond the ravine. The horses and the wagons were corralled in a slight depression below the crest. The Battleford Rifles were detailed to protect the rear. By this time it was after five o'clock and broad daylight.

Had Otter boldly ordered his mounted men forward to ride down the Indian encampment and quickly followed with the remainder of his force, accepting the risk of casualties, he might have achieved the object of his expedition. For the enemy was outnumbered, roughly three to two, and the squaws and children were a liability. But Otter was a green commander and probably did not realize that once troops go to ground there is but little likelihood of further advance.

The fact that their encampment was being shelled merely encouraged the Indians to fight harder. Poundmaker now abandoned his last scruples and, mounted on a white horse, directed the defence of the camp. However, it was a war chief, Fine Day, who directed the Indian offensive. Realizing that the troops had been halted, the Indian conduct of the fight quickly developed into the customary "surround" battle. "Taking advantage of the cover afforded by the many small coulées and ravines surrounding our position," Otter later wrote in his official report, "a most vicious and determined cross-fire was poured in upon our men, which at first proved most destructive owing to carelessness in exposing themselves. Soon, however, we followed the example of our foes, and made the most of any cover that was obtainable and in point of accurate shooting quickly demonstrated our ability to cope with them". Apart from an initial attempt by 30 or 40 Indians to rush the guns, which was beaten off with small-arms fire, the enemy remained concealed from sight.

Although the shrapnel fire from the 7-pounders did not do much damage, it did drive Indian marksmen from several vantage points. About 8.30 a.m. the trail of one of the rotting carriages gave way, rendering that gun useless. Trouble subsequently developed with the carriage of the other, but temporary repairs soon enabled it to resume its role after a fashion: each time the gun was discharged, however, it jumped loose and had to be lifted back into place by the gunners. The Gatling gun continued firing throughout and created a terrific din, but its destructive effect was negligible against a hidden enemy. Parties from both the Queen's Own Rifles and the Battleford Rifles finally sallied out and, without too much difficulty, managed to clear the Indians from the ravines to their immediate fronts.

About eleven o'clock Lieut.-Colonel Otter decided that he must attempt to extricate his force and retire on Battleford. Fighting had been going on for six hours and the troops were becoming exhausted: the effects of their night march, lack of food and the excitement of the engagement were telling, while the wounded required attention. Although the immediate flanks and rear were now clear, it was obvious that this was too good to last and that his position would become more untenable with each passing hour, and impossible after nightfall. Moreover, Otter was convinced that Big Bear must have effected a prior juncture with Poundmaker and that he was opposed by at least 500 fighting men, including about 50 half-breeds.

The withdrawal commenced around noon. The Battleford Rifles, Mounted Police scouts and the partially serviceable 7-pounder (whose trail was now held together by ropes and splints) withdrew over Cut Knife first and occupied the high bank, from which they could cover the retreat of the remainder. All but one of the six dead and the 16 wounded were evacuated in the wagons which moved next. (Two of the critically wounded died the following day.) The remainder of the Mounted Police and gunners, with the Gatling gun, and "C" Company of the Infantry School Corps, remained in position, while the Queen's Own Rifles and Governor General's Foot Guards pulled back successively. Lieutenant Cassels, who was with the rear-guard, described the final withdrawal as follows:

> We had got about three hundred yards from the crest of the hill before the Indians knew what was up and appeared on it, but then a

heavy fire opened on us and mighty hard work it was to walk quietly down with the bullets whistling by. The men however behaved with great coolness and steadiness and the Artillery and ourselves retired alternately fifty yards or so at a time, then halted and kept up a steady fire. The Gatling was now near the Creek and opened up on the Indians, and Capt. Rutherford sent some [7-pounder] shells among them from the far side and they evidently felt they had had enough. They did not attempt to follow us past the creek and this we crossed quietly, the men with admirable coolness each waiting his turn to cross the stream by a log that lay across it, and refusing to gain time by wading through the water.

Across the creek we found everything prepared for a start and we got in our wagons without delay and made off...

We drive for about an hour and then stop and water the horses and have something to eat, and not before we need it. We have had nothing since last night and are almost exhausted now that the excitement is over. After a short rest we press on and reach Battleford about 11 p.m. The journey very trying to the poor fellows who have been hit; they are made as comfortable as possible with blankets, but the jolting over the rough road causes them agony. At Fort Otter they receive some much needed attention.

Thus Cut Knife Hill must be judged an Indian victory. Otter later conceded that had the Indians followed his dead-tired troops "much delay and loss of life might have been entailed upon us, as the country was favourable to them". But white and half-breed prisoners in the Indian camp later emphatically agreed that Poundmaker had ruled against pursuing the defeated whites. These witnesses also estimated Indian casualties as being only six killed and three wounded.

Poundmaker was now an open enemy and forced to throw in his lot with Riel's movement. But before the indecisive and slow-moving Indians had travelled very far, word was received that Batoche had been captured and that both Riel and Dumont were fugitives. Poundmaker now made up his mind quickly and on May 26 surrendered to General Middleton, whose column had reached Battleford two days earlier. Along with Big Bear, who was subsequently cornered and forced to surrender, Poundmaker was tried for treason-felony, convicted, and sentenced to a term in a penitentiary. Although released during 1886, he died shortly thereafter. On the other hand, Lieut.-Colonel Otter had a long and honourable military career, and eventually became General Sir William Otter.

Further Reading

1. *Diary of Lieut. R.S. Cassels, North-West Field Force 1885.* (Manuscript in the possession of the Royal Canadian Military Institute, Toronto, Canada).

2. Major T.M. Hunter, "Disaster

A Vision of Things to Come

NEW DESIGNS FOR ARMOUR

FROM THE ARMY-NAVY-AIR FORCE JOURNAL (U.S.)

Radically new designs for future armoured vehicles—including flying tanks, tanks that divide, under-water tanks, tethered turret tanks, tanks that carry clusters of "kamikaze" pods and vehicles equipped with energy concentrators that melt tanks—are envisioned as possibilities in the era after 1965.

In an address entitled "Some Thoughts on Armour of the Future", before the U.S. Armour Association 7 May, Lt.-Col. Robert B. Rigg, Assistant Deputy Director, Combat Developments Group, U.S. Army Armour School, declared that the "vision of things to come is not drawn from an isolated crystal ball. Rather, it is based on certain military and technological potentials, as well as some realities."

He called upon the Armour Association to support the "daring" group of military men striving for better weapons for armour. "Let us not delude ourselves," he said. "In the next decade, we shall need much better armoured weapons and machines if we are to ever oppose successfully the avalanche of Soviet armour."

Colonel Rigg illustrated his talk with coloured slides depicting "what can logically happen to the tank, sometime after 1965." Here are some of the evolutions he envisions:

Near-Disaster at Cut Knife Hill, 1885

(Continued from preceding page)

on the Plains", *Canadian Army Journal* (October 1955).

3. General Sir Fred Middleton, *Suppression of the Rebellion in the North-West Territories*, ed. by G.H. Needler (Toronto, 1948).

4. Charles Pelham Mulvaney, *The History of the North-West Rebellion of 1885* (Toronto, 1885).

5. *Report upon the Suppression of the Rebellion in the North-West Territories, and Matters in Connection Therewith, in 1885* (Department of Militia and Defence of the Dominion of Canada, Ottawa, 1886).

6. Colonel C.P. Stacey, "The North-West Campaign 1885", *Canadian Army Journal* (July, 1954).

7. George F.G. Stanley, *The Birth of Western Canada*, A History of the Riel Rebellions (London, 1936).

8. John Peter Turner, *The North-West Mounted Police 1873-1893* (Ottawa, 1950).

Amphibious Tank: He showed his audience a sketch of a Soviet PT-76 under-water tank, stating "We need to match this versatile vehicle and out-do it with others."

Divisible Tank: This is comprised of a turret with wings that can separate itself from the main body of the tank hull and rise up to hover or fly. It is capable of lobbing out its own smoke screen as it pumps shells into enemy concentrations. The advantage of this type of armoured vehicle is that the firing half of the tank can be defiladed from the sighting or aiming half.

Nuclear Powered Tank: An atomic-powered tank would mean the end of vulnerable refuelling halts, the elimination of logistical fuel trucks and greatly increased ranges for tanks and other armoured combat vehicles. "Here is the combat fighting vehicle that could journey from Suez to Sevastopol and keep going."

Tethered Turret Tank: The turret would be anchored to the tank or armoured personnel carrier by a cable. The turret would rise up to fire a salvo while the tank and its crew were safely hidden behind a defilade.

Self-Entrenching Tank: This feature would be particularly advantageous when the vehicles were in bivouac or halted for extended periods of time. The "dig-in ability" would not mean lessening of mobility, since the vehicles would be able to churn out of dug-in positions as if climbing out of a ditch.

Plant-Type Tank: This is an advance over the tethered turret type. In this vehicle, the turret of the tank is a cluster of several small pods. Like kamikaze drones, singly or in groups, the pods are ejected to rise up and dive toward the enemy, homing in on their targets. Each pod would carry a warhead of penetrating, high-explosive. They could be covered with a sticky substance to make them adhere to manoeuvring enemy vehicles. A tank of this type is envisioned as engaging a superior number of enemy tanks at one time.

Flying Tank: This type of vehicle could be built with either removable or non-removable wings.

Airborne Tank: The tank could be carried by a mother plane. Actually, the first tanks carried aloft by planes were the Soviet T-37 and T-38 models. These tanks were slung under the bellies of a four-engine bomber-transport during peacetime manoeuvres in the 1940 occupation of Bessarabia. A possible evolution of this concept could mean a low-flying,

hard-hitting tank not restricted by natural barriers.

Energy Concentration Tank: The Colonel explained that there exists a scientific basis for the idea of melting or disintegrating tanks and armoured vehicles. He pointed out that the Navy has conducted experiments in the fields of high intensity arc sources and solar energy, while the Air Force has conducted high energy radar beam experiments. This type of tank would carry a large electro-optical device mounted on the vehicle's chassis that would concentrate a destructive beam that would either melt the enemy vehicle or impair its fighting system.

Directing his thoughts to the era after 1970, Colonel Rigg told the Armour Association that there is the possibility of completely new type of tank emerging from research — a blend of tank and aircraft. "Such a combat instrument could fight and cover at least five to nine times the points and distances that the present tank covers in the same length of time today." He said the armoured personnel carrier is also likely to evolve gradually into an air vehicle. "Somewhere in the future lies an infantry transport vehicle that probably will be a cross between a helicopter and an armoured carrier. Such vehicles, he pointed out, would place minefields in the category of cavalry sabres.

More Speed for Armour at Night

Armoured Support vehicles soon may be able to travel at combat speed during the night. The American Optical Company has developed an infrared system which may permit drivers to move along at 25 miles an hour in darkness. At present, the safe speed for night movement is between 10-15 miles per hour. The system consists of an attachment on the tail-light of vehicles that are viewed in total darkness through vinocular-type glasses attached to the driver's helmet — *"Army - Navy - Air Force Journal" (U.S.).*

CAPTURE OF SAINT-PIERRE-ET-MIQUELON, 1793

By
J. MACKAY HITSMAN, HISTORICAL SECTION,
ARMY HEADQUARTERS, OTTAWA

Histories of Canada generally either ignore the French colony of Saint-Pierre-et-Miquelon, a group of small islands lying about ten miles off the south coast of Newfoundland, or leave readers with the impression that France has been in undisputed possession since 1763. In point of fact the islands were recaptured by British forces at the outset of each ensuing war with France and have been permanently populated by French fishermen only since the conclusion of the Napoleonic Wars. During the second and third decades of the Twentieth Century, the colony was a base for rum-running activities and on Christmas Eve 1941 it became a short-lived *cause célèbre* because of occupation by Free French naval forces to remove a possible threat to the nearby convoy routes. Much of the Second World War story is still buried in official documents bearing a security grading, but the correspondence dealing with the British operation of May 1793, mounted from Halifax, is available in the Public Archives of Canada and provides an interesting little sidelight to Canadian history.

Captured by the Royal Navy in 1702, the islands remained in British hands until 1763. In order to soften the fact that France had lost all its possessions in North America by conquest, Article VI of the Treaty of Paris then declared:

> The King of Great Britain cedes the islands of Saint-Pierre and Miquelon in full right to His Most Christian Majesty to serve as a shelter to the French fishermen, and his said Most Christian Majesty engages not to fortify the said islands, to erect no buildings upon them but merely for the convenience of the fishery, and to keep upon them a guard of fifty men only for the police.[1]

In the days of sail the distinction between mercantile and naval vessels was one of degree only. Every time hostilities commenced the swiftest merchantmen were outfitted as privateers, provided with "letters of marque" and turned loose on enemy commerce. In view of depredations committed by American privateers during the early years of the

Revolutionary War against coastal trade and the more isolated settlements of the continuing loyal colonies, and the skill with which the French were accustomed to wage this *guerre de course*, the British Government was not willing to take any chances. Thus, following hard upon France's declaration of war against Great Britain in 1778, the Royal Navy was instructed to take possession of Saint-Pierre-et-Miquelon and remove the inhabitants who were mainly Acadian expatriates and Canadians. Only after the Treaty of Versailles restored the islands to France in 1783 were these fishermen able to return.

Actually it was in this year that Grande Miquelon and Petite Miquelon became joined by a shingle bank thrown up by the sea, five and a half miles long, giving them a joint area of 83 square miles. Three miles distant was the much smaller Saint-Pierre, five miles long and about three and a half miles wide. All the islands presented a bare and rocky appearance: a thin surface of peat covered the rocks in many parts and the valleys were filled with lakes or peat mosses. The coasts were generally steep and, since the only good harbour was on Saint-Pierre, the bulk of the inhabitants made it their home.[2]

In consequence of Revolutionary France's declaration of war against Great Britain on February 1, 1793, three of the British regiments of regulars garrisoning Nova Scotia and New Brunswick were immediately ordered to the West Indies, which were considered to be in greater danger of attack than the coastal colonies of British North America. In a letter dated February 15, Mr. Henry Dundas, Secretary of State for the Home Department, instructed Brigadier-General James Ogilvie, commanding in Nova Scotia, to embark the sole regiment of regulars remaining at Halifax and attack Saint-Pierre-et-Miquelon. The small garrison in Newfoundland could also be utilized, if desired. General Ogilvie was directed to consult the Officer Commanding His Majesty's Ships on the Halifax Station, who was to assist with what naval force was considered necessary.[3]

When these orders arrived on April 30, with H.M.S. *Alligator*, a ship of 28 guns commanded by Captain William Affleck, R.N., the situation was not conducive to vigorous action. The ships of the Royal Navy customarily on the Halifax station were busy convoy-

ing troops to the West Indies and Captain Affleck's own ship was the only major naval unit available. As a consequence of the neglect resulting from 10 years of peace, the remaining 4th Regiment of Foot was sadly under-strength. To make matters worse, there was no field officer actually serving on its strength. But since the three under - strength companies of the 65th Foot commanded by Major Thorne could not continue to the West Indies until the balance of that regiment arrived from the interior and H.M.S. *Alligator* should be available for convoy duty — a matter of three or four weeks —General Ogilvie quickly made up his mind. Instead of drawing on the small garrison in Newfoundland, Major Thorne's three companies could form part of the expeditionary force and still be returned to Halifax in time to proceed to the West Indies as scheduled.[4] Thus General Ogilvie was able to collect an expeditionary force of just under 400 all ranks: 310 rank and file of the 4th and 65th Foot, an artillery detachment of 40 rank and file and the necessary proportion of officers and non-commissioned officers.

At the request of Captain Affleck, a number of volunteers from the Nova Scotia Regiment then being recruited by Lieutenant-Governor John Wentworth for service within the province was obtained to help man the three transports required and the armed schooner *Diligente*. One of the two officers supplied by this unit had had considerable time at sea and had been to Saint-Pierre-et-Miquelon. Lieutenant-Governor Wentworth also provided a pilot who had twice examined the defences of Saint-Pierre. As late as the preceding December there had been only four guns mounted there, and a further four lying on the rocks. The garrison had numbered only 30-45 men, who spent much of their time fishing, but a 40-gun frigate had then been undergoing repairs from damage caused by striking a rock at the harbour entrance.[5]

On May 6 the troops were embarked at Halifax. Having "impressed a number of men", Captain Affleck was able to dispense with the services of the recruits from the Nova Scotia Regiment on the following morning. Only the officer who had been to Saint-Pierre was retained.[6] Later that day, May 7, the three transports set sail under the protection of *Alligator* and *Diligente*. The conduct of the operation is best described by the dispatch sub-

sequently sent to Mr. Henry Dundas:

On the 14th about day break, we made the Island of St. Pierre, and Captain Affleck having made a disposition to proceed by the Channel of Miquelon, a convenient place in that strait for debarking the Troops offering—and our information from different quarters (however imperfect) giving us reason to suppose that a French frigate was in the harbour, and of the further defences of which we had not been able to obtain any real intelligence, I proposed to Captain Affleck to land the Troops, that an attack by Sea and Land might be made at the same time, with which he perfectly coincided, and accordingly I landed with great part of the Troops in the Ancè a Savoyard, about five miles to the Westward of the town, and proceeded towards it, sending a Summons from Captain Affleck and myself to the Commandant for the immediate surrender of the Island, when an answer being returned, demanding Terms of Capitulation;—they were decidedly refused. — The Troops continued their march, and having reached without opposition the heights above the Town; the Alligator at the same time appearing in sight of the Harbour, the Commandant, Monsieur Dansville (who from circumstances was under the direction of the *Comune* of the Island) surrendered the Islands of St. Pierre and Miquelon at discretion, and possession was immediately taken of the Battery and places of defence near the Town and Harbour.

The Garrison consisted of between Eighty and one hundred men only, but there were upwards of Five hundred French fishermen (exclusive of the Inhabitants) in the Town, who had they been prepared and well Armed, might have made great opposition. They had likewise begun to put in a State of defence, the Battery of Eight Twenty six pounders, which effectually defended the Harbour.

If from fortunate events no opportunity offered for the Troops to distinguish themselves, it would be doing the greatest injustice both to Officers and men, if I did not in the strongest terms mention their good Conduct, discipline, and regularity, the slightest Depredations not having been committed on any of the Inhabitants by the Troops I have the honor to Command, in a place taken in the manner above stated.[7]

The captured Ordnance which was serviceable included the eight 26-pounders mentioned above, three 4-pounders, two 3-pounders and three 1-pounders, with carriages, ammunition and gun stores, 150 military muskets, 173 bayonets, 36 swords, 192 firearms belonging to the inhabitants and a quantity of small arms ammunition.

