

DEFENCE TRAINING



DEFENCE TRAINING



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DEFENCE TRAINING

An Elementary Manual for Defence
Training in Secondary Schools

DEFENCE TRAINING

An Elementary Manual for Defence
Training in Secondary Schools

J. M. DENT & SONS (CANADA), LIMITED
TORONTO VANCOUVER

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September, 1942

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Printed in Canada

T. H. BEST PRINTING CO., LIMITED
TORONTO, ONT.

INTRODUCTION

This book is, in every way, a co-operative enterprise. It grew out of a desire to produce a text-handbook in which the basic elements of a Defence Training course could be found conveniently arranged under one cover.

The material is written by specialists, most of them teachers, some of them on Active Service. The subject matter is framed in language suitable for the grade levels of the pupils involved. Obviously, the book cannot claim to cover more than the elements of the subjects to be taught, but each section is complete in itself. Attention has been paid to classroom procedure, wherever possible, so that the material is in every respect practical. In some subjects, as, for example, in Knots and Lashings, First Aid, etc., where standard manuals are already in use, the sections included here will be found to be supplementary to existing books; but all the material is intended to be used both by student and teacher.

We have not attempted in this text to cover the special Mathematics required by the Defence Course, as there are a number of suitable texts already in existence.

Most of the subjects in this book are common to both the Boys' and the Girls' Defence Training, but no provision has been made for the subjects that are special to the Girls' Courses, such as Healthful Living, Games, Rhythmics, Dances, etc., for all of which a great deal of reference material is readily available.

The grading of the various topics given in this text is based upon the Ontario Defence Training Course, but there is no reason why this grading should be considered

arbitrary. The grading of the topics can be easily rearranged to fit any similar Defence Training Course.

We wish to acknowledge our gratitude to all those whose ready response has made the publication of the book possible. Our special thanks are due to the officers in charge of training at National Defence Headquarters, Ottawa, and especially Military District No. 2, and No. 1 Air Force Training Command.

Our particular thanks are due to Dr. A. C. Lewis, Principal of the University of Toronto Schools, to Lieut.-Col. A. A. Bell, and to those on the Ontario Provincial Committee for the outlining of the Defence Training Course in Ontario, for their encouragement and assistance in helping us to plan the book in its initial stages.

We also desire to express our sincerest appreciation to our contributors for their splendid co-operation in providing us with the subject-matter of the text. These are as follows:—

Flight-Lieut. C. A. Armstrong, Instructor at the R.C.A.F. School of Administration, Trenton, Ontario, for the section on *R.C.A.F. Organization*.

Mr. H. W. Bettger, Chief Navigation Instructor, Number 12, Eastern Flying Training School, Goderick, Ont., for the section on *Navigation*.

Major W. A. Bryce, University of Toronto, C.O.T.C., for sections on *Army Specialization*.

Lt.-Col. G. A. Cline, University of Toronto Schools, for the chapter on *The Internal Combustion Engine*.

Professor B. C. Diltz, the Ontario College of Education, for the chapter on *Signalling*.

Flight Lieut. W. J. Gladish, for the Air Officer Commanding No. 1 Training Command, Toronto, for *Aircraft Recognition*.

Mr. Bert Greenway, General Secretary of the Boy Scouts Association, District of Toronto, for *Fieldcraft and Campcraft*.

Mr. S. Holmes, Jarvis Collegiate, Toronto, for *Map Reading*.
Chief Ground Instructor K. S. Hopkinson, of No. 12 Eastern Flying Training School, for *Airmanship, Air Frames, and Theory of Flight*.

Mr. R. H. King, Principal, Scarboro Collegiate, Scarboro, Ont., for the chapter on *Civilian Defence*.

Mr. J. A. MacAllister, Ground Instructor at Number 12, Eastern Flying Training School, Goderick, Ont., for all the illustrations for the sections on *Airframes, Theory of Flight, Navigation, and Airmanship*.

Mr. G. A. Preston, Earl Haig Collegiate, Willowdale, Ontario, for the section on *War Gases*.

Mr. N. R. Speirs, Danforth Technical School, Toronto, for *First Aid*.

Mr. Taylor Storey, and Mr. Olaf Ulrickson, of Central Technical School, Toronto, for the chapter on *Model Building*.

Major B. E. Tolton, University of Toronto C.O.T.C., for some of the sections on *Army Specialization*.

Major C. A. Vickery, Musketry Officer attached to Military District No. 2, for the chapter on *Small Arms Training*.

We wish to express our sincere appreciation also to the Gutta Percha & Rubber Company, Limited, for supplying us with the coloured section illustrating Medals and Decorations of the British Empire; and to the Lumbermans' Mutual Casualty Company for allowing us the use of the diagrams illustrating Flag Etiquette.

It is our sincere hope that the material collected in this book will render some service to the training of youth in making them conscious of the national need, so that they may be prepared to serve their country in any capacity for which they are fitted, should the need arise.

C. J. Eustace, Editor,
J. M. Dent & Sons (Canada) Limited.

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DEFENCE TRAINING

ORGANIZATION, CEREMONIAL, AND DEPORTMENT.

Considerable variety is possible in the choice of material for the 8 periods in Grade X which deal with Administration, Morale, Discipline, Ranks, Medals and Decorations, and National Flags. Some suggestions for lesson topics are appended hereto. Some of these topics will be found to overlap with Grade XII topics (12 periods), which, however, have been given separately.

Suggested Topics.

Grade X.

