

The **CROWNDDEL**

Vol. 6, No. 9
OCTOBER 1954



ROYAL CANADIAN AIR FORCE



Issued on the authority of
THE CHIEF OF THE AIR STAFF
 Royal Canadian Air Force

Vol. 6, No. 9

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This Month's Cover



The first of six Piasecki "Workhorse" helicopters to be purchased by the R.C.A.F. for search and rescue operations. Its 20 x 5½-ft. cabin has room for twelve litters or twenty seats and its normal useful load is 2,800 lbs. Powered by a 1,425 h.p. Wright engine, it cruises at 100 m.p.h. and has a range of more than 300 miles (without extra fuel tanks).

EDITORIAL OFFICES:
 R.C.A.F., Victoria Island,
 Ottawa, Ont.

SGT. SHATTERPROOF CAN TAKE HIS TORSOS

Sir:

The grapevine vibrates. My last letter to you, I gather, has been taken severely to task in certain quarters. Here and there the cry is being raised that the old Athenian loses his touch, that he grows *risqué*, that the pre-prandial is slowly but surely blunting his finer sensibilities. In a word, Sir, it is hinted by his traducers that Shatterproof has forsaken Praxiteles for Petty. "The old campaigner" (so goes the gossip in the darkest corners of mess and barrack-room) "nears the end of his campaigns. The torsos of Hollywood have taken over where the classic contours of Miss Clasper left off. Hark how the aging monster bel-lows for his cheesecake! Faugh!"

I need not remind you, Sir, that no Shatterproof has ever condescended to acknowledge a foeman who does not meet him face to face, with drawn sword in his hand, and with an "En garde!" upon his lips. What school-child is ignorant of the saga of Six-Cord Shatterproof, the Adonis of Sturgeon Falls? What 'teen-ager has not read how, when his axe and buck-saw were not decimating our virgin forests, his smile and ready wit were wreaking havoc in the boudoirs of Blind River? And what adult has not heard of his last magnificent gesture, when he did not even deign to glance over his shoulder as Cross-Cut McCorkle, who had returned home unexpectedly from the camps, removed his brains with a well-directed grindstone? Of such calibre, Sir, are the men of my House.

But lest anyone (jealous of our feats of arms both in the stern arena of war and in the gentler lists of love) suspect us of being mere muscular debauchees, let me recall to mind the great renunciation of my Puritan ancestor, Shun-Dalliance Shatterproof — that same ancestor who, in the name of clean living, distinguished himself at the

Battle of Naseby by disembowelling a dozen or so King Charles' landed gentry.

It is recorded that Shun-Dalliance, in his later years, became deeply enamoured of a maiden known as Old Poll of Wapping Stairs. She was, it seems, a lady of more than ordinary culture and refinement. Not a pea was ever seen to roll off her knife, and her repertoire of roundelays was the delight of the *cognoscenti*. Unfortunately, most



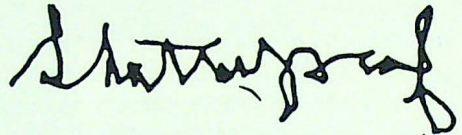
of the roundelays that she was in the habit of singing were not such as to endear her to Cromwell's government. Practically all of them, in fact, had as their theme a rather easy-going sort of life strongly reminiscent of the Cavalier régime. Since, however, Old Poll was the girl-friend of a national hero, she could not very well be accused of Royalist sympathies. She was therefore arrested on a charge of witchcraft, and Shun-Dalliance was subpoenaed to give evidence at her trial.

One shudders to conjecture, Sir, what torments my ancestor must have gone through during the weeks that preceded his appearance in court. Since the only form of entertainment permitted in those devout days was an occasional hanging or burning, he knew that the fun-hungry public would never tolerate his loved one's acquittal. Although — as his operational record proves — he did not know the meaning of the word "fear", he must surely have asked himself the question "How can I possibly continue to further the cause of clean living if I refuse to co-operate and find myself reduced to produce on the scaffold or at the stake?"

It was a question which he answered in his own decisive way. "She enchanted me," he told the

judge. And when Old Poll, despite the discomfort occasioned her by the blazing faggots, departed for the Hereafter with a triumphant squawk of "God Save the King!", it was said that my ancestor looked, not merely unmoved, but even slightly relieved.