On June 11 the greater part of the force, together with the prisoners of war (now found to total 120 soldiers and officials, and 450 French fishermen) were embarked for return to Halifax.[8] In view of the protection afforded by the Newfoundland Squadron of the Royal Navy, it was considered that five weak companies of the 4th Regiment of Foot, totalling 160 all ranks, should suffice as Major Thorne's garrison until further instructions were received from London. For the time being, the 950 inhabitants were permitted to remain and, because of the local shortage of food, were issued with provisions. Although these

inhabitants were considered "in general an inoffensive industrious people", an Oath of Neutrality was required from all because "the demon of Equality and Liberty had reached this remote and barren spot, and some Excesses had been committed, but no lives lost".[9]

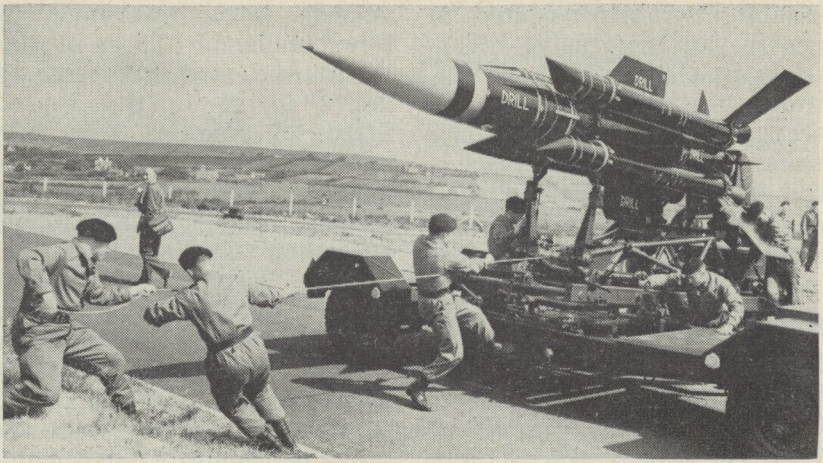
On March 16, 1794 Mr. Henry Dundas issued instructions that the inhabitants should be removed as soon as possible, but the actual evacuation was not completed until early summer.[10] With the cessation of "permanent settlements" the Islands were annexed to the government of Newfoundland.[11] Those inhabitants who had expressed a desire to go to the United States of America were permitted to do so:[12] the remainder were sent back to France. The French officials and their families had been included with the prisoners of war earlier sent from Halifax to Guernsey, one of the Channel Islands.[13] The Treaty of Amiens restored the colony to France in 1802, but war broke out again in 1803 before the inhabitants could be returned and the islands quickly reverted to British control.

FOOTNOTES

1. *Saint-Pierre and Miquelon* (Handbooks prepared under the direction of the Historical Section of the Foreign Office — No. 131, London, 1920), 7.
2. *Ibid.*, 2-9.
3. Public Archives of Canada, C/245, Dundas to Ogilvie, Feb. 15, 1793.
4. *Ibid.*, Ogilvie to Clarke, May 6, 1793.
5. P.A.C., MG 11/1517, Wentworth to Dundas, May 3, 1793.
6. *Ibid.*, Wentworth to Dundas, May 28, 1793.
7. *Ibid.*, Ogilvie to Dundas, May 18, 1793.
8. *Ibid.*, Ogilvie to Dundas, June 21, 1793.
9. *Ibid.*, Ogilvie to Dundas, May 19, 1793.
10. P.A.C., MG 11/1519, Dundas to Wentworth, March 16, 1794.
11. *Ibid.*, Dundas to Wentworth, Aug. 5, 1794.
12. P.A.C., C/245, Dundas to Ogilvie, Feb. 14, 1794.
13. P.A.C. MG 11/1519, Wentworth to Dundas, Jan. 24, 1794.

Nuclear Fallout

The testing of a unit under [nuclear] fallout conditions cannot wait for the battlefield. All preparations to meet this new challenge must be completed prior to combat. The spirit of confidence and the cohesive integrity with which the unit will conduct itself under the intangible hazards of fallout will reflect the competence ... with which the company commander renders his decisions. — *Australian Army Journal.*



Britain's "Thunderbird" Missile

A REPORT ISSUED BY THE UNITED KINGDOM INFORMATION SERVICE

The accompanying photograph shows a team of gunners using a rope to steady a "Thunderbird" missile as it is moved from a transport loader to a launcher during a demonstration of surface-to-air weapon systems at the School of Anti-Aircraft Artillery at Manorbrier, Pembrokeshire, South Wales.

A cadre from the 36th Guided Weapon Regiment of the Royal Artillery is shortly to begin training with this missile at the school. Officers and non-commissioned officers will be trained as regimental instructors on the use of the Thunderbird. The full course of training will take twelve months.

The Thunderbird is the first British missile designed and produced in Britain to go into service with the British Army. Chosen as an anti-aircraft weapon for the Army, the Thunderbird is powered by a solid rocket sustainer motor and a "wrap-round" jettisonable booster system consisting of four pairs of solid rockets.

Trials of the missile at Woomera, Western Australia, are nearing completion and development trials have been carried out at the Royal Aircraft Establishment at Aberporth on the Cardiganshire coast.

TRUTH FROM CRITICAL DOUBT

CAPTAIN B. H. LIDDELL HART IN *Military Affairs* (U.S.)*

If a man reads or hears a criticism of anything in which he has an interest, watch whether his first question is as to its fairness and truth. If he reacts to any such criticism with strong emotion; if he bases his complaint on the ground that it is not in "good taste", or that it will have a bad effect—in short, if he shows concern with any question except "Is it true?" he thereby reveals that his own attitude is unscientific.

Likewise he reveals his attitude and approach if he judges an idea not on its merits but with reference to the author of it; if he criticizes it as "heresy"; if he argues that authority must be right because it is authority; if he takes a particular criticism as a general depreciation; if he confuses opinion with facts; if he claims that any expression of opinion is "unquestionable"; and if he declares that something will "never" come about.

The path of truth is paved with critical doubt, and lighted by the spirit of objective enquiry. To view any question subjectively is self-binding. In the books used at the famous Lung Ming Academy, the following motto headed each page —"The student must first learn to aproach the subject in a spirit of doubt."

We learn from history that in every age and every clime the majority of people have resented what seems in retrospect to have been a purely matter of fact comment on their institutions. Nothing has aided the persistence of falsehood more than the unwillingness of good people to admit the truth when it was disturbing to their comfortable assurance.

Always there is a tendency to be shocked by natural comment, and to hold certain things too "sacred" to think about. I can conceive of no finer ideal of a man's life than to face life with clear eyes instead of stumbling through it like a blind man, an imbecile, or a drunkard. Yet how rarely does one meet anyone whose first reaction to anything is to ask: "Is it true?" Unless that is a man's natural reaction, true progress is unlikely.

**This is an extract from a copyrighted article entitled "Responsibility and Judgment in Historical Writing" which appeared in the Spring 1959 issue of* Military Affairs. *It is reprinted by permission* — Editor.

CORPS HONOURED BY THE QUEEN

A STATEMENT BY THE MINISTER OF NATIONAL DEFENCE

Her Majesty has graciously approved the appointments of four Queen's Honorary Physicians, three Queen's Honorary Nursing Sisters, and four Queen's Honorary Dental Surgeons from the Canadian Forces.

Appointed Queen's Honorary Physicians: Major-General K. A. Hunter, OBE, CD, MD, QHP, Surgeon General, Canadian Forces, Ottawa; Surgeon Commodore T. B. McLean, CD, MD, Deputy Surgeon General (P), Canadian Forces, Legal, Alta; Brigadier P. Tremblay, OBE, CD, MD, Deputy Surgeon General (A), Canadian Forces, Montreal; and Air Commodore A. A. G. Corbet, ED, CD, BD, MDCM, QHP, Deputy Surgeon General (P&E), Canadian Forces, Saint John, N.B.

Appointed Queen's Honorary Nursing Sisters: Lieutenant-Commander M. E. Nesbitt, CD, QHNS, Matron-in-Chief, Canadian Forces, St. Stephen, N.B.; Squadron Leader M. C. McArthur, CD, QHNS, Deuty Matron-in-Chief, Canadian Forces, Oro, Ont.; and Major (Principal Matron) M. E. Dewar, RRC, CD, Canadian Forces Medical Service, of London, Ont.

Appointed Queen's Honorary Dental Surgeons: Brigadier K. M. Baird, OBE, CD, FICD, QHDS, Director General of Dental Services, Ottawa; Colonel G. B. Shillington, CD, FICD, QHDS, Deputy Director of Dental Services, Blenheim, Ont.; Colonel J. P. Whyte, ED, FICD, QHDS, Royal Canadian Dental Corps (Militia), Pembroke, Ont.; and Colonel C. S. Lea, MBE, DDS, Royal Canadian Dental Corps (Militia), Calgary, Alta.

The Queen's appointments will be held for the tenure of office by the Regular Force officers, with the exception of Major (Principal Matron) Dewar whose appointment as QHNS will be for the normal two-year-period.

The "Horrors of War"

50 Years Ago: The "horrors of war" are illustrated by the fact that the Boston patriots of 1909 had nearly one-half as many injured in celebrating the anniversary of the battle as their forefathers did in the defence of Breed's Hill on 17 June 1775.—*From the Army - Navy - Air Force Journal (U.S.).*

SEAWAY MAPS AVAILABLE

Canadian Army surveyors have just completed two new maps covering a portion of the St. Lawrence Seaway. The new map sheets, one of the Cornwall, Ont., area and the other of the Morrisburg area, have been printed and are now available to the general public.

The area covered is about 850 square miles and extends from Cardinal in the west to Lancaster in the east. It was originally surveyed by the Department of National Defence in 1905 and again in 1939.

Completely revised and redrawn in several colours including black, green, brown, red and two shades of blue, the new maps show details of the recently-created Lake St. Lawrence and several new islands. Also shown in detail are the new towns of Long Sault and Ingleside, the Crysler Memorial Park, the relocation of Iroquois, and the new Iroquois lock and control dam. The relocation of No. 2 highway and the long stretch of the new No. 401 highway between Iroquois and a point just north of the Crysler Memorial Park are also detailed, as are the routes of underground oil and gas pipelines.

New islands shown and named include Harkness, Broder, Ault, Nairn and Morrison.

All work on the new maps was done in Ottawa by members of the Army Survey Establishment, who made extensive use of new photographs of the area and information gained in the field during 1958-59. New navigational charts of the St. Lawrence Seaway exist, but the Army maps are believed to be the only up-to-date land maps of the vastly changed area.

Copies of the maps are available at 25 cents each from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.—*From a report issued by the Directorate of Public Relations (Army), Army Headquarters, Ottawa.*

Incentive in Training

The crux of successful training is to keep alive incentive and the competitive spirit. This can best be achieved by the introduction of a prize at an individual, platoon, company, regimental and even at higher Corps levels for various items of training.—*Major M. L. Kataria, ASC, in "The Army Service Corps Journal" (India).*

United States-Canadian Border Ceremony

Young soldier apprentices of the Royal Canadian School of Artillery, Camp Shilo, Man., line the route at the United States-Canadian border near Carievalle, Sask., as an American Legion colour party passes down their ranks during the U.S. Memorial Day ceremony.

Work Brigades Reinstated in Hungary

Hungary, along with the other satellite nations of Eastern Europe, has re-established the youth work brigades set up after World War II to speed recovery, and terminated in 1950. These nations also are copying the Soviet plan of making school children work part-time on farms or in factories. Membership in the work brigades is said to be "voluntary", and is designed to check political revolt by mixing hard work with ideological training, curb drinking and other waywardness, and increase production. —*News item in the "Military Review" (U.S.).*

ARMY OFFICER WINS PUBLIC SERVICE AWARD

National Defence Photograph

Captain O. F. Plouffe, Montreal, an officer of the Royal 22e Régiment stationed at the Royal Canadian School of Infantry, Camp Borden, Ont., earlier this year was awarded a certificate and $100.00 cash by the Suggestion Award Board of the Public Service of Canada in recognition of his effort and ability in working out and suggesting a new mapping and calculating procedure which will enable mortar crews to fire a barrage more quickly and accurately. Captain Plouffe is seen here receiving his certificate from Brigadier R. L. Purves, commander of Camp Borden.

Training Is Teaching

An Army is engaged constantly in either training or fighting. In common with all who have had experience of war, professional soldiers hope that our country will never be called upon to fight again. But in any case, training never ends, and training is teaching. —*General Maxwell D. Taylor.*

ON RELATIVE STRENGTHS

LIEUT.-COLONEL A. I. AKRAM IN THE *Pakistan Army Journal**

Let us take a possible example of relative strengths and assume for a moment that it is purely hypothetical. The example is as follows:

	Westland	Eastland
Divisions	9	2 2/3
Tanks	400	275
Armed Manpower	215,000	31,000
Air Force	larger	smaller

Now let any staff college in the world give its opinion as to which side in the above example is in a better position to take the offensive and, in the case of a battle, which side is likely to win. We may clarify further by saying that the ground for both sides is the same, neither side having any advantage over the other in this respect.

At first a staff college may hedge, hum and haw, and then drop such observations as "it all depends" and so forth. But if we corner the staff college and force it to give a decision, it will most certainly declare that the Westland alone is in a position to take the offensive and win the battle. And why not? The Westland has the superior force—its superiority, roughly over the Eastland in terms of divisions, manpower, and armour respectively is in the ratios of 3½ to 1, 7 to 1, and 3 to 1.

But as luck would have it, the Westland did not win the battle or even take the offensive. On the contrary, the offensive was taken by the puny Eastland force which not only won the battle that ensued, but also utterly crushed the Westlanders, rendering them incapable of further organized resistance and inflicting, perhaps the greatest defeat ever suffered by that worthy power during the war. In Westland the students of World War II are sure to recognize the Italian Army under Marshal Graziani, and in Eastland the British and Indian forces under Field Marshal Wavell as they faced each other at the start of the Second Libyan Campaign.

But all this was wrong. Wavell had no business to take the offensive, least of all to score a dazzling victory that won the applause of the entire world and placed the mantle of glory on his broad shoulders. After all, the balance of relative strengths was clearly against him and he should have rightly kept to the defensive, praying

**This article was translated and digested by the* Military Review *(U.S.), and is reprinted from that publication.*—Editor.

earnestly for help and hoping that by some freak of fate he would be saved from being hurled into the Red Sea by the Italian "Goliath". Most of our military writers have insisted that the attacker must have a superiority of at least three to one over the defender; this is what the staff colleges normally teach. Some of them have even proposed a superiority of six to one.

However, Wavell did just the opposite in attacking a much stronger adversary. And the result of the campaign made nonsense of much of our teachings on relative strengths. Did the teachings go wrong particularly in this campaign? Or is there some fundamental defect in our present method of assessing relative strengths? A few more examples from military history will illustrate this point.

Historical Examples

Battle of Arbela—331 B.C. Alexander the Great with about 50,000 men defeated Darius who had about 200,000 troops.

Battle of Cannae—216 B.C. Hannibal with a force of 32,000 foot and 10,000 mounted troops defeated the Roman Army of 65,000 infantry and 7,000 cavalry led by Aemilius Paulus and Varro.

Battle of Pest—1241. Sabutai with a Mongol army of 75,000 men defeated the Hungarian Bela who commanded a force of 100,000 European knights.

Campaigns of Charles XII of Sweden—beginning of the 18th century. Time and again this brilliant general routed the Russian forces which were from two to eight times the size of his own small army. When eventually he was defeated by Peter the Great at the Battle of Poltava in 1709, he had a force of 12,500 Swedes against Peter's army of 80,000. Many writers have expressed the view that had Charles not been incapacitated by a wound in his foot he would have won even the lost battle.

Battle of Leuthen—1757. Frederick the Great with a force of 36,000 men defeated the Austrian Army of 70,000 men under Prince Charles and Field Marshal Daun.

Battle of Quebec—1759. Wolfe with a force of 8,500 British troops defeated a French force of 10,000 to 14,000 troops (including Indians) under the command of Montcalm.

Napoleon's Italian Campaign —1796-97. In six separate battles Napoleon attacked larger forces of the Austrian Army than his own and defeated them.

Battle of Tannenberg—1914. Hindenburg with the German Eighth Army defeated the Russian First and Second Armies under Rennekampf and Samsonov respectively.

Manstein's counterstroke — February-March 1943. In this action the Russians, immediately after Stalingrad, continued their winter offensive. They broke through the German front in the region of Kharkov and to the south of it, captured Kharkov from the Germans, and drove over 100 miles deep into the German-held territory. Manstein, suffering from an inferiority of one to eight over his theatre of operations, launched his counterstroke against the southern flank of the Russian wedge. He destroyed the wedge, recaptured Kharkov, and brought the Russian offensive to a staggering halt.

In all these examples the weaker force won the battle and the stronger lost it. In most of these cases the victor did not meet just with an ordinary success but scored a brilliant victory, inflicting a crushing defeat on his adversary. In many cases the vanquished army ceased to exist.

Source of Strength

It is now generally considered that relative strength is *not* a matter of size, numbers, or amount of equipment. It *is* a matter of firepower—the side which enjoys greater firepower being regarded the stronger of the two. It is by bringing fire on the enemy that we kill him; it is death or the danger of death overcoming the enemy's courage and will that gives us victory.

But the armies which won these battles were weak even in firepower. Hence assessment of relative strength on the basis of firepower alone also is incorrect. There must, therefore, be some other factors of strength which brought victories to the said armies—armies which on pure physical strength should have lost.

The fact is that a battle is not a contest of pure material strength and war is not a question of mathematics. This is fortunate, for if it were so the noble art of war would be degraded to the profession of the butcher and the best general would be the one who is capable of showing the most dogged persistence, guided by the cold, immutable laws of mathematics. It is not intended to belittle physical strength and size, but material strength is not everything and there are other sources of strength which in battle often play a greater part than the material strength.

In view of this, let us restudy in turn all those aspects which affect the relative strengths of combatants in the battles mentioned above.

Second Libyan Campaign. The British victory was due to Wavell's generalship—his skill, audacity, and brilliant handling of the fighting; the superior morale and training of the allied troops, mobility, and surprise. On the Italian side the weakness was due to their poor training, low fighting qualities, bad dispositions, and poor equipment.

Battle of Arbela. Alexander's victory was due to his tactical skill and presence of mind in dealing with Darius' enveloping movements; the superior discipline and training of the Macedonian phalanx against the unwieldiness of the Persian hordes.

Battle of Cannae. Hannibal's victory was due to his superior generalship—his brilliant trap, the better skill of the Numidian and Carthaginian horsemen, and the poor generalship of Varro who put too many troops in too little space.

Battle of Pest. The Mongols won this battle because of Sabutai's generalship — his remarkable strategic and tactical skill; the extreme toughness, better training, and organization of his army; and the greater mobility and skill of the Mongol horsemen.

Campaigns of Charles XII. The Swedes won their battles in their long, drawn out war with Russia on account of the tremendous personality, dash, and tactical skill of their general; and their own better training and organization against the ill-trained, ill-equipped, ill-organized, and ill-led Russian hordes.

Battle of Leuthen. Prussia scored a victory because of the generalship of Frederick the Great—his masterly planning and conduct of the oblique order attack and his concentration of superior strength against the Austrian left wing; the training and battle procedure of his army; and the bold handling of the Prussian cavalry by Zieten and Driesen.

Battle of Quebec. The causes of the British victory lay in the daring tactics of Wolfe—the unusual design of his manoeuvre in scaling the heights of Abraham; surprise and offensiveness; the better organization, training, and discipline of the British regiments and their dogged fighting; and the achievement of local superiority by Wolfe on the Plains of Abraham.