1. Organization and Administration, Army and R.C.A.F. (See pages 4-10; also 245-251.)
2. Indication of Rank—Navy, Army, and Air Force, to the rank of Colonel or equivalent. (See page 20.)
3. Ranks and Duties—Non-Commissioned Officers and Platoon Commander. (See page 288.)
4. Decorations, Service Medals, etc., within the British Empire. (See page 14.)
5. Stories of courage in the Navy, Army, and Air Force from present and past.
6. Unit Badges—General Badges in Canada. (See page 11.)
7. History of Local Units. (Obtain from Unit Archives, or invite local speaker.)
8. The Union Jack and its proper use. (See page 15.)
9. Recognition of Flags of the Allies.
10. Smartness and Steadiness. Saluting. (See page 18.)
11. Development of Firearms. (See page 22.)
12. Changes in Military Dress. (See page 27.)
13. Ceremonial for Inspection. (See Drill Manual)
14. Falling in the Company or Battalion. (See Drill Manual)

Certain topics contributing to a knowledge of Army History and growth of Empire may well be deputed to English and Social Studies. Such might be:—

Grade IX.

1. Feudal system and military duty.
2. Free companies, and the Mercenary.

3. Biographical studies, such as of Marlborough, Cromwell, Wellington, the Earl of Chatham, etc.
4. The Battle of Hastings—Early tactics in war. (See page 256.) Comparison with present day.
5. Wellington's Peninsula War. Comparison with 1942 situation and tactics.
6. Economic blockade of Napoleon. Use of Sea Power.

Grade X.

1. Significance of New York and Quebec in the military history of the New World.
2. Mass tactics versus frontier warfare. (See page 256.)
3. Weakness and strength of tactics employed in (a) the Seven Year's War, (b) the American Revolutionary War, (c) the War of 1812, (d) the Boer War. (See pages 256-264.)

SUGGESTED TOPICS FOR GRADE XII

1. Organisation and Administration; Functions of the "G", "A", "Q", "M.G.O." Branches. (See page 268.)
2. History of the Growth and Expansion of the British Army. The importance of certain periods in British history as they force this growth. (See page 245.) For example:—
 - (a) In the days of Cromwell.
 - (b) The "New Model" Army.
 - (c) Foundation of the Standing Army, 1660 onwards.
 - (d) Eighteenth century growth as the Empire expanded.
3. Comment on earlier military campaigns to show (for example) poor staff work, no co-ordination, little specialisation in continuity of training, seasonal activity, inadequate methods of payment, etc. (See pages 250-257.)
4. Review of Grade IX and Grade X with special reference to tactics employed and results achieved in:
 - (a) Cromwell's time.
 - (b) Marlborough's campaigns.
 - (c) The Seven Year's War.
 - (d) The Struggle with Napoleon.
5. The Re-organization of the Army:—(See pages 256-261.)
 - (a) Lessons of the Crimea, the Cardwell Reforms.
 - (b) Preparation for 1914, Lord Haldane's Reforms.
 - (c) Static Warfare, a War of Attrition.
6. The organization of the Canadian Active Army: (See page 261.) The Recruit and his training.
 - (a) Enlistment—Voluntary.
 - By call (Regulations).
 - (b) Basic Training—Depot, Kit, etc.
 - (c) Advanced Training—Commandos, etc.
 - (d) Trade Tests and Trade Schools.
 - (e) Educational Faculties.
 - (f) Choosing an Officer—possibilities and qualifications required.

7. The Arms of the Service: Elementary organization and tactical purpose.
 - (a) Armoured Corps, (b) Artillery, (Mobile, Coastal, and Anti-Aircraft, (c) Engineers, (d) Signals, (e) Infantry, (f) Machine guns, (g) Army Service Corps, (h) Army Medical Corps, (i) Ordnance Corps.
 Origin and Development might also be included. (See Army pamphlets on issue).
8. Weapons in use by the various branches of the Army. (See *Canadian Army Training Pamphlet No. 1*).
9. The Organization of an Infantry Battalion. (See page 281.)
10. Pay and Allowances, Post-War Re-establishment. (See page 286.)
11. The Way the A.S.C. works. (See Supplementary text list p. 15.)
12. The Evacuation of the Wounded. (See Supplementary text list, p. 15.)
13. Duties and Steps in Rank, in full. (Army). (See page 287.)
14. The Officer's Duty to His Men. A thoughtful topic worthy of some special preparation.
15. Correspondence—Filing, Diary Sequence and office work for the information of pupils (boys or girls) who may be employed in military office routine. (See "Notes on Elementary Military Administration and Organization" or Military Administrative Pamphlet No. 1.)
16. System of Signal Communication—drafting of messages. See notes on Elementary Military Administration and Organization or Pamphlet.
17. Vehicles. Scrap book collections, discussions on new machines and their purpose. This might be a progressive throughout the year.

NOTE—Security of information prevents publication of specifications and types of A.F.V's and Tanks. These new types and other mechanized equipment may appear in the illustrated sections of newspapers and periodicals. Bulletin board presentation of this material encouraged by invited discussion led by the donors would seem to be an obvious way of utilizing this material.

1. ORGANIZATION AND TRAINING OF THE CANADIAN ACTIVE ARMY. (Grade X.)

Organization.

As with all the Armed Forces the office of the Commander-in-Chief is vested in H.M. The King, and is administered in Canada by the Governor-General. In our democracy, control of the Canadian Army is under the

Minister of National Defence at National Defence Headquarters (abbreviated to N.D.H.Q.). The National Defence Act authorizes the formation of a Defence Council, the members and associate members of which are the heads of the Army, who execute the policies laid down by the Minister of National Defence, or one of his Deputies.

N.D.H.Q. is composed of four Branches. The "G", or General Staff Branch, is responsible for the fighting and operations of the Army, and is headed by the Chief of General Staff (C.G.S.). The "A", or Adjutant General's Branch, is responsible for all matters pertaining to personnel. The "Q", or Quartermaster General's Branch, is responsible for Movement, Engineers' Services, Supply and Transport, and the Provision, Maintenance, and operation of the Royal Canadian Army Service Corps (R.C.A.S.C.) transport vehicles. The "O", or Ordnance Branch, is responsible for research, including experiment and design, provision maintenance, operation of arms and specialized equipment, and certain engineering stores. It has also the same duty as the Q Branch in regard to vehicles, for which drivers are provided by the Arm using them. The O Branch also looks after the provision, maintenance, and issue of clothing, tools, etcetera.