We Shatterproofs, Sir, can take our torsos or leave them.



P.S. On page 24 of the July-August issue, I observe that "The Roundel" has once more held up the R.C.A.F. to the mockery of the entire civilized world. What (let us ask ourselves) will George Bertrand Shaw, the distinguished mathematician, think of Canada when he sees his words attributed to the playwright, Bernard Russell?*

*George Bernard Shaw, the playwright, will probably give the matter little attention, since he died two or three years ago. The distinguished mathematician, Bertrand Russell, will recognize a bit of careless proof-reading (if it ever comes to his attention) for just what it is. — EDITOR.

HOOCH BOMB?

Four moonshiners recently arrested in Virginia had managed to screen operations of their elaborate liquor still for a long time by passing the word around that they were engaged in "secret work for the Pentagon." ("New York Times.")

Officers' QUALIFYING EXAMINATIONS

Prepared by the Directorate of Postings and Careers, A.F.H.Q.

(Most of the junior officers who still have to write qualifying examinations enrolled in the R.C.A.F. after the reintroduction of the examinations in 1948. Many of these officers are naturally curious about the origin and history of such examinations, and it was in order to answer their questions that this article was prepared.—EDITOR.)

LIKE many other good things, qualifying examinations were introduced into the R.C.A.F. after they had been successfully tried by the R.A.F. After numerous discussions and the inevitable reams of correspondence between Air Ministry and the Director of the Royal Canadian Air Force, arrangements were completed for use by the R.C.A.F. examinations. On 13 April 1927, a letter was sent to all Royal Canadian Air Force units, carrying the great news that qualifying examinations were to be introduced. The following are excerpts from the famous document:

"Arrangements have been made with Air Ministry for R.C.A.F. officers to take the same promotional examinations as R.A.F. officers, with certain modifications . . . In future, Air Ministry will set papers on Aircraft and Engines in two parts, Part I being questions on the particular type of aircraft and engine selected by the candidate, Part II containing general questions on aircraft and engines . . . The next promotion examinations will probably take place about February, 1928; therefore, prospective candidates should commence study for these examinations now. Officers Commanding units are to submit nominal rolls of candidates for promotion examinations to reach Headquarters not later than 15 October, 1927".

Thus it came about that the first promotion examinations in the Royal Canadian Air Force

were written in 1928 during the period of 27 February to 1 March, inclusive. Records indicate that a grand total of five candidates sat for the examinations. As a point of interest, Flight Lieutenants Hull (Air Cdre., retired), Apps, and Sadler, and Flying Officers Middleton (Air Vice-Marshal, C.B.E., retired) and Shields were the trail-blazers. For the privilege of using the R.A.F. examinations, Air Ministry levied a fee of five pounds per candidate, which was paid by the Canadian Government.

As was to be expected, the preparation of the examinations improved as time progressed, and the syllabus for the 1930 examinations read as follows:

OFFICERS' PROMOTION EXAMINATIONS

B & C

Royal Canadian Air Force Promotion Examinations "B" & "C" will be as follows:

"B"

For Promotion to Flight Lieutenant

Date	Length of Paper	Examination Subject
Tuesday,	3 hours	I Flying Training
4th February, 1930	3 hours	II Applied Flying
Wednesday,	3 hours	III Aircraft
5th February, 1930	3 hours	IV Engines
Thursday,	3 hours	V Air Force Law
6th February, 1930	3 hours	VI Organization and Admin.
Friday,	3 hours	VII Signals
7th February, 1930		

"C"

For Promotion to Squadron Leader

Tuesday,	3 hours	I Aircraft
4th February, 1930	3 hours	II Engines
Wednesday,	3 hours	III Air Operations (Land)
5th February, 1930	3 hours	IV Hygiene & Sanitation
Thursday,	3 hours	V Imperial Geography
6th February, 1930	3 hours	VI Air Operations (Gen.)
Friday,	3 hours	VII Organization
7th February, 1930		

No officer will be allowed to sit for examinations "B" until he has completed two years in the rank of Flying Officer. No officer will be allowed to sit for examinations "C" until he has completed three years in the rank of Flight Lieutenant.