Napoleon's Italian Campaigns. Napoleon won his battles in quick succession be-

cause of his personality and generalship; his concentration of superior forces in turn against parts of opposing force; the advantage of his position on interior lines, surprise, and mobility of his army.

Battle of Tannenberg. This famous German victory was due to Ludendorff's brilliant plan of the battle on interior lines; the superior training and organization of the German Army; the poor generalship of Rennekampf and Samsonov, their lack of mutual co-operation, and Rennenkampf's lack of initiative.

Manstein's Counterstroke. Manstein's success was due to his own masterly conception and handling of the counterstroke; the superior training and skill of the German divisions; surprise; and the long and exposed flanks of the Russian salient.

The causes of victory in all these battles indicate that there are many factors which influence the outcome of a battle, each of which is a source of strength. It would be wrong to say that any one of these sources would by itself place the crown of victory on our head, as each factor plays only a part in giving power and effectiveness to a force. This much, however, is clear, that the material strength is not the only thing that counts, and if it did, then those who actually won these battles should have lost them. In reality, an army derives its strength from all these sources.

Effect of Time and Space

A general preponderance of strength is of little use unless we can achieve concentration in time and space, and a general inferiority in strength need not worry us if we can achieve this concentration. The principle of concentration is that we should have the required strength *at the decisive place and at the decisive time.*

The entire problem is admirably expressed by Napoleon:

Strategy consists in having, in spite of an army of inferior strength, a larger force than the enemy at the point attacked, or at the point which the opponent attacks.

Unless the conditions of time and space are favourable, we cannot use material superiority over the enemy. This point is often not appreciated when we think of the superiority of one side over another in material strength. If Varro had understood the effect of time and space on force, he would not have flung the bulk of his legions against Hannibal's centre, where, having got into the trap, they changed from an or-

ganized military force into a seething mass of helpless humanity.

Varro would have been wiser to deploy only half of his force which, even when trapped, would have had sufficient space to manoeuvre and use its weapons, and would thus have proved more effective than a larger force.

We must then keep time and space in mind when judging our relative strengths. We must make time and space our allies. If the conditions are favourable, concentrate a superior strength against a smaller portion of the enemy's force by correct deployment in time and space.

Morale

The importance of morale and the power it gives to an armed force have now been established beyond doubt. It has become a principle of war. We are always thinking about morale; we have reports and returns dealing with morale; when a superior visits a subordinate he asks about the state of morale; commanders and staff officers constantly worry about morale. Yet when it comes to the assessment of relative strength, we forget all about morale and work on a required material superiority of three to one for the attacker. We forget Napoleon's famous words: "The moral is to the physical as three to one."

It must be borne in mind that a battle is not so much a clash of arms as a clash of wills. Real defeat occurs *in the mind.* Unless the vanquished accepts defeat and gives up his aim, he cannot really be regarded as defeated. A battle is a contest of moral strength.

We all know the old saying: "War is the domain of moral force." Time and again a smaller force which enjoyed higher morale defeated a larger adversary. Material strength is impotent if the will to fight is absent. This was well brought out in the Second Libyan Campaign in which a major factor affecting Wavell's success was the moral superiority of the British and the Indian troops over the Italians. If the Italian morale had been good, and if they had fought with courage and defended their positions with determination and doggedness instead of surrendering in tens of thousands, Wavell would not only have had *no* success but would have long rued the day on which he decided to launch his offensive.

The power of morale is admirably expressed by Jomini: "No system of tactics can lead to victory when the morale of an army is bad."

As stated earlier, even in material strength what matters is not the size of a force but the amount of firepower which that force can produce. However, the possession of the ability to produce firepower is of little use without the ability to bring that firepower to bear upon the decisive place and time. It is *mobility* that enables a force to employ its firepower where it is most required. An armoured force is mainly a combination of firepower and mobility (plus a certain amount of armoured protection). When such a force carries out an outflanking movement to strike at the rear of the enemy, it is doing nothing more than using its mobility to transport firepower to a place where a decision can be obtained. Hence mobility is an element of force.

Mobility has been the cause of many victories on the battlefield. Therefore, Marshal Foch was correct to define force as *mass multiplied by impulsion.* Mass by itself, without impulsion or the capacity for movement, wields little power in battle.

There is, however, a purely *defensive* aspect of mobility. This aspect is that a force protects itself by its own movement. This is so because we cannot attack a force while it is moving. Before we can attack it, we have to *fix* it; if there is no fixing, there is no attack.

This was the essence of the strategy of Fabius against Hannibal. It is worth noting that while Hannibal thrashed every other Roman commander who dared to face him in Italy, he could never thrash Fabius because the latter would never let Hannibal fix him. He would always pull back.

From the above cited example of Fabius the readers should not get an impression that mobility has a protective influence only, in the sense that it enables us to run away. It is not so. Mobility can protect us even in a forward offensive movement. This point is well-illustrated in one of Manstein's operations in Russia in 1941. When the invasion of Russia began Manstein was commanding the 56th Panzer Corps in Army Group North. After the initial breakthrough Manstein advanced 200 miles in four days. On 26 June he reached Daugavpils—80 miles ahead of the German formations on his flanks—and wanted to push on still farther. He felt that, given a free hand, he could capture Leningrad — nearly 300 miles away.

To his bitter disappointment, he was ordered to halt

and to go to the defensive to safeguard his bridgehead across the River Dvina. In this defensive position he had a hard time beating off Russian attacks until formations on his flanks had caught up. We see in this instance that Manstein had long and open flanks and had formed a deep salient, losing all support from his flanks. But he felt perfectly safe as long as he was *in movement.* The moment he was halted his troubles began. If Manstein thought so, then one would require a lot of courage to disagree with the point that mobility by itself, as purely a defensive measure, provides security and reduces the enemy's advantage of superior material strength.

Offensive

According to Clausewitz, defence is the stronger form of war. Surely, one would not like to pick a quarrel with a man like Clausewitz. But even that great military thinker agreed that defense was negative—unproductive of great decisions, and he did not dispute that offence, although the weaker form of war, had certain clear advantages over defence, such as maintenance of morale, impetus, and initiative, which would give victory to the attacker provided the other combinations were right.

In fact, the offensive is not just an operation of war; it is an attitude of mind. Even the defender can take an offensive attitude which gives him greater moral strength. An army which is imbued with the offensive spirit, and is ever ready for a battle with the aim of bringing about a complete destruction of the enemy, will always command a moral advantage over its adversary.

If Hindenburg at the Battle of Tannenberg had taken a defensive attitude and waited for the armies of Rennenkampf and Samsonov to develop a coordinated attack against his Eight Army, he would have been doomed to defeat. But he, while holding off Rennenkampf with a weaker force, concentrated the bulk of his army against Samsonov, and in doing so he did not adopt a defensive attitude.

Taking the initiative, he attacked the flanks of Samsonov's army, forcing it into a Cannae-like trap, cleverly planned in the centre. Three of Samsonov's corps were swallowed up like Varro's legions, as if by an earthquake. Without this offensive attitude and the consequent offensive manoeuvres, the outcome of the Battle of Tannenberg would have been very different.

In the Seven Years' War it

was the offensiveness of Frederick the Great which saved Prussia from extinction at the hands of the three most powerful states of Europe — each individually stronger than Prussia. Whenever Frederick fought, he fought offensively — augmenting his material strength with the inherent power of the offensive attitude. According to Du Picq: "He will win who has the resolution to advance."

To act upon the principle of offensiveness, there is no need for us to wait until we get the opportunity to launch a major offensive. As already stated, the offensive is a state of mind which enhances our strength, and so long as every element of our army is imbued with this spirit, we can regard ourselves as being stronger than what is warranted by the table of relative strength.

Ground and Position

During the days of the Indian northwest frontier operations, time and again, an entire brigade group, equipped with whatever weapons it could use in that country, including artillery and machine-guns, was held up by a handful of tribesmen armed with nothing more than locally made rifles. Why was this so? Relative strengths gave the regular army a superiority of 100 to one, and yet the *lashkar* could not be beaten off for days. Sometimes the tribesmen inflicted casualties on the army far greater in number than their own strength! Besides one or two other factors, this was due to the effect of *ground.*

The high peaks, the narrow passes, the difficult approaches, and the stiff climb were the allies of the tribesmen, making it extremely difficult for the regular troops to come to grips with their foes. If the same *lashkar* of 50-odd tribesmen had taken up a position in the desert, a platoon of infantry with its own 2-inch mortar support would have polished it off in a few minutes.

Another aspect of ground and position is the line of operation which can, by itself, add strength or weakness to a force and can deeply influence the outcome of a battle or a campaign. It is generally accepted that if a smaller force is facing a larger force it is better for the smaller one to be on the interior, rather than the exterior lines, provided it has the capacity to operate offensively and is not forced to adopt a static defense. This rule will hold good despite the increased mobility of the modern armies and further improvements in the modes of transportation.

The reason is that, although

a force on exterior lines can concentrate with speed at the point attacked by its adversary, there is still a relative difference in time and movement which is related to distance in space.

Napoleon's Italian Campaign, the Battle of Tannenberg, and the twin battles of Kasserine Pass and Medenine fought by Rommel in February and March of 1943 may be cited as good examples of the advantageous use of the interior lines.

Ground and position are a source of strength that must be kept in mind constantly. When we find ourselves materially weaker than our opponents, we must study the effect of ground and position on the impending battle. We may often find that due to this factor, we are at par with or even stronger than our enemy. It is never correct to deduce a relative superiority of one side over the other by a simple assessment of material strengths, without considering how these strengths are likely to be influenced by the position and the ground held by the combatants.

Generalship

We now come to what is perhaps the greatest source of strength: *generalship.* This is a factor of supreme importance—so important, in fact, that Foch has declared: *Great results in war are due to the commander . . . without a commander no battle and no victory is possible.*

On generalship Napoleon said:

The personality of the general is indispensible; he is the head, he is the all, of an army. The Gauls were not conquered by the Roman Legions, but by Caesar. It was not before the Carthaginian s o l d i e r s that Rome was made to tremble, but before Hannibal. It was not the Macedonian phalanx which penetrated into India, but Alexander. It was not the French Army which reached the Weser and the Inn, it was Turenne. Prussia was not defended for seven years against the three most formidable European powers by the Prussian soldiers, but by Frederick the Great.

To this one could well add: It was not the Revolutionary Army of France which shattered the proud empires and the kingdoms of Continental Europe and made England gasp for breath, it was Napoleon!

Keen readers have noticed a contradiction in the examples quoted earlier from the last war. This relates to Manstein's operations. When Manstein himself made his long salient with the 56th Panzer Corps he

was safe; but when the Russians formed their salient (described under Manstein's counterstroke) they met with disaster. There were many factors such as mobility, training, and skill which made the difference between the two operations. However, the greatest reason for the difference lay in *generalship*.

If in 1941 there had been a Russian military giant facing Von Leeb's Army Group, he might have taught Manstein a bitter lesson for poking his nose so forward, in spite of his mobility. But there was no such military giant then on the Russion side. In February 1943, when Vasilevsky broke through the German front and established his salient, unfortunately for him, he had Manstein against him who sent him reeling back without a nose.

Hence we accept the power of generalship. In modern war generalship at higher levels may not be as personal as before; the art of command might have grown more impersonal, more complex; leadership may now become corporate rather than individual. But the value of generalship remains immense. A smaller force led by a brilliant general may be taken as stronger than the table of relative strengths would indicate.

Effect of Miscellaneous Factors

So far only a few of the sources of strength have been considered. Other notable sources are training, order and discipline, and surprise. Except for surprise, the others have been telling factors in battles fought over the last 200 years between European forces and African hordes or Asian troops —the latter being invariably poorly equipped, poorly trained, and poorly disciplined.

Surprise, too, is a factor which has often decided the fate of a battle in favour of the weaker side. It gives a moral advantage out of all proportion to the size of force involved in achieving it. This hardly needs the support of examples from military history. As a factor, however, it is difficult to assess it in relative strengths as both sides are out to achieve it and it is usually difficult to say which side will succeed in doing so. The only time we can count on it is when we find ourselves in a position to surprise our opponents in a startling manner; we can then regard ourselves stronger than what would appear from a comparison of relative strengths.

Conclusion

It should be clear from the foregoing that a comparison of pure material strength is no in-

dex to the true relative value of opposing forces in a combat. The examples given above from history should leave no doubt in this respect. Our present system of assessing the relative strengths certainly is faulty and needs an overhaul. But what system are we to follow? Should we add further headings to our table of assessment? For instance, shall we, after considering material strengths, add: morale — two points to one; generalship— three points to one; mobility— one point to one? This obviously would be absurd, because such factors are not subject to mathematical computation. War is not a system of mathematics, as force is not a matter of material strength. If it had been so, then in the history of war there would not have been such personalities as Sabutai, Napoleon, and Lee.

What is required is that we should not be unduly influenced by the physical size of an army. In other words, we should not expect the material inferiority to lose as a matter of course. When we assess relative strengths, we should consider the effect of other factors on strength. *Is our generalship superior? Does our mobility give us more power? Are we in a position to surprise the enemy? What of the moral factor? Which side is favoured by ground and position? Which side is better trained, better organized, and better disciplined?*

Having considered all these sources of strength, we should decide which side is truly stronger, whether our aim is attainable or not, and what plan of operations should be adopted.

Young officers, while learning the art and science of war, must not be overawed by the large armed forces of possible adversaries, and senior officers should not over-emphasize the value of material strength. We already have given it too much emphasis.

A battle is essentially a clash of wills, success going to the will which is stronger; defeat occurs in the mind rather than in the body of an army; without leadership, skill, courage, training, and discipline any preponderance of weapons and equipment is valueless.

Redesigned Gun

Following satisfactory tests, Australia's Mobile Field Force, the 1st Infantry Brigade Group, has been equipped with a redesigned version of the *Bofors* 40-mm. anti-aircraft gun. The redesigned weapon features power operation.

THE ROLE OF RESERVES

DR. DHARM PAL IN THE *Journal of the United Service Institution of India**

The role of reserves in the winning of battles has not received the attention it deserves at the hands of the writers of military history and strategy. Yet at the crisis of the battle, when the rival forces are locked in a life and death struggle, it is the judicious use of an effective mobile reserve at the right time and the right place which clinches the issue. A critical study of famous battles might help to emphasize this point.

Defensive Role

Reserves act as a support to the forward troops. It is an important role, for without adequate and effective reserves it may not be possible to arrest the tide of enemy advances, particularly if the forward troops fail to stem it.

On 21 March 1918 the mighty German offensive opened on the Western Front. The sector chosen for the attack extended from Arras to La Fère. The northern part of this sector was held by the Third Army. It was upon the VI Corps of this army that the storm burst in all its fury—three divisions were in the line, the fourth being in reserve.

The story revolves around the exploits of one of these divisions in the line—the British 59th Division. It was deployed on a front of over 500 yards and covered the important villages of Bullecourt, Ecoust, and Noreuil. Two brigades held the line—the 178th Brigade on the right and the 176th Brigade on the left—while the 177th Brigade was in reserve. Such was the concentrated weight of the German blow that both the forward brigades were practically annihilated.

The tide of German victory would have rolled on but for the fact that the support brigade (the 177th Brigade) still barred the way. These reserve troops occupied the third defence line, and it was against this defensive position that the edge of the attack was blunted. According to Arthur Conan Doyle in *The British Campaign in France and Flanders* (January to July 1918), from this strong defensive position the the reserve brigade

. . . defied every effort of the Germans to get forward from Ecoust. This position was well-

**This article was digested by the* Military Review *(U.S.) and is reprinted from that publication.*—Editor.

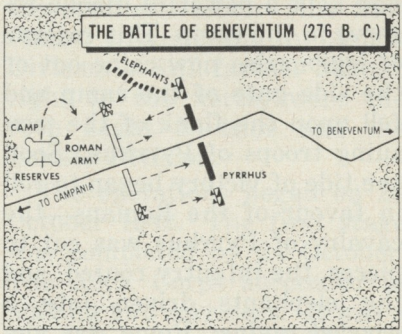
covered by artillery and supported by machine-guns. So strong was the defence that the enemy were beaten back three times, and on the last occasion, late in the afternoon took to their heels. Shortly afterward the 120th Brigade from the 40th Divison came into support, and the situation was saved for the day.

How terrific the strain had been upon the 59th Division may be judged from the fact that its casualties were nearly 5,000. In spite of these losses the British troops held the line. Although the forward troops were overwhelmed, the reserves remained steady as a rock and saved the situation from further deterioration. When evening came they were still manning the third defence line, with their right linked up with the 6th Division and their left with the 34th Division. Thanks to the dogged resistance of the reserve troops the British line had held firm.

Defensive-Offensive Role

The reserves not only act as a support to the forward troops, but they also serve as a rallying point for the routed forward troops enabling them to resume the offensive and thus turn the defeat into victory. A study of two famous battles—Beneventum (276 B. C.) and Syracuse (413 B. C.)—demonstrates this.

When Rome had become the leading power in Italy by 295 B. C., the Greek city-state on the Italian coast — Tarentum (Taranto) — felt apprehensive and sought the help of Pyrrhus, a leading soldier of his day, and King of Epirus and kinsman of Alexander the Great. Pyrrhus landed in Italy in 280 B. C. and defeated the Romans in two battles, at Heraclea and Asculum. He then went to Sicily and returned to Italy in 276 B. C. when he was defeated by the Romans at Beneventum. The



decisive role of reserves at the Battle of Beneventum deserves to be noted.

The Roman Army was led by Cornelius Lentulus, a gifted general. Under his able leadership the Roman formations on the right and in the centre dealt powerful blows. The Greek formations reeled under the impact of the powerful

blows and were disorganized considerably. But on the Roman left, Pyrrhus launched a powerful attack with his elephants. Neither the Roman infantry nor the cavalry could check the advance. The formations on the Roman left were thrown into confusion and driven right to the walls of their camp. It was the crisis of the battle.

If Pyrrhus had succeeded in capturing the camp he would have taken the rest of the Roman Army in the rear and routed it. But with his usual foresight the Roman general had kept a powerful mobile reserve in the camp. This reserve of legionaries now came out of the side gate of the camp and fell upon the flank of the pursuing troops of Pyrrhus. Soon the tide of victory began to roll in favour of the Romans—the cavalry of Pyrrhus was cut to pieces, the infantry routed, and the elephants driven into a wooded ravine. Rome was victorious all along the line. The well-deserved victory undoubtedly was due to a judicious use of a strong mobile reserve which played the defensive-offensive role skillfully.

A strong reserve played an equally important part in the Battle of Syracuse (413 B. C.) when the invading Athenian forces were defeated. Flushed with the power and confidence born of many a victory gained, the Athenian Army tried to capture Syracuse and thus to bring Sicily under its control. The Greek general displayed great skill in outflanking the strong defences and captured a narrow ridge from whose summit the Athenian forces surged forward for the attack on the town. Gylippus, commanding the forces of Syracuse, met the situation with great courage and skill. He dispatched forces in haste to check the Greek advance but wisely kept a strong reserve — a brigade of Boeotian troops famous for their discipline and steadiness on the battlefield—outside the city walls.