The control in Canada is decentralized through Military Districts. Canada is divided into eleven Military Districts. There has also been created, since the declaration of the Second World War, the Atlantic and Pacific Commands, for the coastal defence of the Dominion. A District is under the control of the District Officer Commanding, who is responsible to the Minister of National Defence. In the Command Areas, the relative Officer is the Commandant of Atlantic or Pacific Command. In

each District we find the four Branches represented, as at N.D.H.Q.

The Canadian Army Overseas has its Headquarters designated in abbreviated form as C.M.H.Q. (Canadian Military Headquarters.) This formation varies as the need arises, and has those portions of the A., Q., and O. Branches necessary to make an army overseas function properly. It is readily seen that the major portion of any fighting force must consist of G. Branch, which is the fighting and operations Branch of any Headquarters Staff.

Each of these Branches have attached such Services as are required to minister to the health, moral, educational, economic, and disciplinary side of the army's life. These services are discussed in more detail later (See pages 252-5 inclusive), but are applicable also to work in this Grade.

The history of the Canadian Army takes us back to Colonial days before the American colonies secured their independence. The first Great War brought it into existence on a large scale basis, and that broadened organization persisted until the outbreak of this war. In 1936, however, Lieut.-General McNaughton brought about a reorganization, so that the arms necessary in modern war might be organized and trained. In this shake-up many infantry units were given specialized tasks, were combined with others, or were disbanded. New artillery and engineer units were formed.

The aim was to provide two Army Corps each of three divisions—complete with all branches of operational and service units. To this was to be added coastal garrison and Cavalry or, as we know it now, Armoured Troops. For instruction in training according to this plan Canada had a miniature permanent force of slightly over 4,000 men.

To make up these Corps, units throughout the Dominion were carefully selected. Years of work were outlined and plans set in motion and then the war was upon us. The chosen units immediately began training not as an army prepared in time of peace, but as an army mobilized for war. This force became known as the Canadian Active Army. Events soon showed that the basis of organization was insufficient and had to be extended in spite of all obstacles.

Of equipment in the modern sense there was practically none. Tanks, guns, transport had to be manufactured. A new science of war had to be learned and taught to and by men who had no experience in actual use of the tools they were to handle. Mechanics, technicians and strategists all had to be developed. Industry had to be readjusted to meet the problem. Money had to be raised to pay the bill. Factories had to be built to house the industries. Labour had to be found to produce the new war products. These are some of the problems presented to the representatives who govern our country and direct our army. A willing spirit among officers and men we had always. Now that was not enough.

During the past two years these problems have been and are still being faced. Much of the war materials produced have been needed by other than our own troops. England, Russia, China, United States have all received part of our output. Nevertheless we are gradually nearing the place where our supply of equipment plus the quality of our men will make the Canadian Active Army the best equipped and best trained fighting force in the world.

The success of any modern military operation is due to its Air Force and Armoured Formations. These two branches of our fighting force are being stressed. Every

effort is being put forth to give us supremacy in the air through our Commonwealth Air Training Plan. Our Armoured Divisions in England and Canada are equipped and trained according to the most modern tactical methods. We have in England three infantry divisions, an Army Tank Brigade, an Armoured Division and many auxiliary Corps and Army troops. In Canada we have a chain of training centres preparing replacements in all branches.

Lessons learned in the battle of Flanders indicate that the armoured strength and mobility of any force capable of subduing the enemy requires superior armoured strength and mobility to that of the enemy. To this end a further reorganization has taken place in the establishment of three armoured divisions with mobile supporting infantry, artillery engineers, and signals.

To-day, to handle the placement of men in technical positions in this diversified organization a new branch of the service has come into being. In each of our basic and advanced training centres, Personnel Selection Officers with special psychological training, grade and allocate all army personnel in order that the best use be made of each man.

Training.

The soldier of to-day is no longer the static unit of former wars working shoulder to shoulder with many comrades under the supervision of an officer. To a sergeant and three or four men, equipment worth hundreds of thousands of dollars is entrusted. These will operate in many cases cut off from friendly troops. They will make their own plan of action. Theirs may be the decision to abandon or demolish this equipment in case of emergency. A driver who through carelessness has his vehicle break down in a crisis is a menace to army oper-

ation; a gunner who can't bring his guns to war at a critical moment is a serious liability; a soldier who does not thoroughly know his precautions against gas pays for it with his life; specialization is demanded from all ranks. We need, therefore, from every man in the force a combination of mechanical skill, and fighting ability.

ORGANIZATION OF THE ROYAL CANADIAN AIR FORCE

The Royal Canadian Air Force (R.C.A.F.) was organized on April 1, 1924. Command is vested in the King, and is exercised and administered by the Governor-General as his representative. Administrative control is the responsibility of the Minister of National Defence for Air who controls through the Chief of the Air Staff. To facilitate administrative control Air Force Headquarters (A.F.H.Q.) is divided into divisions, each division being responsible for a specific phase of Air Force Administration. The heads of these divisions together with the

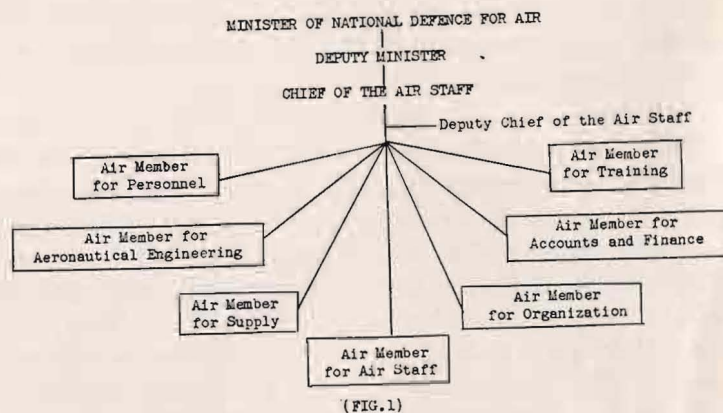
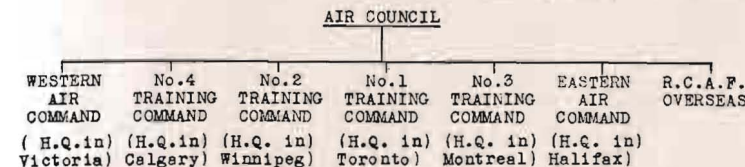


Figure 1 shows the composition of the Air Council and the relative positions of the members.