It would appear that the old saying, "It pays to advertise," paid off, because approximately thirty candidates sat for the 1930 examinations. (A close scrutiny of the records, by the way, finds such names as Flying Officers Slemon, James, Wait, and Morfee*, appearing on the nominal rolls of the candidates.) However, all was not rosy. Several candidates failed to obtain the passing standard and were assessed as "FAILURE".

Perhaps our readers' curiosity has been aroused with regard to the "A" examinations. These were used exclusively by the R.A.F. to determine the eligibility of Pilot Officers for promotion to Flying Officers!

Promotion examinations were an annual event throughout the thirties, with minor changes necessitated by the adoption of new procedures, until September 1939, when a directive was issued setting them aside "for the duration."

*Air Marshal C. R. Slemon, C.B., C.B.E.; Air Vice-Marshal A. L. James, C.B.E. (ret.); Air Vice-Marshal F. G. Wait, C.B.E.; Air Vice-Marshal A. L. Morfee, C.B., C.B.E. (ret.).

The distant boom of guns had barely faded away, when the advisability of the reintroduction of promotion examinations (all but forgotten during the Second World War) was first considered on 25 October 1945. By February 1947, several meetings had been held by those in command, and it was agreed that examinations should be revived in 1948. Examinations were to be set and marked by the R.C.A.F., using R.C.A.F. and, if required, R.A.F. publications. As a result of this decision, Air Force Routine Order 625, dated 21 November 1947, containing information pertaining to the qualifying examinations, was prepared and promulgated. Once again, qualifying examinations were accepted in the R.C.A.F. as one of the means of determining the suitability of officers for advancement in the service.

* * *

Plans for the 1955 examinations are now nearing completion. Their purpose is, of course, the same as that of all similar examinations which have preceded them, and we cannot more fittingly bring the foregoing remarks to a close than by quoting the announcement that appeared in A.F.R.O.s for July 16th:

"To assist in the selection of the best qualified personnel for promotion, and, through study of such subjects as history, geopolitics, air power, and trade knowledge, to produce a more enlightened officer who will be better prepared for progression in the Service, qualifying examinations have been prescribed for Flight Lieutenants and Flying Officers in the Regular Force."

CHARACTER TEST

You can tell the character of every man when you see how he receives praise. (Seneca.)

The Suggestion Box



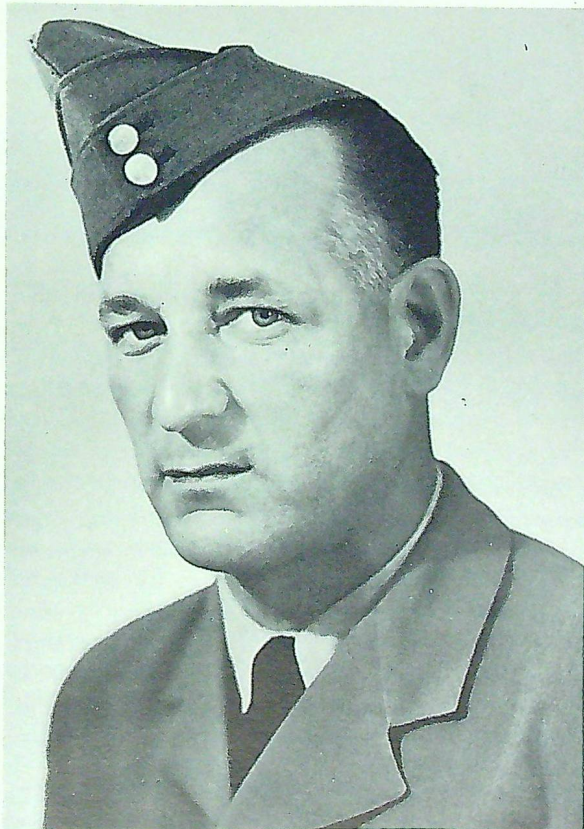
The Chief of the Air Staff has written letters of thanks to the undermentioned N.C.O.s for original suggestions which have been officially adopted by the R.C.A.F.

Flt. Sgt. T. W. Walls, of R.C.A.F. Station Centralia, pointed out that no purpose is served by the attachment of Canadian Pratt and Whitney emblems on overhauled engines.