The forward troops of Syracuse were defeated and fled pell-mell down the slope of the ridge toward the city. There was utter confusion and disorganization. The battle seemed to be lost. But amid the general consternation of the Syracusans the troops of the reserve brigade stood firm. Sir Edward Creasy, in his *Fifteen Decisive Battles of the World,* said:

Coolly and steadily the Boeotian infantry formed their line, and, undismayed by the current of flight around them, advanced against the advancing Athenians. This was the crisis

of the battle. But the Athenian van was disorganized by its own previous successes; and, yielding to the unexpected charge thus made on it by troops in perfect order, and of the most obstinate courage, it was driven back in confusion upon the other divisions of the army, that still continued to press forward. When once the tide was thus turned, the Syracusans passed rapidly from the extreme of panic to the extreme of vengeful daring, and with all their forces they now fiercely assailed the embarrassed and receding Athenians.

Thus the reserve brigade succeeded in converting defeat into a victory.

Offensive Role

By far the most important part played by the reserves is to act as the spearhead of the final attack to achieve decisive results. The finest example of this role of reserves is provided by the Battle of El Alamein (23 October-7 November 1942). General Montgomery held the line with two corps—the XXX Corps in the northern sector from the coast to Ruweisat Ridge and the XIII Corps in the southern sector. The troops were disposed from north to south in this order: the 9th Australian Division, the 51st British Division, the 2nd New Zealand Division, the 1st South African Division, the 4th Indian Division, the Greek Brigade, the 50th British Division, the 44th British Division, and the Free French. In reserve in the north was the X Armoured Corps (the 1st Armoured Division and the 10th Armoured Division). The 7th Armoured Division was in the south.

As regards the Axis forces, the infantry held the frontline while behind them in depth were four armoured divisions—two in the northern sector (the 15th Panzer division and the Littorio Division) and two in the southern sector (the 21st Panzer Division and the Ariete Division). Still farther behind, right in the north, were the 90th Light Division and the Trieste Division.

The operations began on 23 October 1942. The first stage was completed by 24 October. The XXX Corps succeeded in making two corridors. It was a valuable gain. The failure of the XIII Corps attack did not matter much. In fact, the main object was achieved, that is, to compel General Rommel to retain his 21st Panzer Division on this secondary front. The second stage lasted from 24 to 30 October. Through the two corridors in the northern sector the X Armoured Corps advanced to give battle to the

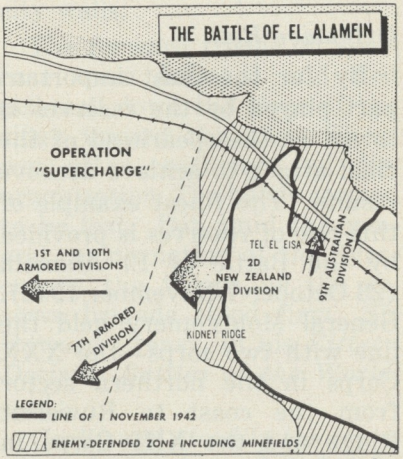
Axis armour. The 1st Armoured Division passed through the northern corridor and the 10th Armoured Division through the southern corridor. Both divisions took up positions beyond the minefield and beat back the fierce German counter-attacks.

The momentum of the attack was kept up by the 9th Australian Division attacking north toward the sea and the 1st Armoured Division attacking due west toward the Rahman track which was the key to the Axis supply lines. The attack by the 9th Australian Division took place during the night of 25-26 October and was successful, for the entire vital Tel el Eisa ridge was captured. However, the attack by the 1st Armoured Division was unsuccessful.

These attacks served a useful purpose in deceiving General Rommel about General Montgomery's intentions of launching the final attack. General Rommel was convinced that the main Allied attack would be made in the extreme northern part of the northern sector. General Montgomery completely outwitted General Rommel, for although keeping up pressure in the Australian sector, he decided to launch the main attack from an unexpected quarter that is Kidney Ridge. For this purpose he regrouped his forces.

He pulled out the 7th Armoured Division from the static southern sector. He also pulled out the 2nd New Zealand Division. The first Armoured Division also was drawn into reserve. Thus General Montgomery created a powerful reserve force of the 2nd New Zealand Division, the 1st Armoured Division, and the 7th Armoured Division, ready to stage the break-through and deliver the knockout blow to the Axis forces.

General Montgomery's plan to achieve the break-through and destruction of the Axis forces was given the code name of "Supercharge". The prelim-



inary attack was made by the 9th Australian Division during the night of 28-29 October in order to confirm General Rommel's suspicions that the main

Allied attack would be made from that direction. This attack served a useful purpose, for General Rommel reacted to the threat in this area by moving up the 90th Light Division to Sidi Rahman. The 21st Panzer Division also had been moved from the southern sector to a place opposite Kidney Hill. Thus the stage was set for a final and decisive battle.

General Montgomery had succeeded in concentrating a strong reserve force opposite Kidney Ridge for a vigorous attack whereas the German forces were mainly concentrated at the wrong place (extreme northern part of the northern sector) where they expected the main Allied attack to develop. In order to deceive the enemy still further the 9th Australian Division started another attack on 30-31 October and gained some success. The main attack by the 2nd New Zealand Division started on 2 November. This division broke through the gap created by the Kidney Ridge.

The stage was now set for the X Armoured Corps (comprising the 1st, 7th, and 10th Armoured Divisions) to pass through the gap created by the 2nd New Zealand Division and attack and annihilate the Axis forces. It struck the *Afrika Korps* like a thunderbolt. Axis armour was destroyed at the Battle of Tel el Aqqaqir, and the Battle of Egypt was won. A strong mobile reserve force, acting as the spearhead of the final attack, had achieved decisive results.

Vital Role

The reserves indeed play a vital role in the winning of victories, but much depends on the judicious use of the reserves at the right time and the right place. A study of the mighty German offensive of 1918 on the Western Front will be fruitful in emphasizing this point.

The Russian debacle in 1917 enabled Germany to switch over the forces from the Eastern Front for a final knockout blow on the Western Front in March 1918. Three features of this campaign deserve to be noticed: first, the mistake of Sir Douglas Haig (commanding the British Expeditionary Forces) in keeping the majority of the reserves in the wrong sector; second, the mistake of Mr. Lloyd George (the British Prime Minister) in not dispatching reserves from England to the Western Front; and third, the mistake of the German Commander Ludendorff in throwing all his reserves into the offensive.

The German offensive was

launched on 21 March 1918 on a sector extending from Arras to La Fère. The Third Army (under Sir Julian Byng) covered the ground between Arras and Cambrai while the Fifth Army (under Sir Hubert Gough) carried it south from that point. Although there was heavy fighting in the northern sector (on the Third Army front), it was the southern advance (against the Fifth Army) which turned out to be the spearhead of the German attack. The Fifth Army held a front of about 40 miles with four corps. There were only three divisions in reserve behind the Fifth Army front. Besides these reserve troops the nearest supports were at a distance of at least three days' journey, and consisted of a single unit, the 8th Division. With inadequate reserves Gough failed to maintain his line.

The Fifth Army reeled under the hammer blows and had to beat a retreat, thus considerably disorganizing the Allied front. Gough attributed the failure to maintain his line to the inadequacy of reserves. Mr. Doyle explains:

He was of opinion, and the opinion was shared by some at least of his corps commanders, that had he had four or five divisions of reserves within easy call, he could unquestionably have held the line.

Sir Douglas Haig's disposition of his reserves undoubtedly was faulty. Out of the 18 British divisions in reserve only three were disposed behind the Fifth Army Front; six divisions were behind the Third Army, while the rest were still farther north where no attack was expected and, in fact, none developed. Liddell Hart commented in *A History of the World War 1914-1918:*

Haig's justification for keeping his reserves in the north until he was absolutely certain of the German aim lay in the narrowness of the space that there intervened between the front and the Channel ports. But it is not a complete explanation of his attitude. That was influenced to some extent by his prolonged doubt of the German intentions: at a conference of his army commanders on 16 February he expressed the view that the main blow, if the Germans attacked early, would probably be made against the French.

Haig was, in fact, completely outwitted for he failed to make a correct appreciation of the enemy intentions. As Liddell Hart said:

Haig's sense of the key importance of the Arras bastion was justified by the event. But,

in keeping the bulk of his reserves in the north, he risked the security of the already thin Fifth Army in order to have ample insurance against a less probable risk to the Channel ports.

Another remarkable fact is that a very large number of draft reserves were kept in England at the time of the opening of the German offensive. Mr. Doyle wrote:

Within a month of the battle 350,000 had been sent to the front—a very remarkable feat, but a sign, surely, of an equally remarkable omission. Had 10 emergency divisions of infantry been made out of the more forward of these drafts, had they been held ready in the rear zones, and had the actual existing reserves been pushed up to the front, it is safe to say that the German advance would have been stopped earlier and would probably not have got beyond the Perrone-Noyon line.

The failure to send reinforcements to the Western Front was due mainly to the friction between Sir Douglas Haig and Mr. Lloyd George. The latter was annoyed at the failure of Haig's offensive operations, begun on 31 July 1917, and commonly spoken of by the title of "Passchendaele". Liddell Hart said:

Throughout the months following Passchendaele and preceding the German offensive, Lloyd George was assiduously seeking to create a power above Haig, as dismissal would have raised a political storm. His solution was the Supreme War Council in control of a general interallied reserve. But the scheme was thwarted by Haig's action. For, having no belief in the method of battle control by committee, he shattered it by his refusal to contribute his small quota of nine divisions.

That did not improve matters. Liddell Hart continued:

Conscious of his responsibility to the nation, and personally distrustful of Haig's judgment, Mr. Lloyd George placed a firm check on the flow of reinforcements to France lest they should be poured down another offensive drain-pipe.

Ludendorff's Mistake

In this campaign of 1918 Ludendorff threw all his reserves into the offensive in a bold bid to win a decisive victory. Marshal Foch (Commander in Chief of the Allied Armies), on the other hand played a cautious game, husbanding his reserves until the last moment when the Allied forces took up the offensive and rolled back the exhausted German forces in headlong re-

treat. This point deserves to be emphasized.

Nearly a hundred German divisions were used against the British line in the great Somme offensive which began on 21 March and ended in the first week of April. The Germans undoubtedly made important gains but they suffered heavy casualties.

The second colossal German thrust was made at the Lys on 9 April. The blow fell upon Horne's First Army. By 8 May the Germans had been fought to a standstill. Doyle had this to say:

They had in the course of a month's fighting won ground, prisoners, and guns, but it is possible in winning a battle to lose a war, and this is exactly what they had accomplished. An expensive and barren success had been achieved by a lavish use of their reserves, and on the day when those reserves were vitally needed, they had been wastefully strewn over the plains of Somme and of Flanders. Never had the British Army been more sevverely tried than at this time when their General issued his famous "back to the wall" appeal, and never had the individual soldier risen to greater height.

The third colossal German thrust was made on the Franco-Britsh front between Reims and north of Soissons, along the famous Chemin des Dames. The operations lasted from 27 May to 2 June. The Germans won a complete victory, capturing 45,000 Allied prisoners and at least 400 guns. As Doyle stated:

It was the third great blow of the kind within nine weeks, and Foch showed himself to be a man of iron in being able to face it and not disclose those hidden resources which could not yet be used to the full advantage.

The German success, however, proved to be a prelude to the defeat, for the German reserves had been eaten up in these three mighty thrusts. When Ludendorff opened his campaign on 21 March 1918 he had a credit balance of 207 divisions, 82 in reserve, but when he opened his new offensive on 16 July, he had only 66 "fit" divisions in reserve, most of them really so "watered down" that they could hardly be counted as sound assets. The result was that the German offensive on 16 July came to a halt against stiffening opposition. In *The British Campaign in France and Flanders* (July to November 1918), Doyle summed it up:

Foch had now bled the Germans until they had lost their

FAULTY TEACHING

Far too much instruction in tactics is done on a blackboard. It is easy for the instructor to demonstrate to his class all-round defence and mutual support on a flat board. Four companies shown as circles spaced equidistantly and symmetrically within a large battalion circle, one of three spaced equidistantly and symmetrically within a large brigade triangular sector. Arrows radiating from each c i r c l e, all conveniently interlocking and covering every point of the compass. And look at the depth!

This is the easy way to teach, and to the ignorant, learn tactics. These are the broad arrows beloved of newspaper scribes in war demonstrating encircling movement, left hooks and break-throughs.

Let us beware of this method of teaching. Let us understand that diagrams on blackboards can only show principles and schematic drawings of techniques. The study of tactics from maps may be a little better; it leads too often to the manoeuvring of three-penny-piece companies on a 1:25,000 map.

The only practical way to learn tactics is on the ground with troops. The first requirement is to understand sub-unit operations. Start with the section; the platoon, the company and on up the ladder are only variations, larger in area, more numerous in numbers, of an old theme. Nuclear weapons, tactical television, aerial jeeps cannot alter that old theme—fire and movement, the basis of all tactics and proven principles.—*—Lieut.-Colonel J. J. Ballard, OBE, Royal Australian Signals, in the Australian Army Journal.*

The Role of the Reserves

(Continued from preceding page)

power of resistance. The moment for his great counter-attack was at hand, and the carefully husbanded reserves were ready for the crisis — those reserves which it was his supreme merit to have hoarded up when the temptation to spend them was more than the firmest will could have been expected to resist. On 18 July the blow fell, and the Germans recoiled in a movement which was destined never to stop until they had crossed the Rhine.

LOGISTICAL SUPPORT UNDER MODERN CONDITIONS

LIEUT.-COLONEL K. LEONOV IN *Tyl i Snabzheniye Sovetskoy Armii* (*Logistics and Supply of the Soviet Army*) (*USSR*)*

The art of achieving a rapid and decisive victory over the enemy with the minimum losses to personnel and equipment requires continuous and inquisitive search for new armaments, better organization of tactical groupings, and reliable methods of administrative support. The one able to solve these problems in peacetime will have greater expectations for success in war.

The history of armies and warfare teaches us that the economic level of a country and the achievements of science have always been of decisive influence on the organization of armies, their tactics, and the methods employed in administrative support. Consequently, problems on the organization of armies and modes of conducting combat, and, equally, problems of material, technical, and medical support must be solved in relation to the economic resources of the country and its technological achievements.

However, it would be a mistake to suppose that questions relating to the organization and operation of the logistical services can be solved solely on the basis of economic and scientific achievements. The logistical rear is an integral part of the forces in the field. Therefore, its organizational structure must be in complete accord with the organizational structure of combat units, and its functioning must be related to the type of combat operations. Any violation of this rule may place the logistical rear in a position of not being able to provide continuous administrative support to units in combat. Thus the organization and operation of the logistical rear depend primarily on the organization of combat units and the character of combat operations.

Mission of Logistics

Modern war is characterized by high manoeuvrability and fluidity. It will be accompanied by rapid changes in situations and great, uneven expenditures in supplies. This complicates the operations of the logistical services, and the battlefield employment of mass destruc-

**This article was translated for the* Military Review *(U.S.) by Major Gavrisheff, U.S. Army Reserve, and this digest is reprinted from that publication.*—Editor.

tion weapons presents a number of additional difficulties.

Notwithstanding the changes that have occurred in matériel, in the organization of combat units, and in the character of combat itself, the primary mission of logistics remains: to provide timely and complete administrative support to combat units.

Logistical support units must be prepared fully for operations under any conditions. In addition to modern technical equipment, a high degree of combat training is required for logistical personnel.

The high mobility of troops and the dynamic character of combat will require that logistical support be provided to troops regardless of their condition, activity, or time of day. Therefore, logistical services must be highly mobile.

The mobility of the logistical rear must not depend on the type of terrain and condition of the roads. Combat operations may take place under the most varied conditions, and the logistical rear will be required to follow relentlessly, fully prepared to provide support at any given moment. This means that support units must have organic transportation capable of following immediately in rear of combat units without inhibiting the manoeuvre of combat forces or diverting strength and means away from them.

Obviously, the problem of increasing the mobility of the logistical rear initially is tied to the solution of the organizational structure of administrative support units and facilities, to acceptable levels of mobile reserve stocks, to the organization of transportation facilities, services, and to a number of other factors.

Mobile Reserve Stocks

When we consider mobile reserve stock levels we cannot escape the following contradiction: increased expenditures of supplies in modern combat require an increase in transportation, but the commander, in making his decision, must be certain that his mission will be fully supported logistically; and an increase of reserve stocks increases logistical operations which in turn reflects adversely on the mobility of the logistical rear.

The problem of mobile reserve stock levels must be solved on the basis of properly calculated average daily consumption rates, resupply capability, and a number of other factors. The conduct of battle has always involved the expenditure of various material supplies, the reserves of which

must be restocked through deliveries.

In a situation when the offensive progresses at a high rate during night and day, it will be necessary to resupply stocks in such a manner that logistical operations do not impede the forward movement of troops. Consequently, transportation units must work with the minimum expenditure of forces and time in delivering supplies. The mechanization of loading and discharging operations is of great importance, not only at supply depots and points, but also when delivering goods directly to combat vehicles and artillery positions.

Packaging

The various classes of supply intended for combat troops come in a great variety of packaging and different weights. This complicates their loading on vehicles, often resulting in vehicle capacities not being fully utilized. It also increases the time required to unload a motor convoy. A standard package, similar to a meduim-size railroad container, which may be prepacked at supply depots and loaded on vehicles with the aid of small cranes must be developed.

Packaging for the transportation of POL (petroleum, oil, and lubricants) must be mentioned separately. It would be sensible to develop some kind of soft packaging. This would have several advantages: smaller space requirements, more adaptable for transporting (and this is very important when displacing POL depots), and no special equipment needed for storage. General application of soft packaging must be found when supporting ground operations, airborne operations, and in the support of forces making an encirclement.

Distribution

In order to provide for timely and continuous support operations in rapidly changing situations on the battlefield, firm direction and control of distribution is essential. Consequently, it is necessary to have sufficient means of radio communications. However, due to interference that the enemy may create on the battlefield, distribution control cannot be achieved solely by this means of communications. Therefore, the chief of logistics also must have mobile means of wire communication. In addition, regulating services must be well-organized.

Due to the battlefield employment of mass destruction weapons, distribution control may be disrupted even when

the logistical services have a sufficient amount of different types of communications. All measures must be taken to develop uniformity of views on organizational questions and methods of operation of the logistical services. Logistical personnel must acquire independence in the solution of problems before them. This will ensure timely and complete support of units in combat, even when positive distribution control in rapidly changing situations has been lost.

Air transportation, especially helicopters, must find general employment. In connection with this, logistical support units must have means to communicate with aircraft. In addition, service support units must be capable of discharging supplies from aircraft in the shortest period of time so as to load the sick and wounded requiring evacuation. Air transportation must be released quickly, and additional transfer operations must be eliminated.