Minister, Deputy Minister, Chief of the Air Staff and his Deputy comprise the Air Council.

Command of the R.C.A.F. is decentralized by dividing the Service into Units and grouping these Units into Air

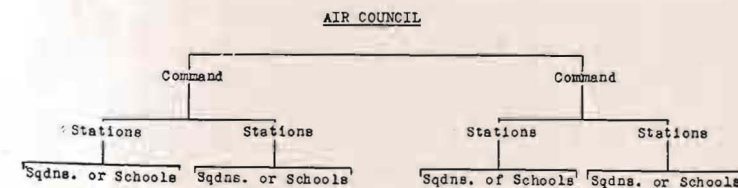


(Fig. 2).

Figure 2 shows the theoretical breakdown of the R.C.A.F. into Commands, Stations, Schools and/or Squadrons.

Commands—six in Canada. The Commander of these commands is delegated certain powers and given administrative responsibility for the Units under his command. These Commands and the R.C.A.F. Overseas H.A'S. are shown in Fig. 2.

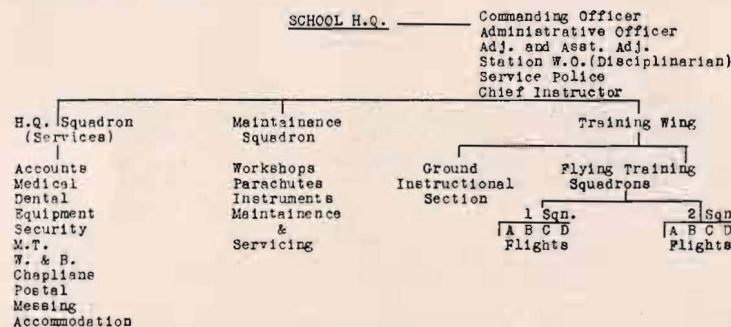
It was realized at the outbreak of war that victory could not be won without air superiority. To attain and maintain air superiority thousands of trained aircrew were required. During the Autumn of 1939 a conference was held in Ottawa, attended by representatives of the Imperial, Australian, New Zealand and Canadian Governments. At this conference the plans were laid for the British Commonwealth Air Training Plan. The plan pro-



(Fig. 3).

Figure 3 shows the organization of a flying training school.

vided for the establishment and manning of schools throughout Canada to train aircrew of all categories and maintain a constant flow of trained personnel overseas.



(Fig. 4).

In the R.C.A.F. Personnel are employed in the majority of the trades found in civilian life. This is demonstrated in part by the appointments and services listed in Figure 4.

The administration of the plan was placed in the hands of the R.C.A.F. The ability of the R.C.A.F. to administer the plan was demonstrated by the speed with which schools were organized. The R.C.A.F. not only accomplished the actual organization of the schools and maintained the scheduled output but organized the schools ahead of schedule, increased the size and output of the schools and is now carrying the training of aircrew in certain categories, particularly pilots, to a degree far above that called for in the original plan, e.g., pilots now receive approximately 85 per cent more flying hours than was provided for in the original plan.

R.C.A.F. comprises men and women who hold rank as shown hereunder:

	Male	Women's Division
Commissioned Ranks	Marshal of the Air	
	Air Chief Marshal	
	Air Marshal	
	Air Vice-Marshal	
	Air Commodore	Air Commandant
	Group Captain	Group Officer
	Wing Commander	Wing Officer
	Squadron Leader	Squadron Officer
	Flight Lieutenant	Flight Officer
	Flying Officer	Section Officer
	Pilot Officer	Asst. Section Officer
Warrant Ranks	Warrant Officer, 1st Class	Under Officer Class 1
	Warrant Officer, 2nd Class	Under Officer Class 2
Non-Commissioned Ranks	Flight Sergeant	Flight Sergeant
	Sergeant	Sergeant
	Corporal	Corporal
Aircraftmen & Aircraftwomen Ranks	Leading Aircraftman	Leading Aircraftwoman
	Aircraftman, 1st Class	Aircraftwoman, 1st Class
	Aircraftman, 2nd Class	Aircraftwoman, 2nd Class

UNIT BADGES

The Unit Badges shown here are general service badges as used in the Canadian Militia. Throughout the Dominion there are many units whose badges are significant in particular localities. Many of these represent splendid battle honours earned in World War I, and some have a record extending far back in Colonial history. It is impossible to reproduce all these badges here, and it would be unfair to choose some and omit others. It is suggested that a study be made of the badges and history of local units. Willing assistance will be provided from the units concerned, for they will no doubt regard it as a compliment to have the opportunity of introducing their traditions to the attention of high school students.



The Royal Canadian
Ordnance Corps



The Royal Canadian
Army Veterinary
Corps



The Royal Canadian
Army Pay Corps



The Royal Canadian
Navy
(Officer)



The Royal Canadian
Navy
(Chief Petty Officer)



The Royal Canadian
Navy
(Petty Officer)



The Corps of Military
Staff Clerks



The Canadian Postal
Corps



Canadian Chaplain
Service



The Royal Canadian
Air Force
(Officer of Air Rank)



The Royal Canadian
Air Force
(Officer below Air Rank)



The Royal Canadian
Air Force
(N.C.O.'s and Men)



The Royal Canadian
Dragoons
St. Johns, Que.



The Royal Canadian
Regiment
London, Ont.