Discontinuance of the practice will effect a substantial saving in maintenance costs.

Flt. Sgt. J. E. Blowers, of Canadian Joint Air Training Centre, put forward a suggestion that plaster casts be made of the 242D40 propeller, used on C-119 aircraft. Use of these casts will enable a quicker and more accurate check to be made of propeller blades in which distortion may have occurred on account of filler shift.

Flt. Sgt. T. W. Walls.



Flt. Sgt. J. E. Blowers.



THE PARTY LINE

GROUND DEFENCE IN THE R.C.A.F.

Prepared by the Directorate of Ground Defence

(Every officer and airman in the R.C.A.F. will eventually receive training in ground defence. Since, of course, the prime function of an Air Force is the operation of its aircraft, all its other activities must be ancillary to that end. Ground defence training, therefore, cannot be carried out en masse. Instead, short courses are given on most R.C.A.F. stations by full-time ground defence instructors, and officers and airmen are detailed to attend them in a manner that does entail undue diversion from their normal tasks. The purpose of the present article is to give our readers a broad understanding of the thinking that underlies the ground defence training programme.—EDITOR.)

INTRODUCTION

GROUND DEFENCE in the R.C.A.F. has as its sole aim and purpose the support of the primary air mission. Basically, it is an emergency support activity which employs pre-trained personnel of all R.C.A.F. trades to meet emergency conditions which, if neglected, would preclude the carrying out of the flying mission. It is not conceived as an adjunct to the ground battle or to the Army's anti-aircraft area defences. Instead, it is conceived and organized to perform the very limited yet vitally important mission of providing air installations with an emergency means of self-protection against ground or air attack. To perform this mission, personnel of all R.C.A.F. trades must be trained by ground defence specialists to a degree which will enable them:

- to take the steps necessary to insure their own self-preservation under attack, and
- to join together as members of ground defence teams acting in concert to protect, defend, and rehabilitate R.C.A.F. installations in order that the primary flying mission will be disrupted to the least possible degree.

With these facts firmly in mind, let us briefly analyze the way in which ground defence is designed to operate.

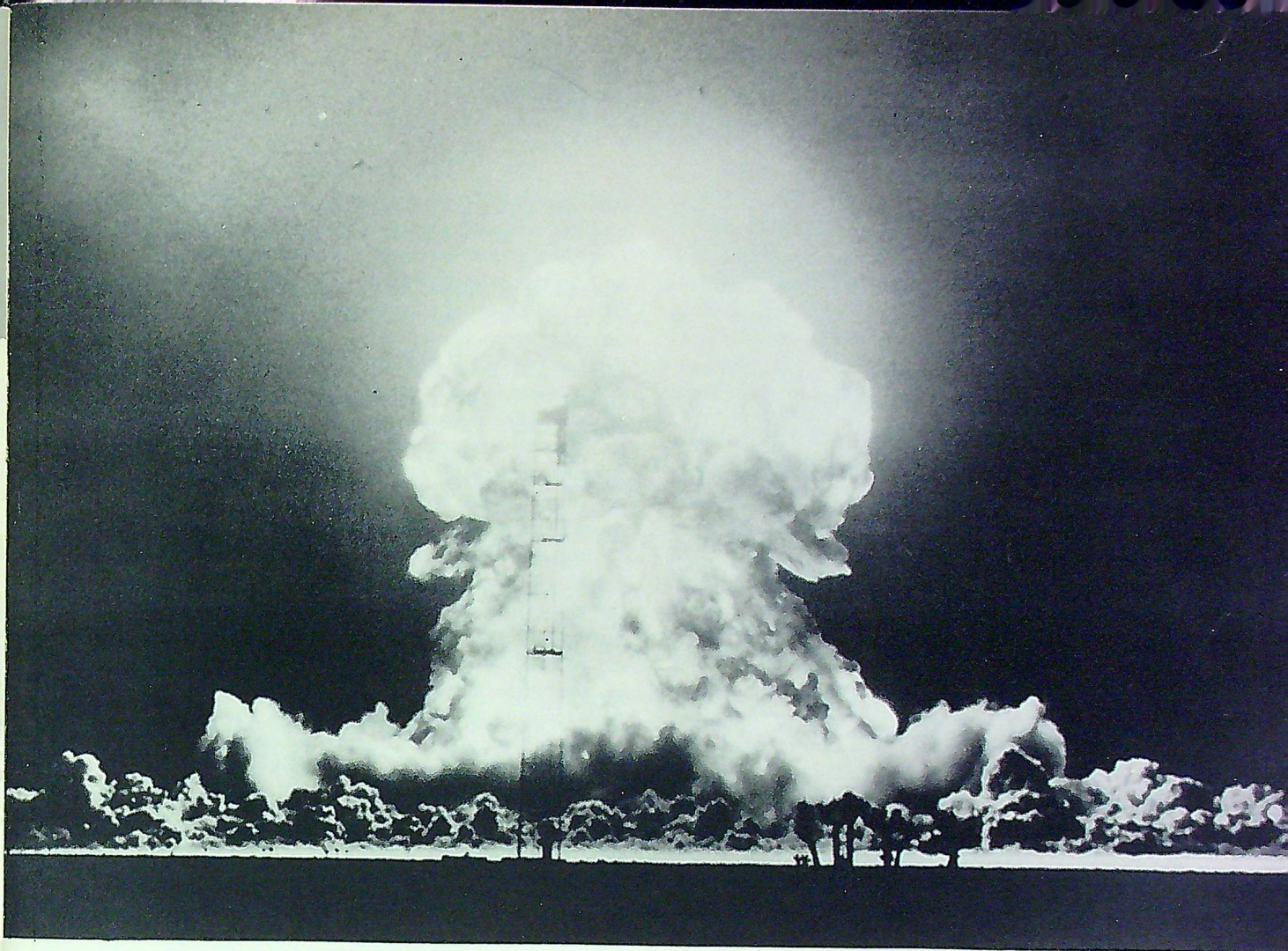
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There are three functional divisions of the basic ground defence mission:

1. Active Defence.
2. Light Anti-aircraft Defence.
3. Passive Defence.

ACTIVE DEFENCE

Active defence is the employment of R.C.A.F. personnel equipped with personal arms and organized to fight from prepared defensive positions against small-scale ground attacks by partisans, guerillas, paratroopers, or other enemy ground units. It is obviously inconsistent with the primary R.C.A.F. mission to attempt to train personnel in all the weapons common to army infantry regiments. The effort necessary for such extensive ground combat training would interfere with the primary trade duties of these personnel to an extent out of all proportion to the threat involved.



Cost-wise, too, the expense of providing lavish scales of weapons, ammunition, and equipment for fighting a sustained ground war would be inconsistent with the emergency nature of active defence activities. It becomes clear then, that active defence training in the R.C.A.F. must be concentrated on ensuring that each man knows how to use effectively his personal weapon as a member of a provisional emergency ground defence unit, fighting from previously prepared and organized defensive positions.

The training must, of course, be of the very highest calibre, especially since R.C.A.F. personnel employed in active defence rôles will be faced with an enemy whose primary mission is ground combat. That is why officers and airmen of the Ground

Defence trade — many of them with active army combat experience — are detailed to R.C.A.F. units to supervise the ground defence training programme and to aid the installation commander in planning the most effective employment of his active defence forces. It is the job of these specialists to apply their ground combat skills to obtain the most efficient defence that is consistent with the emergency nature of the active defence mission. Limited as they will be in weapons, in equipment, in manpower, and in allotted training-time, these men must use all the ingenuity and imagination at their command to make sure that the very best plans are laid and the very best training is given to cope with any ground attack the enemy is likely to mount against our air installations.



LIGHT ANTI-AIRCRAFT DEFENCE

Light anti-aircraft defence, the second phase of the R.C.A.F. ground defence mission, is defence against low-level strafing and bombing attacks. For this purpose, relatively small-calibre anti-aircraft weapons are used, suitable for employment against attacking aircraft from ground-level up to about 4000 feet.

The R.C.A.F. light anti-aircraft defence rôle is limited to the "point" defence of air force installations. It is not planned as an integrated area defensive system (which function lies within the Army's sphere of operations), but as an on-the-spot defence of our vital aerodrome facilities. At the present time, R.C.A.F. light anti-aircraft defences are concentrated chiefly at stations of No. 1 Air Division in continental Europe.