We have considered only a few of the requirements placed before support organizations. But, from the above, it can be concluded that for timely, continuous resupply of expended reserve stocks, a powerful means of transportation with good overland capability is still not enough. It will be necessary to solve many other problems of an organizational and technical nature.

Unit Supply

As is known, during World War II, the principle of supplying from higher to lower units (unit supply)—when the senior commander delivers supplies to his subordinates using his own means of transportation — was in effect. Under conditions of relatively low mobility, absence of a sufficient amount of transportation, relatively low rates of forward movement, and the great distances between field army and division supply depots (and division and regimental supply points), this principle was the only correct one and was fully justified. It ensured effective utilization of the weak divisional transportation to supply regiments, and enabled the regiments to provide timely support to battalions.

The comparatively low expenditures of material supplies in combat permitted army transportation to accomplish the entire volume of supply without meaningful transportation support from the army group.

However, even during the Second World War, this principle was not always adhered to: regiments brought supplies

from division depots using their own means of transportation, and division transportation was, at times, used in the field army echelon. Today, there are even greater reasons to suggest that situations will be created in which the principle of unit supply will be illogical. These situations are determined largely by the thought that troops are fully motorized, their manoeuvrability on the battlefield has been enhanced, the expenditure of material resources has increased, and logistical support units have been equipped with modern vehicles of good overland qualities, increased speeds, and large capacity.

In order to provide timely logistical support using the transportation of the next higher echelon, that echelon must possess a great number of motor vehicles. But the facilities of the combat units would be idle because, in providing support to lower units, each vehicle of the higher echelon would need to make only a few miles a day, and lower echelon transportation would be used even to a lesser extent.

Finally, it should be remembered that the concentration of a large number of vehicles in the rear of combat units, not only those of the units themselves, but also of those coming with supplies from the higher echelon, is undesirable. This will expose the troops and may even cause unjustified losses in vehicles.

The changes that have occurred in the mechanization and motorization of combat units and their logistical services are characteristic of modern warfare. These are factors that cannot be ignored when organizing logistical support. It will be necessary to deviate from the unit supply principle more often than has been the case during the Second World War, organizing instead supply by the lower unit using its own motor transportation.

Medical Support

Modern combat presents a series of new requirements in the organization of medical support. Enemy employment of atomic and other mass destruction weapons may, in one instant, cause a great number of casualties over a large area.

Under these conditions timely location, concentration, and evacuation of casualties to aid stations are of prime consideration. Medical organizations must have the necessary means such as sources of light which will not expose medical personnel on the battlefield at night and which, at the same time, provide normal conditions

for work. Medical units also must have highly mobile means of transportation.

The rapid forward movement of combat units in the offensive will require frequent displacement of medical installations. In order to provide assistance to the wounded, regimental medical stations usually have to halt. Even when medical personnel are well-trained, a great deal of time is needed to set up and prepare for operations. Some time is required to process each casualty and prepare him for evacuation. Consequently, when the flow of wounded is great, the distance between medical stations and combat units in the offensive will either increase to considerable distances, or medical support units will be required to decrease the amount of assistance.

To prevent the occurrence of either case, it is important to ensure the functioning of aid stations while they are on the move or when making momentary stops. This can be achieved if the medical service is provided with various mobile types of installations such as surgical and bandaging sections situated on trucks or trailers.

The timely displacement of medical stations in rear of frontline units depends largely on the rapidity of evacuation of the sick and wounded. Therefore, medical stations must not be dependent on a special allocation of transportation for evacuation purposes or on the use of empty vehicles moving to the rear. They must be able to perform evacuation with their own organic means of transportation.

As to medical support provided in case of radiation sickness, a subject reserved for specialists, a number of problems also must be solved so that medical support will always be available to troops in the complex conditions of modern warfare.

Subsistence

The organization of subsistence supply is no less important. The preparation of hot food and its distribution to troops in combat is exceptionally difficult. Preparing food for cooking and the cooking itself should be done while on the move. It would be logical to install kitchens on trucks for this purpose. Obviously, all other mechanisms used for the processing of food products also must be installed in vehicles.

Battalion food service points should be supplied with semi-prepared food products. This will simplify their final preparation and increase the speed of cooking considerably.

The dry ration issued to troops must be such that no great amount of time, effort, or special equipment should be necessary to prepare it for consumption.

When transporting and storing subsistence supplies, special attention must be given to protection from the effects of atomic radiation, and bacteriological and chemical agents. Special packaging will be required. The packaging must be cheap, light, and convenient.

Rear Areas

Another problem of great significance must be mentioned. In modern combat the logistical rear will operate under constant threat of enemy attack from the air and deep penetrations by enemy ground forces. Also, the possibility of attack by long-range artillery and guided missiles cannot be excluded. Consequently, rear area defence and security is of prime importance. These measures usually are undertaken by organic means. Therefore, the logistical rear must be provided with equipment that will permit a great amount of engineer work and modern armaments to defeat enemy ground penetrations.

Conclusions

Without exhausting all the problems connected with the successful operation of administrative support units in modern combat we can make certain conclusions.

A primitively organized logistical rear is incapable of providing timely and full support to combat units. In order that logistical services may be able to cope with their mission, further research will be necessary in the field of mechanization and motorization of logistical operations.

Administrative support for combat units must be highly mobile, flexible, and easily controlled. Logistical support units must be prepared to operate while on the move or during short halts.

The motorization and mechanization of the logistical rear must not be a burden to combat units. Equipment for the logistical services must be simple in construction and handling, efficient, and flexible to the maximum degree.

In organizing forward movement of supplies it is desirable that the use of transportation be productive in both directions and that it provide timely delivery of goods to combat units with the minimum expenditure of means.

Arms and matériel for logistical personnel and installations must ensure reliable defense and security from pos-

MORAL DISCIPLINE

Now it is an important objective of education to instil into every man, not only critical faculty, which enables him to see what is wrong with things as they are but the feeling of confidence in himself and his fellow countryman, of his own and other people's ability to pull themselves out of present difficulties, and correct present faults, and to face present dangers.

I do not believe that any good training in any legitimate course of study, scientific or in the arts, by a worthwhile teacher can fail to instil this sense of purpose and loyalty. For, in the long run, all education is moral education. To undergo any sort of training of the mind or in physical skills is to undergo a moral discipline. But moral qualities belong to individuals, not to society, and still less to the State. A society is morally sound, and a State acts justly and wisely only to the extent that its members and leaders act wisely and in accordance with the natural moral law.

First cast out the beam from your own eye is a good maxim whatever your personal faith. The society you live in will merit your love and confidence only if you yourselves are people meriting love and confidence. The defects of society are our defects: we must cast them out of ourselves, and replace them with the spirit of love and service, if we do not wish to see them in society.—*Lord Hailsham, speaking at the Royal Aircraft Establishment Technical College, Farnborough, United Kingdom.*

Expendable Wrist Watches

Expendable wrist watches are being considered by the [U.S] Army for use by crews of tanks and armoured vehicles. Evaluation tests are being conducted at Fort Knox, Kentucky. The watches, enclosed in plastic, waterproof cases, are designed to have a minimum life of one year and would cost about $6.00 each.

Logistical Support Under Modern Conditions

(Continued from preceding page)

sible enemy attack.

In this manner modern logistical support services, both in their organizational structure and modes of operation, should fully conform to the organizational structure and operations of tactical units.

AN INQUIRY REGARDING MODERN WAR

LIEUT.-GENERAL ZENO ESTILLAC LEAL IN *Mensario de Cultura Militar* (BRAZIL)*

In reply to a series of questions regarding atomic war which were addressed to him by a member of the press, His Excellency Lieutenant General Zeno Estillac Leal, Brazilian Army Chief of Staff, prepared the following answers:

Do you believe that atomic weapons will prevail in a future armed conflict?

It is true that there may be some conflicts of secondary importance which will not involve the interest of the major powers. These will, obviously, be less and less frequent in view of the probable intervention by the United Nations (which in such cases, certainly will be very effective) and also by the respective local systems of collective security. These measures, if not capable of completely averting the conflict, at least will keep it from gaining force and spreading. These armed conflicts will assume the "conventional", sometimes called "classic", form with a reasonable probability of not becoming a nuclear war.

With the exception of the above cases, everything makes us believe that atomic and nuclear weapons will be used in future conflicts and, even though not actually employed (as in the case of the so-called limited wars), their tremendous potential or "deterrent effect" will be felt. This will be a very decisive element in the limitation of any war—if such limitation is possible in view of the national political interests and objectives at stake.

The constant threat of the possible use of these weapons by the enemy and the temptation we have of using them to compensate for serious reverses or to secure certain important successes will constitute, in any case, the extremes of a terrible dilemma which will revolutionize completely the concept and conduct of war operations now and in the future.

Generally speaking, therefore, armed conflicts even though not "atomic" will take place under "atomic conditions". Such situations will become worse when the atomic monopoly begins to disappear and other world powers ready

**This article was digested by the* Military Review *(U.S.A.) and is reprinted from that publication—* Editor.

themselves for the production and employment of such weapons.

The increasingly serious threat of mass destruction, part of the concept of atomic war itself and no less implicit in limited wars, explains the frequent recourse to the so-called subversive, unconventional, or social-revolutionary war so popular with Communist bloc. This is not only one of the means of the "war by proxy" in which the principal parties remain behind the stage, but a very special war which employs its own highly profitable tactics and techniques — sabotage, guerilla action, assassinations, partisan warfare, irregular forces, and "volunteers". In this camouflaged type of aggression, whether indirect or direct, the ideological factor is seen very clearly. In such wars atomic weapons cannot be advatageously employed unless through their deterrent power against third parties, or with a view to keeping the subversive action from developing into a major war.

In case of a major war do you believe that atomic weapons and other such devices will be employed indiscriminately and without limitations, or do you think that they more probably will be employed only in tactical operations?

The tactical employment of atomic weapons and other devices is being viewed with increasing interest by the major powers and even by those who count on having these weapons supplied by those who have the monopoly for their mass production.

Undoubtedly, the organization of larger ground units capable of employing these weapons, such as the new pentomic division of the United States, makes it possible to compensate for a lack of manpower. Thus they can face, with certain advantages, the flooding mass attacks of those countries with tremendous manpower reserves.

On the other hand it is becoming increasingly difficult—and it will be more so under the pressing conditions of actual war—to determine definite boundaries between the tactical and strategical employment of these mass destruction weapons. This will still be possible, however, in limited or local wars, especially in the so-called wars by proxy. With regard to a major war in which the atomic powers become openly involved, the effective application of any techniques of limitation of armed conflict, either by defining the area of

operations through the selection of targets or by ruling on the weapons which will be employed, seems extremely improbable.

In certain cases we might admit that the interests of one or the other of the principal belligerents possibly could limit the war if evaluated in the light of possible retaliation and of the real value of the political objectives in question. But our opinion is that the tendency of war, in the future as in the past, is to become total through the indiscriminate employment of all available means—without any humanitarian scruples or any feeling of sentimentality—whenever really vital interests to both sides are at stake, and particularly when it involves the problem of survival of nations.

Also, other countries besides the United States and the USSR soon will become atomic powers. Once the monopoly held by these two is broken, the possibilities of an atomic war becomes greater than ever.

Do you think that any country today holds a superiority with regard to atomic weapons which would enable that country to employ them to decide a war as was done by the United States against Japan in the last world war conflict?

At the moment we are in a position of almost parity between the West and East. We do not have, however, on either side such a degree of superiority as would permit an absolutely decisive employment of atomic and nuclear weapons. Even after an atomic exchange, and in spite of the extraordinary advantages which the aggressor would have in view of his initiative in the attack, both blocs still would have an appreciable residual capacity to continue the war, the outcome of which would probably be favourable to the one that held the greater economic power.

Furthermore, even in World war II, atomic bombing did not represent the truly deciding factor of the war between the Western Allies and Japan. As we know, the Japanese Empire was already vanquished and had already initiated peace negotiations when the bombs were dropped in Hiroshima and Nagasaki.

Do you believe that Brazil should prepare herself for the atomic war? If so, in what manner and in which degree, considering the country's material resources on one side and the risks involved because of its politico-geographical position?

Brazil should undoubtedly prepare herself for a war

"under atomic conditions" in which we may see ourselves involved, especially in operations outside the continent. We cannot feel completely at ease regarding the possibility of action against our coasts and principal centres by enemy elements having atomic weapons and other devices. This increases the importance of the civil defence measures.

On the other hand, the degree to which we should prepare ourselves for an atomic war will result, naturally, from the increase in the scientific, technological, and industrial development of the nation.

Each country should equip its armed forces with the most modern and efficient equipment necessary to any military action for the preservation of national objectives. However, the limitations of the national economy always will condition the process of preparation for security.

A great portion of the preparation of officers and, to a certain extent, the troops, can be carried out with appreciable and profitable results, even though we do n ot have all the latest and most efficient weapons.

The army would not be performing its mission if it did not prepare itself, without delay, for all forms of war which we admit to be possible: the *classical war* still fought with conventional weapons, the *atomic war* and *war under atomic conditions*, and, finally, the *subversive* or *unconventional war*.

Preparations for wars that are so diverse in nature, and the organization of a military instrument capable of facing all of them, are problems of the most serious nature. The difficulties involved in arriving at a solution are self-evident.

DRB Appointment

The Defence Research Board, Department of National Defence, has announced that Benjamin O. Baker of Quebec City, Superintendent of the Mechanics Wing at the Canadian Armament Research and Development Establishment, Valcartier, has been appointed Director of Weapons Research at DRB Headquarters effective 1 August, 1959. Mr. Baker succeeds G. D. Watson, recently named as Scientific Adviser to the Chief of the General Staff.

DECENTRALIZATION AND DELEGATION OF AUTHORITY

While Ulysses was away at the Trojan War about 1200 B.C., his friend Mentor undertook the care and education of his son Prince Telemachus. Mentor's advice to the Prince on the subject of decentralization of effort and delegation of authority loses nothing of its force with the passing of the centuries.

"The proof of abilities in a king, as the supervisor of others does not consist in doing everything himself. To attempt it is a poor ambition; and to suppose that others will believe it can be done, an idle hope.

"The king should not be the body, but the soul. By his influence and under his direction, the hands should operate and the feet should walk.

"He should conceive what is to be done, but he should appoint others to do it. His abilities will appear in the conception of his designs, and the choice of his instruments.

"The good supervisor is he who, doing nothing, causes all to be done; who meditates and contrives, who looks forward to the future and back to the past; who sees relative proportions and arranges all things in order to provide for remote contingencies.

"A craftsman, in his workroom, sees everything with his own eyes, and does everything with his own hands, but a king who presides over a nation can neither see all nor do all. He ought indeed, to do nothing himself but what another cannot do under him; and to see nothing that is not essential to some determination of great importance."—*From the Australian Army Journal.*

Guided Missile Development

In the technical areas [of missile systems] our continuing objectives are to achieve simplicity, ruggedness, pin-point accuracy, and reliability. We are seeking higher specific impulse in advancing the development of improved solid and liquid propellants and propulsion systems. We are seeking further weight reduction by such directed investigations as miniaturization, improvements in guidance and control, and counter-measures immunity.—*Maj.-Gen. John B. Medaris, U.S. Army.*

Book Reviews

Our Regiments and Their Histories

Reviewed by Colonel C.P. Stacey, OBE, CD,
Director of the Historical Section, Army Headquarters, Ottawa

When an American scholar produces a painstaking work of research about the Canadian Army, it is practically like a man biting a dog; it is certainly news. The present book* is a very rare and probably a totally unique production.

The scholar in this case is Mr. C. E. Dornbusch, by profession a member of the staff of that extraordinary institution the New York Public Library, and by avocation an amateur military historian and a literary detective. His book *The Canadian Army, 1885-1958: Regimental Histories and a Guide to the Regiments* has been with him a labour of love for many years, and the Army has reason to be grateful to him for the tremendous task of investigation which he has performed.

The book does two things. First, it gives the reader thumbnail histories of the armoured and infantry regiments of the Army, both Regular and Militia, specifying the dates of their origin, the successive designations they have borne (an extraordinary number in some cases), and the various amalgamations that have taken place. Secondly, the book presents a complete bibliography of Canadian regimental histories, regimental journals, and similar publications so far as they are known to exist. This is where Mr. Dornbusch's detective work comes in. He gives details of no less than 402 items, some of them extremely rare and obscure. Thanks largely to Mr. Dornbusch's own efforts, a great number of these books are on the shelves of the New York Public Library, which has one of the finest collections of works on Canadian military history (as well as Canadian history generally) to be found anywhere. The compilation of this list of books has involved correspondence with people all over the world, and while there are doubtless publications concerning Canadian regiments which Mr. Dornbusch has not discovered, their number must be very small.

**The Canadian Army, 1855-1958: Regimental Histories and a Guide to the Regiments.* Compiled by C.E. Dornbusch. Hope Farm Press, Cornwallville, New York, 1959. $6.50.

Kitchener: "The Overburdened Titan"

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

"Read no history", wrote Disraeli, "nothing but biography, for that is life without theory." This opinion might well be applied to the life and career of Kitchener of Khartoum, the subject of a recent, revealing study by Sir Philip Magnus.*

It cannot be said that Kitchener's life was devoid of theory. Indeed, as the biographer's sub-title *(Portrait of an Imperialist)* indicates, Kitchener was a dedicated apostle with an almost religious conviction in the virtues of British administration. But this renowned soldier and statesman was essentially pragmatic in his approach to all problems — whether fostering agricultural reforms in Egypt, attempting to suppress Boer guerillas in South Africa or beautifying his estate in Kent. His early training as a military engineer probably reinforced a natural tendency to judge all issues on severely practical, rather than theoretical, grounds.

Today, Kitchener is chiefly remembered as the man who avenged General Gordon by smashing Mahdism at Omdurman (where he was assisted by a young cavalry officer named Winston Churchill), as the trusted right hand of General Roberts in the South African War, as Commander-in-Chief

**Kitchener: Portrait of an Imperialist.* By Philip Magnus. Published by John Murray, London, 1958. $6.50. (Available through The Musson Book Co. Ltd., Toronto.)

Our Regiments and Their Histories

(Continued from preceding page)

This book, handsomely produced in a paper wrapper, is an essential work of reference for anybody interested in the history of the Canadian Army in its regimental aspects. The product of years of investigation, it can be used with confidence. Slips have crept in (there are a number of typographical errors) but in general this is a reliable and most valuable compilation; and it is quite alone in its field. It is certainly a book which every library with a special interest in Canadian military history, and every individual interested in Canadian regiments, should possess. But if they want it they should order it quickly, for I understand that only 250 copies have been printed.

in India and as an idolized but controversial, Secretary of State for War in the British Government during the early period of the First World War. He is also remembered as the subject of one of the most successful recruiting posters of all time: "Your country needs YOU".

Fully half of Magnus' fine study is devoted to the early, formative years of Kitchener's career, leading to his assumption of the military command in India at the end of 1902. Perhaps the most striking aspect of this early period was his ruthless ambition. Kitchener always knew precisely what he wanted and, at an early stage, he learned the value of pulling influential strings behind the scenes to gain his ends. His opportunism was shown by the fact that he quickly lost interest in Hindustani when he was assured of the Indian command. At the same time, his strict sense of duty and appreciation of economy — which endeared him to parsimonious Ministers of the Crown—combined with energy, determination and efficiency to justify rapid advancement.