The Royal Canadian
Mounted Police



The Royal Canadian
Artillery



The Corps of Royal
Canadian Engineers



The Royal Canadian
Corps of Signals



Veterans Guard of
Canada



Canadian Provost
Corps



Dominion of Canada
Coat of Arms



The Royal Canadian
Army Service Corps



The Royal Canadian
Army Medical Corps



The Canadian Dental
Corps

(Representative Unit Badges of Canada).

(Representative Unit Badges of Canada).

MEDALS AND DECORATIONS

The army is reluctant to regard a medal as a badge of superhuman courage or ability by which one man is forever distinguished from his fellows. It prefers rather to regard a medal as an indication of a worthwhile job well done. For one man whose merit is recognized in this manner, there may be hundreds of others whose conduct, just as deserving, failed to receive proper notice.

An exception must be made in the case of the wearer of the Victoria Cross. This man must have faced almost certain death in the face of the enemy, and performed an act of outstanding bravery. It is for this reason that the V.C. ranks highest among all medal awards.

Service Decorations are recognizable the world over as signals of comradeship among men who have undergone similar hardships in perhaps the same campaigns. They represent a great brotherhood of service and are valued highly and displayed proudly by those who have earned them.

The ribbons shown here represent the better known medals and decorations as worn by men in the British Forces. It would be a proper and courteous thing to familiarize ourselves with outstanding ribbons and medals of our allies.

A SELECTION OF ORDERS, DECORATIONS and MEDALS



VICTORY MEDAL
1914 - 1918

We are indebted to Gutta Percha & Rubber, Limited
for contributing this section.



VICTORIA CROSS

This, the senior British Decoration, takes precedence over all Orders, Decorations and Medals. It is awarded only for an outstanding act of valour in the presence of the enemy and may be won by all ranks of the Fighting Services.



THE DISTINGUISHED SERVICE ORDER

Awarded to officers of the Fighting Services for distinguished service.



LEGION D'HONNEUR

The Premier Order of the French Republic. It is conferred for conspicuous gallantry in action or for 20 years distinguished military or civil service in peace.



CROIX DE GUERRE

A French Decoration. May be awarded to all ranks of the Fighting Services who have been mentioned in despatches for feats of arms.



ORDER OF
THE BATH



ORDER OF
MERIT



ORDER OF ST. MICHAEL
AND ST. GEORGE



ORDER OF THE
BRITISH EMPIRE



ROYAL RED CROSS
(Women)



DISTINGUISHED SERVICE CROSS
(Navy and Marines)



MILITARY CROSS
(Army)



DISTINGUISHED
FLYING CROSS

THE illustrations shown in this section represent a selection of the better known Orders, Decorations and Medals. Except on special occasions, only the ribbons are worn.



AIR FORCE
CROSS



MEDAL FOR DISTINGUISHED
CONDUCT IN THE FIELD
(Army)



CONSPICUOUS GALLANTRY
MEDAL
(Navy and Marines)



DISTINGUISHED SERVICE
MEDAL
(Navy and Marines)



MILITARY MEDAL
(Army)



DISTINGUISHED
FLYING MEDAL



AIR FORCE MEDAL



MEDAL OF THE ORDER
OF THE BRITISH EMPIRE

FOR a more complete study of Orders, Decorations and Medals, and for the correct order of precedence, you are referred to various works that are available at your public library.



NORTH WEST CANADA
(1885)



(QUEEN'S) SOUTH AFRICAN
MEDAL (1899-1902)



The MONS STAR



MEDAL FOR MERITORIOUS
SERVICE (Army and Marines)



LONG SERVICE AND
GOOD CONDUCT MEDAL
(Navy)



LONG SERVICE AND
GOOD CONDUCT MEDAL
(Army)



COLONIAL AND AUXILIARY
FORCES (Long Service Medal)



MÉDAILLE MILITAIRE
(French)

THE material for the Orders, Decorations and Medals, illustrated throughout this section, was taken from various sources. Slight, but unimportant, variations in colour and design were found, depending on the authorities consulted and the material available.



GEORGE CROSS

Awarded chiefly to civilians, but also to members of the Fighting Services, for an outstanding act of gallantry arising from enemy action; also for other brave deeds. The George Cross ranks immediately after the V.C.



GEORGE MEDAL

This medal is awarded for gallantry and distinguished conduct. It may be won by civilians and also by members of the Fighting Services.



BRITISH WAR MEDAL
1914 - 1918

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LIST OF SUPPLEMENTARY TEXTS FOR REFERENCE

Army

Elementary Drill Manual	\$.25
Elementary Military Law for Canadian Officers40
Lecture Notes for First Paper 2nd Lieutenant Canadian Army Reserve50
Notes on Elementary Military Administration and Organiza- tion50
Artillery Mathematics50
Army Work Book	1.00

(The above books are all published by the University of Toronto
Press)

Corporal to Field Officer (Copp, Clark Co. Ltd.) 1.00

Air Force

English for Airmen	A. R. Moon	\$.90
Aero-Engine Theory Simply Explained..	Group Capt. Coats..	.20
Aero-Engine Practice Simply Explained..	Group Capt. Coats..	.20
AeroEngines for Pilots and Ground O. Cauldwell		1.50
Engineers	Brimm & Boggess..	2.50
Aircraft Engine Maintenance	M. Logan20
Aeroplane Simply Explained	J. C. Corlett	1.50
Rigging and Airframes	Brimm & Boggess..	2.50
Aircraft Maintenance	M. Logan20
Flying Simply Explained	M. Myerscough20
Air Navigation Simply Explained	J. McDonough	2.25
Airmanship	F. A. Swoffer	2.25
Learning to Fly	A. G. Norwood	3.00
Private Pilot's Handbook	D. G. Joy60
Civil Flying Control and Regulations..	D. C. M. Hume	1.50
Elementary Aerodynamics	A. C. Kermode	1.80
Flight Without Formulae	A. E. Downer	1.25
Practical Mathematics of Aviation	R. L. Smith and M. J. G. Hearley..	1.00

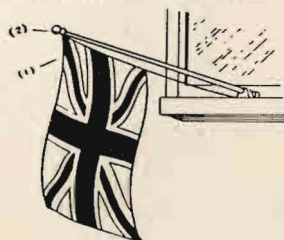
(These are all published by Sir Isaac Pitman & Sons Ltd.)

FLAG ETIQUETTE

Our Flag is a symbol of Our Country. Lives are being sacrificed daily for that country. Our regard for our Flag is a tribute recognition of our responsibility to Our Country. (See pages 16 and 17.)



When grouped, the Union Jack is placed in the centre and at the highest point.



When flown from a projecting staff make sure the broad white strip (1) is next the head of the mast (2).



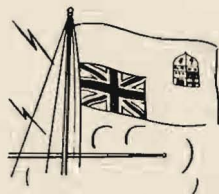
In processions, carry the Union Jack on the marching right.



When crossed with another flag the Union Jack is on the flags' right (reader's left) with the staff over that of the other flag.



When flying the Union Jack at half mast, first raise it to the mast head, then slowly bring it down the flag's width from the mast head.



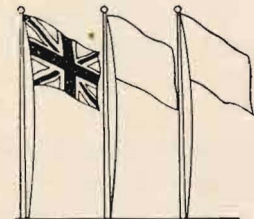
Displayed upside down, the Union Jack or Canadian Ensign indicates a distress signal.



When used at unveilings the Union Jack should be run to the top of the staff and left flying.



When used in Church the Union Jack should be on the minister's right.



When flags of two or more nations are flown use separate staffs of the same height.



Do not place any other flag above the Union Jack.



When placed on a wall make sure the Union Jack is nung as if the mast were on the right side of the flag (reader's left).



When several flags are carried abreast, carry the Union Jack in front of the centre of the line.

SMARTNESS, STEADINESS.

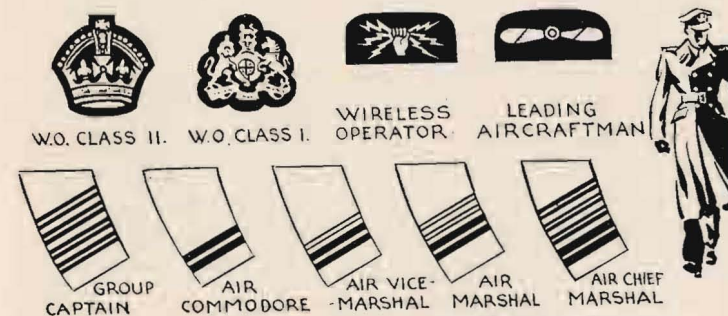
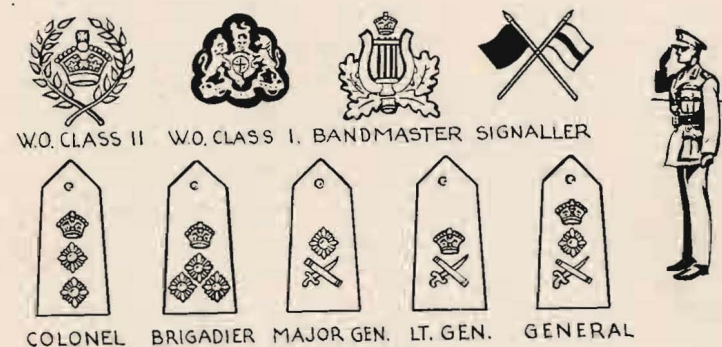
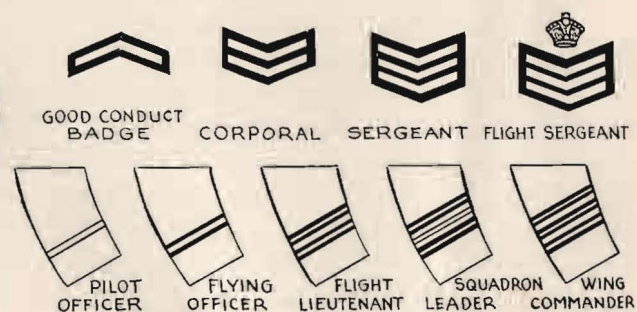
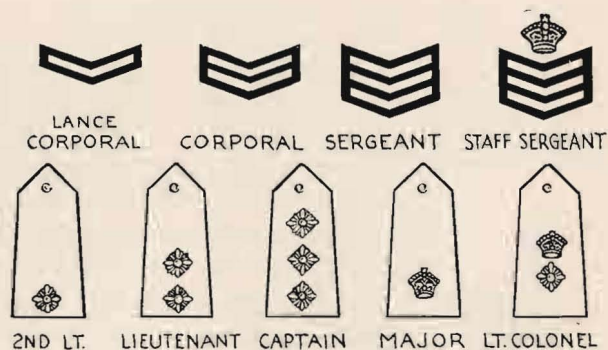
Saluting.

(Grade X).

1. Saluting is important. It gives evidence of courtesy, self-respect and efficiency.
2. A slopy salute suggests a slovenly soldier and a poorly trained unit.
3. It is no gesture of servility but rather an evidence of good breeding as is a properly made introduction in civil life.
4. Soldiers will pay compliments to officers at all times whether the officer is in uniform or civilian clothes.
5. You as a soldier will salute an officer even though he is seated or without a hat.
6. If you do not wear a hat you will not salute. You will pass with arms at side giving an "eyes right" or "eyes left" taking time equivalent to a salute.
7. In the United States soldiers salute only when on duty. In Canada members of the Air Force salute at all times. In Canada in some military units a salute is not required after night-fall.
8. Soldiers, sailors, and airmen will salute officers of the other services and of foreign allied services. When in doubt, salute. It need not concern you whether the salute is answered or not.
9. Never salute with a cigarette in the mouth or in the right hand. Smoking is to be discouraged when "walking out" in any public place where compliments may have to be paid.