The highlight of Kitchener's career in India, where he remained Commander-in-Chief until 1909, was his bitter struggle with the Viceroy, Lord Curzon, over the system of dual control of the army. Under this system a military member of the Viceroy's Council exercised wide administrative powers and acted as a channel for communications between the Viceroy and the Commander-in-Chief. Kitchener was determined to end what he considered a troublesome and unnecessary appointment. Apart from this difficulty, there was a wide difference of temperament and outlook between Kitchener and Curzon. Indeed, one marvels that the British Government could really have believed that two such men could work together. Although both were strong imperialists, Curzon was patrician and intellectual, while Kitchener was essentially bourgeois and non-academic. The struggle between the two ended only with Curzon's resignation —the British Government was afraid of the popular soldier's influence on the electorate at home—but Kitchener failed to get the Viceroyalty. In the biographer's opinion this was "the most bitter disappointment of Kitchener's life."

During the four years preceding the outbreak of war in 1914, Kitchener ruled Egypt with a firm hand. He reformed the Egyptian economy, improving the peasants' conditions and carrying through important

public works. He also found time to embellish his Kentish estate, Broome Park. Characteristically, when he joined the board of the London, Chatham and Dover Railway, he took steps immediately to improve the service in the area of his estate!

From the military reader's point of view much of the interest of this fine biography is centred in the final chapters, dealing with Kitchener's trials and tribulations as Secretary of State for War. He held this appointment from August 1914 until his tragic death in June 1916. Kitchener was well aware of some of his administrative shortcomings and he never wanted to go to the War Office. Always he was drawn back to the East, which he understood, and he knew that "the centralized autocratic system in which he placed his entire trust" could not operate successfully in the field of British politics. (Asquith, the Liberal Prime Minister, privately described the appointment as a "hazardous experiment.") Nevertheless, Kitchener took up his burden out of a strict sense of duty. When he arrived at the War Office, in his new capacity, he remarked: "What a place! Not a scrap of army! Not even a pen that will write!"

Although no politician, Kitchener was enough of a soldier and a realist to recognize the gravity of the military situation at the beginning of the war. He immediately told a rather startled Cabinet that the war would last at least three years and that he would need, as a start, a million men. His responsibilities were enormous — extending far beyond the ordinary routine of his office.

He undertook to raise, train and equip new armies of unprecedented size; to mobilize the nation's industries for war; and to supervise the conduct of British military strategy in every part of the globe. He took upon his shoulders that crushing burden for which no other support had been provided, because no thought had been directed before the war to the problem of devising effective machinery for the conduct of total war.

As time passed, his problems became bigger and more complicated. His most urgent need was an efficient General Staff —but he refused all assistance and never consulted the Chief of the Imperial General Staff! Churchill, who meanwhile had become First Lord of the Admiralty, described him as "the overburdened Titan."

It is worth noting the main differences between Kitchener's position and Churchill's status in the Second World War: in the second conflict, Churchill not only had great political power as Prime Minis-

ter and Minister of Defence in his own right, but he was ably assisted by the Defence Committee of the War Cabinet and the Committee of the Chiefs of Staff. (The latter, as the British Official History observes, were "available for consultation in both their corporate and their individual capacities.")

Although Kitchener had serious difficulties with the politicians and Sir John French, Commander-in-Chief of the British Expeditionary Force, he suffered his hardest blows in 1915 from the shortage of munitions and the failure of the Dardanelles expedition. Characteristically, he refused, on security grounds, to reveal information which might have eased his position on the munitions problem. But Magnus leaves no doubt in our minds that Kitchener's vacillating advice to the Cabinet on a withdrawal from the Dardanelles led to a swift decline in his prestige. He was gradually stripped of all but shreds of his former authority — Lloyd George took charge of the newly-created Ministry of Munitions and Sir William Robertson became C.I.G.S. with revived executive powers— and he ceased to interfere with strategy. His last bid for recognition, the mission to Russia, ended tragically with the sinking of H.M.S. *Hampshire* off the Orkneys on 5 June 1916.

Sir Philip Magnus has given us a balanced and sympathetic, but searching, study of a great soldier. Much of the biography is based on unpublished collections of important papers. The book is clearly written, is well illustrated and has a good index. It will find many readers — particularly among those interested in the influence of public opinion on senior service careers.

The present writer turned the last page fascinated by thoughts of Kitchener's probable reaction to that phenomenon of modern society — the Organization Man!

Simplicity on the Battlefield

Nuclear weapons have increased the necessity for simplifying battlefield operations. The great amounts of energy released and extensive destruction will have a marked effect on human reactions. The necessity for operating at night and sleeping in the daytime will contribute further to fatigue and mental stress. Reactions will be slowed and complicated plans will be more difficult to execute.—*Lt.-Col. A. B. Lathrop in the "Military Review" (U.S.).*

A History of the Defence Research Board of Canada

Reviewed by Mr. M. W. Thistle, Chief of the Public Relations Office, National Research Council of Canada, Ottawa

In his final pages*, Captain (now Major) Goodspeed mentions and disposes of the natural wonder why an organization that is only ten years old should need a history. I shared this wonder, but I think that there is one more reason, not mentioned by him, that is a good deal more cogent than any he lists, and that is the fact that an able historian was available at the ten-year mark.

Of course, tackling a juvenile institution leads to a great deal of talk about antecedents. These are always tempting to an historian, but they become inevitable when dealing with the young. In consequence, a good half of this book is about what happened before DRB was formed. As a member of the staff of the National Research Council, I should be the last to complain, and in fact I do not complain. It seems to me that the part played by NRC and other organizations, in these matters of defence research before 1947, is fairly treated here. I am very glad that this has been done, and done so well. Just the same, I several times thought with nostalgic approval of the seventeenth-century custom of sprawling their titles half-way down the cover. Instead of a handful of initials (a modern habit by no means confined to the military) this book would then be called something like: "An account of events engendering the Defence Research Board of Canada, shortly after the Second World War, together with its growth and activities for the first ten years thereafter".

As it is, this book is a little like a biography in which the hero is finally born about page 120, and quits just as he is leaving university. A very good thing of its kind, but not what you would expect from the title, which merely carries the name of the hero and says it is a history.

This kind of book, in my opinion, is an excellent thing. Other institutions that are now in their first few years would do well to go and do likewise, i.e., find a good historian who

**DRB: A History of the Defence Research Board of Canada.* By Captain D. J. Goodspeed. Queen's Printer, Ottawa. $3.00.

would record the events that led to their formation, chronicle their first few faltering steps, and indicate their first man-sized strides forward. This is a very good thing to get on record: if it is left too late, much of it will perish unrecorded, locked inside the nervous systems of men who were not consulted in time.

But such a book is in serious need of a new kind of name. It is only the front end of a history with two or three chapters on impregnation, birth, and childhood. Such a work might better be called a "hist"!

In the first five chapters, the gradual evolution of ideas about the function of this organization — and therefore of its structure—is given in some detail. I found this very interesting. The war had made it obvious that there was no choice in future defence other than to treat science as a matter of vital importance. On the other hand, peace was looming, and undoubtedly scientific tents would be folding along with the others, unless suitable action was taken. A joyful return to peaceful pursuits could easily include a foolish neglect of future defence.

Colonel W. W. Goforth was vocal about this situation. Among his associates were Lt.-Col. A. M. Fordyce, Lt.-Col. Morton M. Mendels, Dr. Otto Maass, and Dr. E. W. R. Steacie. Eventually Goforth argued that the head of the new defence research organization be given a status equivalent to a Chief of Staff—a suggestion that was promptly endorsed and supported by General Foulkes, the Chief of the General Staff, and Dean Mackenzie, the President of the National Research Council.

An attempt to do something new usually engenders what looks like an approximately equal and opposite reaction; and if it is successful, you can be sure that the birth was not as easy one. Many of these struggles are recorded; others are hinted at. When the dust began to settle in March of 1947, the Board had a chairman with the status of a Chief of Staff, and something even more vital to its later very high standing in the world of science — specific exemption from the provisions of the Civil Service Act in the choice and the pay of its personnel. A great deal of thought and argument went into the framing of this legislation, and the result is an impressive amount of wisdom.

One of these early chapters is devoted to the first Chairman of the Board, Dr. O. M. Solandt. He was Chairman for

nine years, but he was also on the job, as Director General, for about a year before the Board was legally formed. The second Chairman is Mr. A. H. Zimmerman, holding office from 1 March 1956.

The rest of the book deals with the growth and the achievements of DRB — those that can be told.

Some of these are widely known (through the mass media), such as the use of meteor trails for carrying compressed messages, the bread dough that rises while you wait, the clothing that cannot be torn by human hands, the "Velvet Glove" work on guided missiles, and many other topics that happened to be relatively easy to talk about.

Not so well known is the really first-class work done in the Telecommunications Establishment in addition to JANET (the meteor-trail communication work). Other major fields of interest include work on armaments, chemical and biological warfare, operational research, northern research, naval research, and biosciences research. In all of these fields the Board has achieved a well-earned reputation. Editors are fond of saying: "an international reputation" — not realizing that, in the realm of science, if you do not have an international reputation, you have no reputation at all. The Board made the grade very early, and kept it, because of the high quality of its scientists — something that could never have been achieved if the Government had not had the wisdom to set this scientific effort free from hampering restrictions from the very beginning. It happens that this degree of freedom is absolutely vital to any significant progress in science, and it is ridiculous that this freedom may have to be defended: but the tidy mind, like the poor, is always with us.

Of all these fields of endeavour, the only one that is currently receiving concentrated attention from the mass media is, for some strange reason, northern research. However, good work is being done in spite of the fact that it is currently fashionable.

Of at least equal interest are the relatively new fields of operational research and biosciences research. But popular interest in the dedicated "Boffin" is on the wane and popular interest in the fascinating occupational problems of the man who is entirely fit in all respects has barely begun. It is always interesting to contrast the solid achievements that win

Cavalier vs. Roundhead

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

The American Civil War (1861-5) is undoubtedly the most written about conflict between English-speaking armies and not even the most industrious students can hope to read all that has already appeared, let alone what will be published in anticipation of its centennial. But military studies of the English Civil Wars of the 17th Century are another matter entirely. Although there are several excellent biographies of Oliver Cromwell, who replaced the martyred Charles I as king in all but name, and the indefatigable Miss Wedgewood is busy churning out excellent volumes of general history of the period, there has not been a single military study of the campaigns. Lieut - Colonels Burne and Young have now done something to repair this lack. Although their present volume* covers only the First Civil War (1642-1646), it may be confidently expected that the authors will write sequels about the final struggle which led to Parliamentary supremacy, and Cromwell's still later campaigns against the Irish and Scots.

Lieut.-Colonel Burne's approach should be familiar to readers of the *Journal.* Those not familiar with his two volumes on the *Battlefields of England,* his comparable studies of *The Crécy War* and *The Agincourt War,* and *The Art of War on Land,* will discover that the little tactical studies

**The Great Civil War. A Military History of the First Civil War 1642-1646.* By Lieut.-Colonel Alfred H. Burne and Lieut.-Colonel Peter Young. Eyre & Spottiswoode, London, 1959 (Canadian Agent: McClelland & Stewart Ltd., 25 Hollinger Road, Toronto 16). $7.25.

A History of the Defence Research Board of Canada

(Continued from page 130)

the acclaim of foreign scientists with those by which the scientist is known to the populace of his own country — if he is known at all. This book frequently enables us to make such a contrast.

It seems to take about two generations for a scientist to be appreciated outside his own field. Meanwhile he is "praised for qualities he does not possess, and calumniated for defects that are not his". The present volume is a pleasant corrective for these tendencies.

prepared from time to time by the Canadian Army's Historical Section and first published in these pages were modelled on those of the last-named volume. His present collaborator, Lieut.-Colonel Peter Young, followed service in the wartime Commandos with a spell in the Arab Legion. Their effort is a sound volume on strategy and tactics, reasonably well illustrated with simple sketch maps. It does seem, however, that the style has not been improved by collaboration; this is suggested by a number of clumsy sentence constructions and the repetition almost word for word on page 229 of an anecdote given on page 167. Both authors would appear to agree on being Royalists at heart, for the concluding chapter, which discusses certain principles of war under the guise of "strands of war", builds up a convincing military case for the Cavaliers before finally conceding that the other side won.

Despite the popular names of "Cavaliers" and "Roundheads", it was not a class war of master versus varlet. Rather were brothers ranged against each other, and neighbour against neighbour. Of course, in the north and west most of the landed gentry and tenants happened to be for the King, whereas Parliament drew its chief support from London and the Eastern Counties. Cromwell recruited his own regiment of horse from the latter, with most of the troopers being "freeholders and freeholders' sons, who upon a matter of conscience engaged in this quarrel". As in most wars, however, there were not enough enthusiasts to supply the rank and file and both sides had to resort to conscription. Even the New Model Army was completed by the impressment of men "of able bodies, and of years meet for their employment". But these were well clothed and paid promptly, thanks to the financial backing of the City of London, whereas the King's troops were seldom paid and generally forced to make do with plunder and free quarters. Naturally discipline suffered.

The protagonists were amateurs to begin with, but they did learn as a result of 16 major battles and a great many sieges and skirmishes. A considerable number of officers had served in the armies which were still waging the Thirty Years' War across Germany, yet these had acquired little command experience. Whilst a prisoner of war for three years, the youthful Prince Rupert had read widely on military mat-

The Vital Shell

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

Bad weather, nuclear fall-out and the difficulties of re-entry are some of the problems that make us vaguely aware of the atmosphere, but few people will have gone much beyond this point in their understanding of this thin but vital shell that surrounds the earth. Mr. Orr in his latest book* has dealt with the many-sided story of the air in a light and entertaining way that should appeal to all those who enjoy popular science.

Of the fourteen chapters (253 pages), two cover the general introduction and the origins and development of the atmosphere, three chapters deal with the weather and climate and three with storms, hurricanes, rain, wind, etc., two

**Between Earth and Space.* By Clyde Orr, Jr. Brett-Macmillan Ltd., 132 Water St. S., Galt, Ont. $4.95.

Cavalier vs. Roundhead

(Continued from preceding page)

ters. But there were far fewer manuals to instruct young officers than at present, and precious little in the way of memoirs to enlighten prospective commanders. Cromwell started from scratch as a captain and, although he played a conspicuous part at both Marston Moor and Naseby, was not given an independent command during the period covered by this volume. "There can be little doubt," according to the authors, "that by 1646 most Englishmen were heartily sick of the war and shocked by its depredations. The great majority had been reluctant to take part on either side." The final and deciding blow to the Cavalier cause was the surrender at Naseby of the well-trained infantry, who had been left to their fate by the cavalry of Charles I and his dashing nephew Rupert of the Rhine. But, as in the American Civil War, the advantages of men, money and material lay with the side opposed to the gentlemen. Thus it is difficult not to agree with the authors' concluding sentence: "The four year's struggle did nothing to advance the military art, nor did it alter permanently the English constitution, but it showed that Englishmen could still fight bravely for causes which they had at heart."

chapters deal with the upper atmoshere, two with dust, pollen and pollution and two with sound and light effects.

There is a wealth of detail and examples which include such varied items as whispering galleries, a 30-mile stroke of lightning, gravity suits, The Lucky Dragon, hay fever, flying saucers, chicken life at 2½g, St. Elmo's fire, the jet stream, the northern lights, the inside of a tornado, etc.

Mr. Orr gives a number of easily-understood explanations of principles like the Coriolis and Doppler. He outlines briefly the theories of long-term climatic variation and of short-term weather change; other theories carry us back to the possible origins of the universe. Hundreds of observed facts are simply explained and many other little-known facts are set forth in a way that maintains reader interest. The book is completely up to date and even covers points that had been very recently in the news.

Mr. Orr gives some historical information on the development of the weather service and also gives considerable historical detail on past efforts to control the weather, particularly rain-making by "seeding" techniques. Scientific weather prediction has grown with the telegraph, the airplane, and the radio and is now becoming quite sophisticated with radar, radar memory systems and the large computers.

Military readers will probably enjoy the last chapter dealing with problems of putting manned and unmanned missiles into space. There are, however, many other parts which are of military interest. Considerable space is given to nuclear explosions and radioactivity and to nerve gases and biological warfare. In the middle ages, dead plague rats were catapulted into besieged cities, and in the Indian wars on this continent, the blankets of smallpox victims were conveniently left where Indians could steal them. A technical item of military interest is the high speed, low power, long range transmission of signals by reflection from ionized meteor trails.

On the debit side this book has some serious defects. For example, the author in trying to make his subject non-technical and popular and dramatic has carried all these processes much too far. The book abounds in such words as "terrific", "fantastic", "near miraculous" and in such images as "the playground through which our earth romps" and in many dramatic statistics running to billions of this and billions of that. Such

writing techniques are too obvious and tend to become monotonous.

The author writes in easy generalities which can lead to statements such as "The atmosphere is . . . a potential battleground of unlimited horizontal and vertical extent", or to an apparent contradiction such as (p. 181) "from about 1300 AD to modern times they were again cooler and wetter", and (p. 183) "recent studies . . . suggest the warming began at least ten centuries ago". In several other places, of which p. 191 on climate and civilization is a good example, the author makes oversimplifications that can be very misleading. This tendency to be misleading through oversimplification even appears on the dust cover where a photograph covering a small part of the south-western United States is made to look like half the earth.

In the centre section of the book are 26 excellent photographs, but it is to be regretted in a book of this kind that the author has failed to use a single drawing. Surely many of the explanations could have been made clearer and some of the defects might have been avoided had these been used. The book is well indexed and for those who wish to read more the author has included a useful selected reading list.

One controversial topic which might have been sensational, but which the author handles with commendable restraint, is that of flying saucers. He firmly rejects all the spaceship nonsense and he makes it quite clear that although there are many different kinds of saucer phenomena, none require superhuman or intervention from another world to be explained. Mr. Orr gives a good historical summary of the outstanding events during the recent flying saucer excitement and he also recalls similar happenings in the past.

This is a book of popular science that can be understood by almost anyone. It is written in the style of a digest magazine article. If you enjoy this style and are looking for some interesting and entertaining facts and generalities on nearly all aspects of the atmosphere, *Between Earth and Space* is highly recommended.

Key to the Mediterranean

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

On three occasions during the Second World War the Canadian Army had more than a passing interest in Gibraltar. Beginning in November 1940 and lasting nearly to the end of 1942, Nos. 1 and 2 Tunnelling Companies R.C.E. worked hard on the Rock's defences. A second, more tentative, occasion occurred late in 1942, when the British Government feared Spanish action against Gibraltar and General McNaughton was requested to plan an operation ("Tonic") by First Canadian Army to secure the Canaries as an alternative naval base. (Sober Spanish reflection saved us the necessity of carrying these plans into action.) Finally, General Simonds and members of his staff set foot on the Rock, early in 1943, in the course of a journey to prepare for "Husky" and the great fortress was a familiar sight to many Canadians who followed to participate in the invasions of Sicily and the Italian mainland.