SMARTNESS, STEADINESS, SALUTING

10. When you meet a lady acquaintance on the street, salute. It is your standard greeting.
11. When you meet a body of men on the march commanded by an officer you will face the column and halt until the group has passed. An officer will salute the officer in charge and pass on.
12. You will salute military and civil funerals.
13. You will salute a cenotaph or significant military monument as you pass. Give an "eyes right" or "eyes left".
14. If you are called from the ranks:
 - (a) In front rank step forward.
 - (b) In middle or rear rank step back clear and move around the right flank. Return around left flank.
 - (c) If carrying a rifle, slope arms and proceed.
 - (d) When saluting with the rifle tap the small of the butt smartly with the right hand and cut it to the side, in four counts.
15. An officer or Warrant Officer is entitled to "Sir" at all times.
16. If carrying bundles with both hands occupied do not drop your bundles to salute. Give "eyes right" or "eyes left", without saluting.
17. Saluting rules will be observed at all times when in uniform. This applies even though the uniform adopted is only a beret or an arm-band.



11. THE DEVELOPMENT OF ARMS.

(Grade X).

Other sections of this topic have covered some of the salient episodes in the history of British military development from time of the Norman conquest to the end of the first Great War. (See pages 271-287.) In this and subsequent sections a short outline of the evolution of arms, military dress and battle tactics can be considered.

At the time of the Norman Conquest the Saxons, under King Harold, were armed only with the short spear which could be used either for hurling or thrusting and with the large battle axe or the long double edged chopping sword. After the first shock of battle had been taken up it was customary for the opposing sides to close in and hack away at each other until one side or the other was decimated or fled the field of battle. In some lands the bow was in use but it was a short contrivance as compared to the six foot variety which was to become common three hundred years later. The Scandinavian people were the ones who used it most and it was the Danish blood in the Normans which probably accounts for the large proportion of Norman archers used at Hastings.

From the time of the battle of Hastings to the reign of Edward I there was little development in weapons, but this reign provides a landmark in that it was the period in which the long bow first came to the front as the national weapon. The previous bow was a short bow drawn only to the breast, not to the ear as was the long bow. Evidence that it was not in general use is the preference of Richard Coeur de Lion for the arbalest or cross bow which had greater range and penetrating power than the short bow. The long bow was by far the

most effective weapon of offence yet devised in that it had a good range, was accurate, had good penetrating power and was capable of rapid fire, a particularly important point on defence.

As has been mentioned gunpowder was first brought to the notice of the Western world by Roger Bacon in 1248 and by 1300 it had been applied to the propulsion of missiles. Primitive mortars and cannon were soon developed and were used chiefly as siege pieces. Some time later a crude form of hand gun was designed, at first such guns were merely short iron tubes without a stock or a firing mechanism. By 1400 a stock was added and later a trigger by means of which a smouldering match or cord was lowered into a pan to ignite the priming powder and fire the charge. Such a matchlock was called a "harquebus" and while it did not finally supplant the bow until two centuries later it had a marked effect on military development. The long bow was last used in battle in 1627 and at about the same time as it passed from the picture the matchlock was superseded by the "flintlock" musket and the flintlock pistol. The pistol was used as a supplement to the saber by cavalrymen and it was so inaccurate as to merit the advice for its successful use which was, not to discharge the weapon "until it was held close upon the body of the enemy".

By 1688 the musket was a standard arm for English troops but the need for improvement was well illustrated by the debacle at Killiecrankie. General Mackay advanced against the Earl of Dundee; the Highlanders, relying on broadsword and shield, broke the lines of Mackay's force, which was armed only with their slow loading muskets fitted with the "plug" bayonet. The musket fire was not rapid enough to prevent a hand to hand con-

flict and once they came to close grips the plug prevented the musket from being fired. Mackay appreciated the deficiency and arranged for the adoption of a new type bayonet which could be screwed on to the outside of the musket so that the men could fire with their bayonets fixed.

The introduction of this new bayonet resulted in the abandonment of the old division between missile and shock weapons which had seriously hampered mobility, fire power and manoeuvre. The evolution of the basic infantry weapon covered a period of roughly, six hundred years. Prior to 1066 there were no missile weapons excepting the small throwing axe and spear. In 1066 the bow was introduced and until 1500 the ratio was about 6 bowmen to every four pikemen. Then the musket came in to supercede the bow and in 1690 the adoption of the screw bayonet combined the virtues of bow, pike and sword all in one weapon.

Another innovation to increase the fire power of the infantry was the introduction of the hand grenade which resulted, in 1678, in the formation of a grenadier company in each Regiment. Tall men of good physique were selected and were armed with grenades and with axes to break down palisades.

Cavalry too changed greatly. The development of fire-arms reduced the effectiveness of armour and gradually it was discarded. As a result lighter and faster horses could be used, speed replaced weight and at the same time gave more protection than armour.

The development of artillery during this period was very backward. Field guns of 6 lbs. (the Saker) to 18 lbs. (the Culverin) were attached to each regiment in pairs. The guns had a short range less than half a mile,

and were used only in the preliminary stages of a battle, to cover the deployment of the infantry and to hinder that of the enemy. When battle was joined they were difficult to move; as the drivers were civilians who retired from the field when fighting commenced, and the guns themselves were heavy and cumbersome.

As has been mentioned previously an Experimental Corps of Riflemen was formed in 1801. The purpose for which this formation was created was to test a new rifle called the "Baker". The Baker was the first official rifle introduced into the British Army, as a weapon for light troops. The next year saw the first of many developments in gunnery, the introduction of the Shrapnel shell, an invention of a Major Shrapnell of the Royal Artillery. The new shell proved to be very effective at ranges of up to 1,200 yards.

In the Cape War of 1850-52 a new rifle the Minie, was tried out experimentally; it was found to have an accurate range of 500 yards and an extreme range of 900 yards, a Kaffir being actually shot at that distance. Around this time also the use of percussion caps to discharge a musket reduced misfires from 40 to 4 per cent.

In the year 1857 a new rifle, the Enfield, was introduced. This rifle was an improved edition of the Minie and used a greased cartridge the end of which was bitten off before loading. In 1866 the first breech loading rifle, the Snyder, was issued. It, in turn, was supplanted by the Martini-Henry, the first hammerless rifle. In 1889 the first .303 was introduced, the Lee-Netford, which was very accurate and had a range of 1900 yards. This rifle was the first to have a magazine. Smokeless powder was introduced at the same time.

Artillery design also progressed, the first rifled field gun was introduced in 1860, in 1866 the breech loader came to stay and in 1891 the first quick firing gun. The first of the machine guns, the Gatling, was used in the 2nd Afghan War 1878-1880. Its successor, the Maxim gun, was used for the first time against the Matabela warriors in 1893. The Maxim was the first weapon to utilize recoil and the expansion of gases in the loading and ejection mechanism of a quick firing gun. In 1915 the lighter and more portable Lewis gun, the invention of a Canadian, was introduced to supplement the Vickers (as the Maxim was later called).

Another weapon which has not been mentioned is chemicals. As was stated in a previous section of this pamphlet, gas was used for the first time in the First Great War on the 22nd of April, 1915. It was not, however a new weapon. Its use had been discussed and legislated against ever since the Crimean War, and furthermore, Spartan troops used chemicals as far back as 400 B.C. They created clouds of poisonous fumes of sulphur dioxide by the simple expedient of kindling huge bonfires on which they threw raw sulphur.

A discussion of offensive weapons would not be complete unless mention was made of armoured fighting vehicles. The modern descendant of the old war chariot made its initial appearance on the battlefields of the Somme on the 15th of September, 1916. Invented by the British and christened "Tanks" for reasons of secrecy, they opened up a new era of mechanization and have probably had the greatest influence on the conduct of battle than any innovation since the introduction of gunpowder.

12. CHANGES IN MILITARY DRESS.

(Grade X).

The evolution of military dress is curiously allied with the weapons and the tactics of the day. At the time of the conquest of Britain a chain mail shirt or "byrnie" and a helmet were worn by all who could afford them. Shields were carried also by both horsed and foot soldiers. Later, in the days following the Norman Conquest the use of armour reached a ridiculous vogue. Knights were often so heavily armoured that they had to be assisted in mounting their horses and a knight who was unhorsed was completely at the mercy of the foot-soldier, being so heavily encumbered with armour that he could neither fight nor run. Naturally a horse capable of bearing such a weight had to be large and strong, two characteristics not compatible with speed and manoeuvrability. At one period the horses themselves were also encased in armour to a degree that gave the combination but one virtue, that of slow, overpowering weight.

The introduction of gunpowder changed all this however. A suit of armour which would turn a thrust or a sword cut was quite inadequate to stop a ball propelled by a powder charge and, as a result, armour was lightened and the art of mobile warfare was restored. Cromwell was one of the first to sense the new order and his mounted troops were armoured only with a back and breast plate and a light pot helmet.

As mentioned previously, the use of a uniform dress was first considered in 1645 when the New Model Army was raised. All the men wore scarlet and each regiment had for its facings the private colours of the Colonel. The introduction of a uniform was not for reasons of

show or pageantry but for the sole purpose of distinguishing friend from foe, prior to this time a partisan indicated his loyalty by wearing a flower or a branch from a particular tree in his head-dress; in the heat of combat these were sometimes lost with disastrous results. The use of scarlet may at first seem an absurdity but it must be remembered that weapons of the period were such that the opposing forces had to close in hand to hand combat to reach a decision and it is recorded also that inasmuch as the blood from a wound did not show on scarlet the use of the colour prevented discouragement among friends and elation on the part of the enemy.

The next major changes were instigated by George II (1727-1760). The new king was a gallant soldier who had done well against the Turks in Hungary and also under Marlborough at Cudenarde but he had a theory that attractive looking uniforms would promote recruiting and he let his desire for appearance outrun all ideas of utility and common sense. Sensible long stockings were replaced by tight fitting white gaiters up to the thigh, hair was to be worn in a pigtail and kept powdered, grenadiers were to wear side whiskers. These were only a few of the absurd innovations which gave an air of superficial smartness at the expense of comfort and efficiency.

The Cape War of 1850-52 saw a further innovation in dress. The country was extremely rugged and covered with dense forests. Boots and the smart colourful uniforms of Waterloo soon wore out, so the troops were equipped with loose garments of a nondescript colour, more attention being paid to efficiency than show. The scarlet tunic was retained until the South African War, but was cut on the pattern of a comfortable loose-fitting

Norfolk jacket. The first sun helmets were issued at the time of the Egyptian campaign in 1882.

The use of khaki for the service uniform was introduced in the South African War. Arms were now extremely accurate and had a long range, in consequence the most important factor became concealment. If a soldier was to live he had to be dressed in a manner which would make him as inconspicuous as possible. In the First Great War service dress underwent certain minor modifications and two major changes. The first of these was the revival of the use of a helmet, the now familiar steel helmet, usually termed the "tin hat" being introduced as a means of reducing head casualties caused by flying shell splinters and snipers' bullets. The second addition was the respirator or "gas mask" which was developed as a result of the introduction of chemical warfare.

After the cessation of hostilities in the war of 1914-19, a thorough study of dress was made and from it came the new "battle dress" which, while not a smart appearing uniform, is probably the most comfortable and practical dress yet devised. The prospective increase in the use of chemicals in warfare also necessitated the provision of anti-gas capes. These are made of an oiled fabric and are painted in a mottled or stippled effect as an aid to camouflage. In addition troops in forward areas now wear a simple form of transparent celluloid eye-shield as a protection from air spray.

EXERCISE

1. In what way do uniforms of to-day differ from those of 150 years ago?
2. Why is the change to the present type of uniform necessary.
3. When does an officer wear, or carry, his sword.
4. What relics of past ornamentation do we see when Canadian regiments are on parade during peace time?