It is, therefore, interesting to note that a British journalist, Allen Andrews, has now written a short history of Gibraltar under the appropriate title *Proud Fortress.** (Incidentally, the title is borrowed from a deprecatory remark made by George III, in whose opinion Gibraltar was a "source of another war, or at least of a constant lurking enmity".) The author clearly believes in tracing the history of the Rock to its foundations—in this case to Neanderthal Man who, he claims, "stumbled out of Africa by way of Gibraltar". We are given a colourful account of its history from the time, in 1704, when Admiral Sir George Rooke took possession in the name of Queen Anne, through the great siege of 1779-83 and the Napoleonic period to the First and Second World Wars.

Andrews is at his best in describing the epic resistance of General Sir George Eliott and his garrison during the great siege. At the beginning, the bluff old commander ("well-educated, fluent in French and German, with wide and rare military experience as an engineer, gunner, cavalryman

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**Proud Fortress: The Fighting Story of Gibraltar.* By Allen Andrews. Published by Evans Brothers Limited, London, 1958. (Available through British Book Service (Canada) Ltd., Toronto.) $4.00.

and expeditionary commander") had only 5382 men to withstand a protracted assault by 60,000 Spaniards, supported by 1200 guns and 57 large vessels. Yet the defence never wavered. Although rations were cut below subsistence level and scurvy was rife—causing, it is said, ten times the casualties inflicted by the Spaniards—Eliott's iron determination and unfailing ingenuity saved the fortress.

It must be admitted, however, that ingenuity was not all on one side. Some novel plans were produced for the reduction of Gibraltar.

The schemes submitted included the firing of poison-gas shells and a proposal to erect a mountain higher than Gibraltar from which to dominate the Rock by artillery; the author of this plan had computed the necessary cubic yards of earth and man-hours required and asserted that his scheme was more economical than prolonging the siege in the conventional way.

A noted French engineer, the Chevalier Michaud d'Arçon, eventually tried to organize a combined assault by land and sea, employing "indestructible" floating batteries. But the British gunners had an answer. At the appropriate moment they fired their "roast potatoes", red-hot 32-pound cannon balls, and the attack dissolved in fire and panic. A relief convoy reached the Rock and, after nearly four years, the siege was over.

Andrews' treatment of later periods in the history of the Rock is perhaps less satisfactory. There is a tendency towards what might be considered digressions—the piratical career of Captain de Soto (whose only connection with the Rock seems to have been that it provided the site for his execution); the British action against French naval units at Oran in 1940 and the sinking of the *Bismarck*. On the other hand we are given more than a glimpse of life on the Rock—the constant struggle with enemy agents, Italian torpedo crews and frogmen; the arduous work to enlarge subterranean passages ("the diamond drills of the Canadian Engineers spun ceaselessly"); the problems of a polyglot mercantile population and the carefully replenished supply of apes, to satisfy the old legend that British rule would end when they left the Rock.

Proud Fortress does not pretend to be a definitive history of Gibraltar. Yet within its modest limits we find much that helps to explain the "Gibraltar tradition". One question remains: what would be the role of the key to the Mediterranean in a nuclear war?

CANADIAN ARMY ORDERS

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

CAO 55-1
Command of the Army in Canada
(Issued: 1 Jun 59)

This revision brings up to date the categories of special units and establishments. This CAO defines the responsibilities of AHQ and of commands in relation to these units, and prescribes the channels of communication to be used.

CAO 85-5
Status and Control of JAG Staff
(Issued: 13 Jul 59)

This revision provides for the separation of judicial and non-judicial functions of Judge Advocates and aims at removing any suggestion of partiality on their part as between military authorities and an accused.

CAO 97-5
Life History Documents
(Issued: 13 Jul 59)

This amendment authorizes the use of the Tri-Service Vehicle Equipment control records DND forms 611, 612, 613, 614 and 615 for all wheeled and tracked vehicles and engineer equipment.

CAO 98-2
Holding and Administrative Lists
(Issued: 13 Jul 59)

This revision changes the name of the "Special, Rotational and Seconded List" to "Special, Armed Forces Senior Appointments Lists and Seconded Establishment" (to be referred to as the SAS List).

CAO 99-2
Estate Tax
(Issued: 15 Jun 59)

This revision describes briefly and in general terms the provisions of the new Estate Tax Act which became effective 1 Jan 59, and which superseded the Dominion Succession Duty Act.

CAO 139-3
Insurance — Veterans Insurance and Civil Service Insurance
(Issued: 15 Jun 59)

This amendment brings the order into line with recent amendments to the Veterans Insurance Act. The important changes are that applications for Veterans Insurance now

may be approved up to 30 Sept. 62, and that benefits payable on the death of an insured person are no longer limited when a pension also is payable under the Pension Act.

CAO 139-5

Supplementary Death Benefits Plan

(Issued: 29 Jun 59)

This amendment notifies a change in the application of the Public Service Superannuation Act and Regulations, to members of the Regular Army who are granted LWOP for personal reasons, on the date of enrolment or on the day immediately following enrolment. Included also is additional information regarding rates of contributions for elective participants.

CAO 162-1

Leave and Pass

(Issued: 13 Jul 59)

This revision provides that accumulation of Annual Leave may only be authorized by AHQ, an officer having the powers of an officer commanding a command or area commander, and the Senior Canadian Army Liaison Officer, UK. It also notifies policy changes in entitlement to Annual and Special Leave on release, eliminates Travelling Time previously granted with Annual Leave on release and details types of leave that may be granted on release.

CAO 190-3

Service Numbers—Reserves

(Issued: 13 Jul 59)

This revision provides a new block of service numbers for issue to other ranks enrolled in the Reserves on or after 1 Sep 58.

CAO 212-7

Supplementary and Rent Allowances and Educational Benefits—Members Serving Outside Canada

(Issued: 13 Jul 59)

This revision incorporates the amended regulations authorized by the Governor in Council governing the entitlement of members serving outside Canada to Supplementary and Rent Allowance and prescribes the procedure for payment of these allowances. In addition, the portion of the CAO dealing with entitlement to Education Allowance has been amended to include a Tri-Service decision that this allowance is payable, subject to certain conditions, for a member's dependent child from the time the child attains the age of four years and eight months.

CAO 225-3

Operator's Manuals and Repair Manuals for Technical Equipment (Issued: 13 Jul 59)

This revision provides instructions on the automatic distribution policy of operator's manuals and repair manuals for all technical equipment and the process for demanding when other copies are required.

CAO 251-16

Disposal of Stray Ammunition and Sundry Explosive Objects (Issued: 29 Jun 59)

This amendment to Appendix "A" notifies the changes in organization and locations within Central and Prairie Commands affecting the disposal of stray ammunition and sundry explosive objects.

CAO 255-22

Security — Use of Padlocks, Containers, Intrusion Alarm Systems (Issued: 29 Jun 59)

This new order prescribes the policy and procedure governing the use of padlocks, containers and intrusion alarm systems for safeguarding classified material, cash, attractive and valuable stores.

CAO 256-6

Terms of Service— Other Ranks of the Militia (Issued: 13 Jul 59)

This amendment rectifies an ambiguity between CAO 94-2 and CAO 256-6 concerning the age of release of Militia personnel permanently employed in Militia units.

CAO 271-7

Establishments in Northern Canada— Selection and Posting (Issued: 13 Jul 59)

This amendment makes provision for the tour of duty at Alert NWT to be for a period of six months.

CAO 272-6

Transportation When Proceeding on Leave (Issued: 13 Jul 59)

This amendment provides that claims under QR(Army) 209.50(2)(a) will be certified by the CO that the claimant was under 17 years of age when the relevant journey to his home commenced.

CAO 273-1

Travelling Claims — Members Authorized to Travel at Public Expense (Issued: 1 Jun 59)

This revision embodies the most recent amendments to

(Continued on page 156)

THE CORPS OF ROYAL CANADIAN ENGINEERS

New Device Operates Quietly

Picket Driver for Army

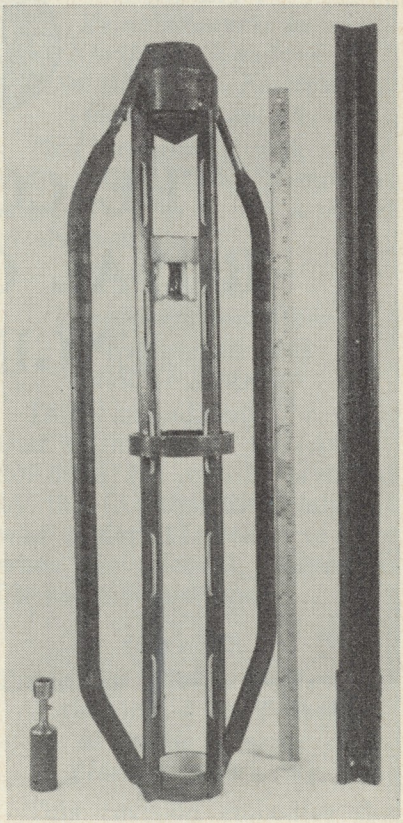
By

MR. A. FULTON, ARMY DEVELOPMENT ESTABLISHMENT, OTTAWA*

A picket driver (commonly called drive monkey, but officially named "Drive Tool, Fence Post XC-3") may shortly be a standard piece of equipment of the Canadian Army.

The Military Engineering Division of the Army Development Establishment, formerly the Directorate of Engineer Development, has developed a device which will enable forward troops to drive pickets quietly and efficiently into the ground, particularly at night.

During the United Nations operations in Korea, Canadian troops improvised a tool on the lines of the British camouflet driver for driving steel pickets which was superior to the sledge hammer because it could be employed when visibility made the use of a hammer difficult. The device consisted of a piece of iron pipe closed at one end by a heavy cap. The soldier could easily slip the picket into the pipe by feel and then, grasping the handles, drive the picket into the ground. Unfortunately, this



The picket driver, showing the socket wrench and extension piece.

**The author joined the Army in 1940 and served with the Royal Canadian Army Service Corps until the end of the Second World War. After leaving the Army he continued his education at the University of British Columbia, receiving his B.Sc. degree in Mechanical Engineering in 1950. He joined the Civil Service in 1952 as a project engineer.*—Editor.

driver was so noisy that it often brought down enemy fire. As a result the Director of Engineer Development was asked if anything could be done to deaden the sound.

Several attempts to reduce driving noise (such as wrapping cord around the pipe, and inserting rubber and wooden plugs into it) showed that a completely redesigned mechanism would be needed to get effective results.

The Korean operations were over before a new tool could be developed, but a prototype was designed and tested which showed such promise that it was decided to continue the work as a low priority project.

It was determined that the existing tools (improvised driver and sledge) fail for the following reasons:

1. Their noise level is high and activity is easily detected over considerable distances.
2. Difficulty is experienced in driving long pickets with the sledge.
3. Difficulty is experienced in hitting the picket with the sledge in the dark.

Military characteristics for a new device were prepared which require that:

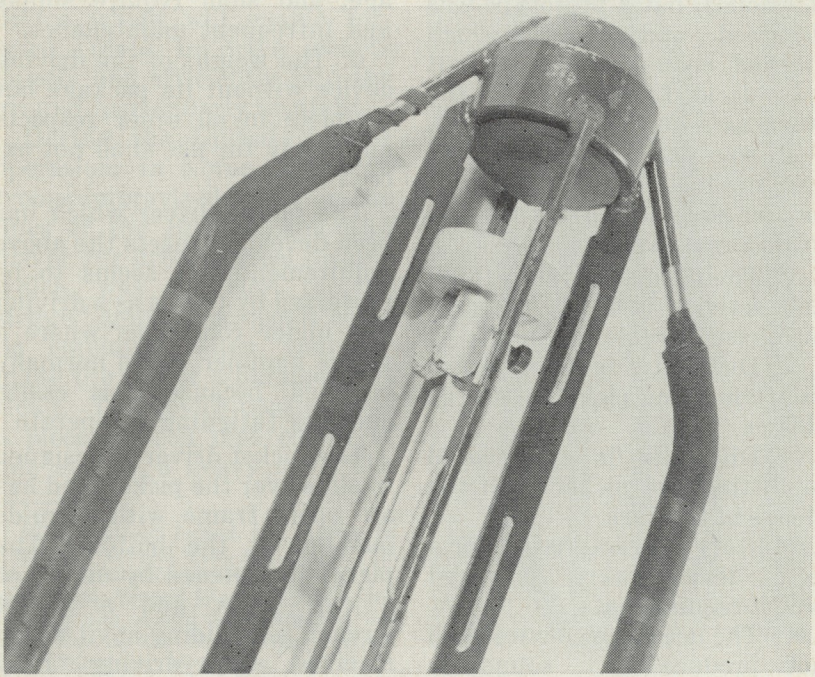
1. The use of the device shall not produce such sound as would enable the task and its location to be identified at distances greater than 200 yards at night, with a light breeze (about 13 m.p.h.) and normal forward area noise-level conditions.
2. It shall be capable of driving long and short pickets including driving in the dark.
3. It shall be capable of being operated by one man.
4. It shall be designed with as few separate and unattached components as possible.
5. It shall be sufficiently rugged to withstand normal field use, transport and storage, and shall require simple and infrequent maintenance.
6. The weight of the driving device without its package but complete in all other respects and ready for use shall not exceed 30 lb.

The picket driver which has been developed meets the above requirements. It seems to be preferred by troops as a driving tool under conditions where a sledge hammer would normally be used, because it is easier and less fatiguing to operate.

The picket driver is designed to slide over the picket, and has an open frame with a guide bushing at the bottom. The picket is fastened by means of a cap screw and a socket wrench to a sliding anvil which receives the driving blow through a cone-shaped rubber impact block. Handles with

rubber steam hose grips are welded on at the top and the bottom, the length of the handles allowing the operator to change his grip according to the height of the picket from the ground. Short pickets can be driven with the addition of an extension piece.

Although the picket driver basically operates like the closed-end iron pipe driver, it has to be different in many respects in order to reduce driving noise to as low a level as possible. To achieve the aim the problem was attacked along three lines: first, the construction of a frame which would eliminate noise reinforcement by pipe resonance; second, the reduction of "acoustic coupling" between the mechanism and the air by reducing the surface area as much as practicable; and third, the reduction of the intensity and the lowering of the frequency (cycles per second) of any vibration. An open framework



A close-up of the picket driver, showing the driving head, cone-shaped rubber impact block and anvil with cap screw.

guide-bar-type of construction not only eliminated pipe resonance, but also reduced surface area. Concentration of most of the weight of the picket driver in the head further reduced surface area, and also reduced intensity of vibration. The rubber cone-shaped impact block was the most important feature of the design, and reduced both intensity and frequency of vibration.

While other shapes of impact block may achieve the same purpose to a greater or lesser degree, a cone was selected because it transfers the blow to the picket gradually and smoothly so that the rate of increase of the force is always low. Because the rate of increase of force is always low, the magnitude of force required to drive the picket into the ground is achieved without setting up vibrations of short wave lengths in the picket driver and the picket. As a result, vibrations are in the low frequency range which is less audible. The size of the base of the cone is governed by the loads to which it is subjected and by the rubber used.

The type of rubber which has been selected is tough, fairly hard and above all, it has low hysteresis (conversion of energy to heat), so that as much as possible of the operator's energy not used in driving the picket into the ground is returned to him in the form of bounce. The ideal apex angle of the rubber cone depends on the hardness of the ground into which the picket has to be driven. Since it is not practical to carry around a number of cones having different apex angles, the one selected has a compromise angle giving a single cone for optimum usefulness in a variety of ground conditions.

Tests have shown that the average operator quickly becomes used to the employment of the picket driver in the dark. The operator lays the picket driver on the ground, pushes a picket in through the lower collar and inserts it by feel into the anvil. Having done so he rests the point of the picket on the ground, raises the picket driver and picket into position, and with the weight of the picket driver holding the anvil completely down on the picket, he tightens the fastening screw with the accompanying socket wrench. He then drives the picket.

During development tests at the Army Proving Grounds at Ottawa, it was found that the new picket driver could set pickets into hard and even into frozen ground, and that it would probably meet the re-

quirement for quietness. As a result of these tests, it was sent first to Camp Gagetown and a year later to Camp Valcartier for user trials conducted by the 2nd Battalion, Royal 22e Régiment. Following these trials, the user recommended that the item be adopted as standard for Canadian Army use and suggested a scale of issue. The regiment noted that, although the picket driver weighs thirty pounds as opposed to the eight pounds of the standard sledge hammer, obstacle-fence erection tasks were finished in less time and with less fatigue when the picket driver was used. The regiment stated that the picket driver was suitable for the purpose for which it was designed, and also stated a preference for the picket driver over the sledge hammer both in daylight and where noise was of no importance. One-for-one replacement of the sledge hammer will not be required, because the picket driver is more efficient than the sledge.

During the last of the user trials, the Defence Research Medical Laboratories agreed to make a noise analysis. The picket driver was compared with a sledge hammer. Sound-pressure levels at various frequency intervals were measured for the sounds of the sledge

Members of the Royal 22e Régiment using the picket driver on user trials.

hammer, for the picket driver, and for the ambient noise. It was found that although the sound-pressure levels, and consequently the noise-power of the picket driver was only slightly less than that of the sledge hammer, the frequency range was much lower, about 150 cycles per second as against 400 cycles per second. Since human hearing is much more responsive to the middle frequencies than to high or low frequencies at low levels, as

(Continued on page 156)

THE ROYAL CANADIAN ARMY SERVICE CORPS

The Future of the RCASC

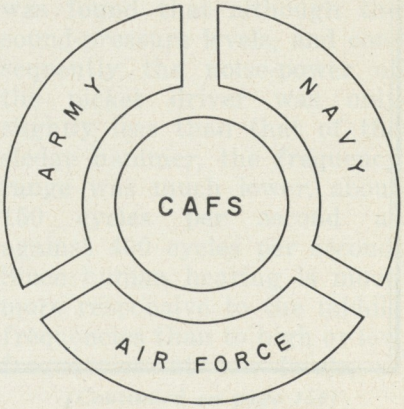
Some Thoughts on Unification

A PAPER PRODUCED BY THREE JUNIOR OFFICERS OF THE ROYAL CANADIAN ARMY SERVICE CORPS*

The views expressed in this article are not necessarily those of the Department of National Defence.—Editor.

Modern concepts of war more and more necessitate a Centralized Operational Command—Tri-Service unification is beyond the pipedream stage. Today our military services, in their various stages of evolution, find themselves in a position where our Nation demands increased economy, efficiency, and at the same time a demand for more and better protection. The over-all aim of a tri-service integration policy must be to meet these demands. If we can achieve increased economy and efficiency in our service functions, then the resulting savings could be allocated to Arm's use, with a consequent increase in protection. Triplication of effort certainly must be avoided and to this end, consolidation of certain Naval, Army and Air Force services (medical, dental, and postal) has already begun.

Let us take a moment to visualize the shape that such a consolidated service organization might ultimately take. In the centre, as an independent military organization, could be grouped all the service functions of the Navy, Army and Air Force. This new fourth separate military service might be named "The Canadian Armed Forces Services" (CAFS), and would necessarily be sub-



**The officers who collaborated in the preparation of this paper are Lieut. H. G. Coward, officer in charge of the RCASC Detail Issue Depot, RCAF Station, Moose Jaw, Sask.; Lieut. W. R. MacNeill, who is employed in supply duties at Saskatoon, Sask.; and 2/Lieut. G. B. Bartley, Transport Officer at Regina, Sask.*—Editor.

divided into various branches. The various fighting arms could be imagined as being grouped in a circle around our newly-created military service.

The Canadian Armed Forces Services would have its own distinctive uniform and a rank structure equivalent to the three which presently exist. Service units or personnel would be attached to the fighting arms where needed, as is at present the case with Army specialist personnel. These persons or units would come under the Arm to which they were attached, i.e., Navy, Army or Air Force, for command and administration, but not for technical supervision.

This is, of course, an idealistic conception of the ultimate picture of integrated service functions. To be realistic, it must be accepted that such a change would have to come about in a gradual, evolutionary manner. As previously mentioned, the tri-service unification of medical services, dental services, and postal services has already begun—what's next? Various possibilities spring to mind, but the Supplies and Transport Service, being one of the largest, probably merits first attention. Changes in organization would be inevitable but first, what changes appear necessary in basic responsibilities?

All are familiar with present RCASC tasks. The provision of food and supplies to RCAF and Army is an accepted practice in peace, and to expand this to include the Navy should require little adjustment in accounting, warehousing and distribution procedures. The ensuing advantages in the purchasing of larger quantities and of marketing benefits are obvious. To maintain this role in wartime as a continuing commitment seems a logical sequence. Similarly, the same would be true of POL which is now supplied in wartime to both the RCAF Ground Element and Army by the RCASC. Why not include the Navy and provide the service during peace as well? The number of additional commodities would be limited, and technicians from all present Services would be available to man these depots, operated by the new "Supplies and Transport Branch" of the Canadian Armed Forces Service.

Similarly, provision of transport for the Navy, Army and Air Force by an integrated Supplies and Transport Branch would entail no radical departure from present tasks of the RCASC; but, like the supply services previously mentioned, this unification would result in tremendous increases in the

volume of equipments and personnel from present RCASC levels.

As a separate Branch of the Canadian Armed Forces Services and with its own Directorate and training schools, the new Supplies and Transport Branch, evolved from our present RCASC, would be able to return to the basic and desirable role of Supplies and Transport only.

But what of other present RCASC responsibilities — the cooks and clerks? How did they become RCASC in the first place and why? Frequently the suggestion has been made that they should form a Corps of their own. Each case should be examined in turn.

The cooks were gradually assimilated into the RCASC during the Second World War for the purpose of improving the standard of food service within the Army; improving the training and up-grading of tradesmen; improving rank structures and establishments; and improving equipments, diet, nutrition, hygiene and sanitation. All of this has been successfully accomplished, and there can be no doubt that being members of a single corps rather than regiments and battalions, etc., has been, for the cooks, a big improvement. One Corps, the RCASC, assuming full responsibility for this function has been of tremendous benefit not only to the cooks but to the Army. The objection to forming an "Army Catering Corps", similar to that of the British Army, has so far primarily been a matter of economy—the question "do approximately 1500 cooks warrant a Directorate and school of their own?" has presented many pros and cons (and apparently the cons have prevailed.)

With the proposed Tri-Service unification, however, the cooks, then numbering approximately 3700, would surely require independent control and administration. A "Food Service Branch" with its own Directorate and training establishment would be an essential part of the Canadian Armed Forces Services. Advanced courses for up-grading, hospital cooking, training for field operations, in-flight feeding, and specialized instructions for land and sea cooking could all become a reality. Courses for messing officers, dietitians, hygiene, sanitation, and all the many aspects of food service could be conducted. This greater scope, with increased and improved facilities, would undoubtedly continue the general advancement of Food Services to a degree that is now only a

wistful hope.

Administrative Clerks would also regain their independence. Once an individual Corps (CM SC), they were absorbed into the RCASC at the end of the Second World War; yet, even after some 14 years, they remain an almost independent "branch" of the Corps. Some 2500 Administrative Clerks from the Army, when united with their counterparts in the Air Force and Navy, would surely necessitate the formation of a "Branch (or Corps) of Staff Clerks" within the organization of The Canadian Armed Forces Services.

Such a Branch would require its own Directorate and training establishment. Increased numbers of personnel and scope of employment would necessitate the most complete and modern training facilities. Additional specialized instruction such as courses for clerks in field and operational procedures, for regimental adjutants, for administrative and executive officers, as well as refresher courses to acquaint personnel with current changes in regulations and administration, would be of untold value.

A responsibility of the present-day RCASC, which has increased tremendously in the last few years, is Movements. With unification, this role would increase accordingly. As it is now practically a self-sustaining part of the RCASC with its own Directorate, it will undoubtedly warrant a separate Branch. Such a "Movements Branch" would permit greater specialization in a field which is becoming increasingly complex, and which requires personnel who are of exceptional skill, trained to do the job efficiently. Movements is a job which, due to the peculiar problems of transportation in each geographic location, does not lend itself to frequent transfers of key personnel.

As for the remaining present responsibilities of the RCASC, these might well be assumed by other Branches of our proposed Canadian Armed Forces Services organization. Such responsibilities as the administration of public utility accounts might be accomplished more efficiently by the Engineers ("Branch of Engineers"), who in any case are now concerned with construction, building maintenance and utility agreements. Such changes would relieve a future Supplies and Transport Branch of non-related responsibilities, allowing for greater concentration on the basic functions of Supplies and Transport.

The effect of unification upon the RCASC would be con-

siderable. The Corps would no longer exist as such and would probably have its present responsibilities divided among several Branches of our new Canadian Armed Forces Services. However, Supplies and Transport, the function which has always been the main consideration of our Corps from its earliest times, can now go forward into the future to this new and advanced stage in the growth of the RCASC — Supplies and Transport for the Armed Forces!

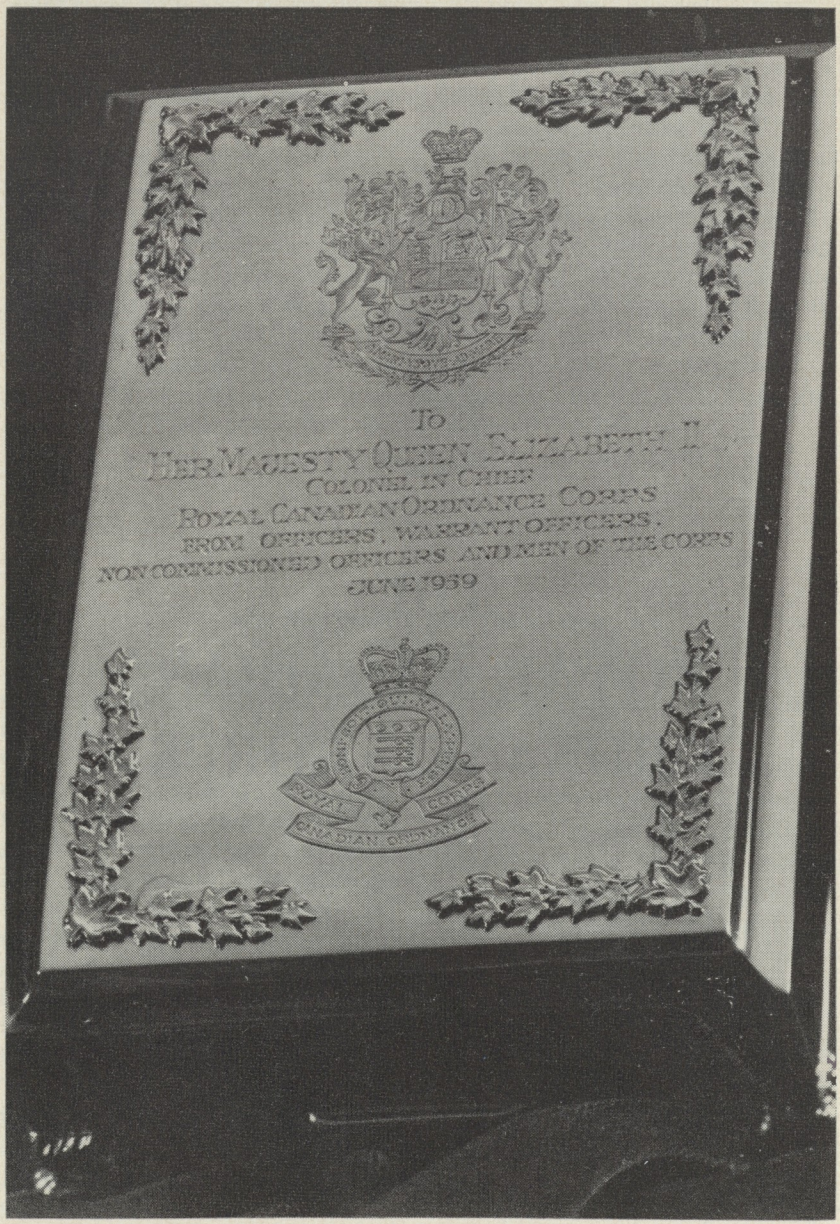
These are general impressions, first germs of ideas which may stimulate further thought and be developed into a practical organization. It may well be that the Supplies and Transport Branch, as suggested, might be too large to efficiently and economically cope with such a formidable task. Further branches or sub-branches may be required — a separate one for supplies? a separate one for POL? one for transport only?

What do you think?

Air Movement for the Army

For the future, added means of fire-power, battlefield mobility and increased staying power will be necessary to retain the essential versatility of the Infantry. It must receive modern arms and equipment characterized by ease of air and sea transportability. Strategic air movement and mechanized or aerial tactical manoeuvre must become commonplace in the thinking of Infantrymen, and indeed of the entire Army. There should be nothing difficult or unusual about deploying Army forces strong in Infantry to any point on the globe by air in order to intervene decisively in an area of strife. In fact, it is the capability to intervene rapidly and positively with appropriate forces and weapons in a dangerous situation which can deter a limited war or preclude its assuming general war proportions. Tactically, the greatly increased battlefield mobility which the Infantry can gain through mechanization and aerial vehicles will provide the means essential to success and survival against numerically superior enemies on the future battlefield. — *General Maxwell L. Taylor in "Infantry" (U.S.).*

THE ROYAL CANADIAN ORDNANCE CORPS


To
HER MAJESTY QUEEN ELIZABETH II
COLONEL IN CHIEF
ROYAL CANADIAN ORDNANCE CORPS
FROM OFFICERS, WARRANT OFFICERS,
NON COMMISSIONED OFFICERS AND MEN OF THE CORPS
JUNE 1959
ROYAL
CANADIAN ORDNANCE
CORPS

RCOC GIFT TO HER MAJESTY

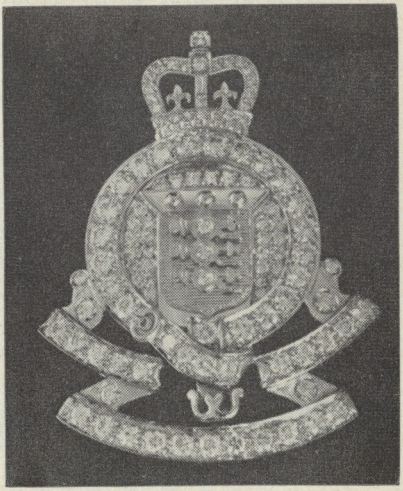
A REPORT ISSUED BY THE DIRECTORATE OF ORDNANCE SERVICES, ARMY HEADQUARTERS, OTTAWA

On 24 June 1959, shortly after Her Majesty's Yacht *Britannia* docked at Montreal, a personal gift to Her Majesty from all ranks of the Royal Canadian Ordnance Corps was presented by Corps representatives. The gift marked the Corps' appreciation of Her Majesty's recent acceptance of the appointment of Colonel-in-Chief, Royal Canadian Ordnance Corps.

The gift was a diamond and platinum brooch designed as a replica of the RCOC badge. The brooch was contained in a solid silver case standing on small supports of maple leaves. The cover was engraved with the Canadian coat-of-arms, the RCOC badge, and an appropriate sentence describing the occasion (see photographs).

It was made possible by voluntary contributions from all ranks of the RCOC—both Regular Army and Militia. A substantial surplus from the sum collected has been given to the Queen Elizabeth II Canadian Research Fund for research into children's diseases.

The brooch was presented by Major General J. H. MacQueen, CBE, CD, one-time Master General of Ordnance and a former Honorary Colonel-Commandant of the Corps, in the absence due to illness of Brigadier H. B. Keenleyside, CBE, the present Honorary Colonel-Commandant. Accompanying him were the Director of Ordnance Services, Colonel E. G. Shannon, OBE, CD, and WO 1 (Conductor) G. A. Lowe, MBE, CD, senior serving warrant officer.



No Hopeless Situations

There are no hopeless situations, only men who become hopeless about them. — *Maj. Reginald Hargreaves in the "Marine Corps Gazette" (U.S.).*

Picket Driver for Army

(Continued from page 146)

one moves farther away from the source, low-frequency sound becomes inaudible long before mid-frequency sound. Calculations based on the readings of instruments placed at 150 feet from the picket driver indicated that with the conditions as they were at the time, the picket driver would be audible up to 800 feet whereas the sledge hammer would be audible up to 12,800 feet. Listening tests conducted during the user trials tended to confirm this.

Although the new tool could be adopted and put into use in its present form, some improvement can yet be made. A better method of attaching the picket in the anvil to eliminate the need of a fastening screw and socket wrench would simplify the procedure and eliminate the wrench, and a better material for the guide bushings would greatly cut down the need of cold weather maintenance. As designed, the picket driver only fits British and Canadian pickets; re-design to fit American pickets as well would be desirable. Samples of the driver have been sent to the United Kingdom and the United States for examination and comments. At a demonstration by School of Military Engineering at Chatham, England, observers from member Armies of NATO were shown the picket driver in operation. There was much interest, and details of the picket driver were requested.

Canadian Army Orders

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QR(Army), Chapter 209. The amendments provide for increases in certain travelling allowances and meal rates, the exclusion of time spent travelling in service aircraft or inter-urban bus from the calculation of time allowed for per diem travelling allowances, and also permits the Minister to authorize miscellaneous incidental expenses, and to grant reimbursement of actual expenses in lieu of per diem allowances in exceptional circumstances.

THE ROYAL CANADIAN ARMY CADETS

The Buell Trophy

By

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ARMY HEADQUARTERS, OTTAWA

This year, at the 77th Prize Meeting of the Dominion of Canada Rifle Association, Connaught Ranges, Ottawa, a team of eight Royal Canadian Army Cadets from each command is competing for a trophy which is being presented by the Cadet Services of Canada Association. This award, to be known as "The Buell Trophy", perpetuates the memory of the late Colonel D. B. Buell, DSO, CD, former Director of Militia and Cadets at Army Headquarters.

The late Colonel Buell

Colonel Buell was born in Brockville, Ont., July 1905, and educated at Brockville Upper Canada College, and the Royal Military College. He became a member of the Permanent Force in 1930 when he joined The Royal Canadian Regiment.

He was an instructor at the Royal Military College, Kingston, Ont., from 1936 to 1939. At the outbreak of the Second World War, he became a General Staff Officer, Grade Three, at Army Headquarters.

He was Second-in-Command of the North Shore Regiment from June 1942 to September 1942, and led the regiment in the D-Day assault in Normandy where he won the Distinguished Service Order. He was wounded in August 1944

and invalided home to Canada.

Colonel Buell was appointed Commander of the Royal Canadian School of Infantry, Camp Borden, in January 1946, and in September 1949 was appointed a General Staff Officer, Grade One, in the Directorate of Military Training at Army Headquarters in Ottawa. In this Directorate, Colonel Buell was primarily concerned with the Royal Canadian Army Cadets and, because of his keenness for competitive rifle shooting, created a high standard of marksmanship among Army cadets in Canada. He was instrumental in obtaining authority for a Royal Canadian Army Cadet rifle team to compete, annually, at the National Rifle Association Meeting at Bisley in the United Kingdom.

To further the competitive spirit, Colonel Buell donated a challenge trophy called the "Alexander Graham Bell" for perpetual competition between cadets of Canada and the United Kingdom at Bisley. This trophy is comparable to "The Michael Faraday Trophy" which is competed for between British and Canadian cadets at the Annual Prize Meeting of the Dominion of Canada Rifle Association, Connaught Ranges, Ottawa.

Colonel Buell was promoted to that rank in May 1954 and was appointed Director of Militia and Cadets at Army Headquarters. A year later, in June 1955, he had the distinction of taking the first Royal Canadian Army Cadet Bisley team to the United Kingdom as Commandant. It is significant that on this occasion the Canadian cadets won "The Alexander Graham Bell Trophy" from the British cadets in the first match held for the award.

Colonel Buell served as the Director of Militia and Cadets up to his untimely death on 22 July 1958.

Competitors in the Buell Trophy Match will use the service rifle, firing four practices, the first of which will be deliberate, shooting two rounds as sighting shots, and five rounds to count, from the "prone" position. The second practice will be carried out on a "fire with movement", timed system, advancing from the 500 yard to the 100 yard point, firing one round at each range in the "prone" position. The third and fourth practices of five rounds each, will be "rapid" and "snap-shooting" practices, respectively. The Highest Possible Score in this match is 100 points for the individual competitor, or 800 points for the team.

LARGE WEAPONS, SMALL UNITS

Successful offensive action by division, corps, and army against an enemy strong in nuclear weapons is accomplished by the co-ordinated action of dispersed, highly mobile small task forces, not larger than battle group size, to produce situations which fire-power can be applied with decisive results. Then density of the ground manoeuvre element generally is geared to the enemy's nuclear capability. The threat of nuclear weapons precludes troop densities even approaching previous scales. Fortunately, this same restriction applies equally to the enemy.

While larger units (corps and army) still may effect a manoeuvre of large bodies of troops, the manner of making the movement is changed vastly. It must be recognized that divisions no longer can be moved simultaneously in set patterns or converged as such. It should be evident today that troop concentrations in a nuclear war have a definite, positive limitation.

The powerful new fire-power available to divisions, corps, and army has increased the offensive capability of these units. However, it must be recognized that the nature of the offensive at the higher echelons has changed. In brief, yesterday it was small weapons and large units—today it is large weapons and small units. *—Lt.-Col. A. B. Lathrop in the June 1959 issue, "Military Review" (U.S.).*

Weather Simulator

The weather-simulating test chamber at the United States Army's Frankford Arsenal, Pennsylvania, can produce any kind of weather on call for the purpose of testing military equipment. The test chamber uses infra-red and ultra-violet light to duplicate sunshine. Lamps operate on a time cycle to simulate morning, noon and night. Rain is duplicated exactly to include the force with which raindrops normally hit the ground, from a slow drizzle to a tropical downpour of up to 24 inches an hour.—*News item in the "Military Review" (U.S.).*

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