It is anticipated that the light anti-aircraft defences will be manned by station personnel appropriately trained by officers and N.C.O.s of the Ground Defence and Armament trades. The weapons will, of course, have to be emplaced very close to the areas where the men work, in order to be readily accessible in case of emergency. An aircraft mechanic, for instance, upon hearing the air-raid warning, would immediately drop his tools and man the L.A.A. gun located near his workstation. Again, as in active ground defence, the job would be done on an emergency basis to meet an emergency situation.

It must be conceded that there are many forms of air attack available to an enemy which would render our light anti-aircraft weapons useless against his aircraft. For example, medium- and high-level bombing attacks would be beyond the effective range of any of our present L.A.A. guns. This does not mean, however, that our L.A.A. defences are worthless. On the contrary, we must remember that the enemy is always looking for the most economical way to complete his mission. Certainly a low-level dive-bombing or strafing attack would be the most feasible and economical way for him to neutralize an airfield. Such an attack, in the absence of local anti-aircraft defences on the target airfield, could reasonably be expected to succeed. By deterring such an attack

with our L.A.A. weapons, we force the enemy to employ weapons and methods of attack far more costly to him in terms of materiel and manpower, and, in the case of medium- or high-level bombing, more vulnerable to destruction by our fighter defence forces.

Training of R.C.A.F. personnel to man the L.A.A. guns must be of the highest order. The siting of the weapons must be in accordance with sound tactical precepts, yet must be close to the normal duty stations of the personnel who will man them. Care and maintenance of the weapons must be of a high standard in order to ensure that a properly functioning weapon is available, together with an adequate supply of ammunition, on a 24-hour-day, 7-day-week basis. Obviously, there must be excellent co-ordination between the ground defence personnel, who are primarily concerned with tactical emplacement of the weapons and training of the gunners, and the armament personnel, who are primarily concerned with the care and maintenance of the weapons.

Working together, these two trades can ensure that our light anti-aircraft defences are capable of deterring low-level attacks on our stations or of exacting a heavy toll of the enemy if he persists in his attack despite our defences.

PASSIVE DEFENCE

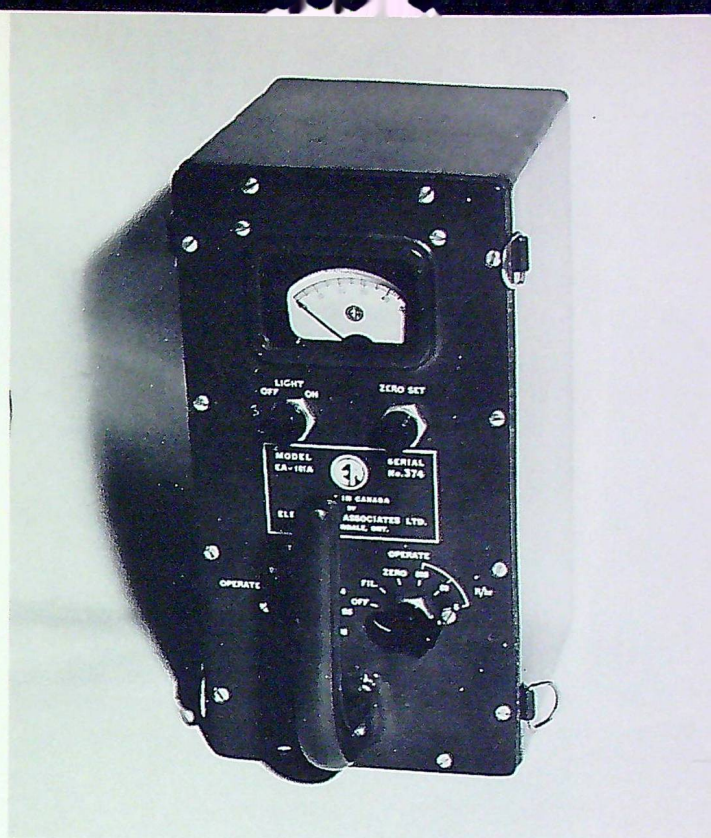
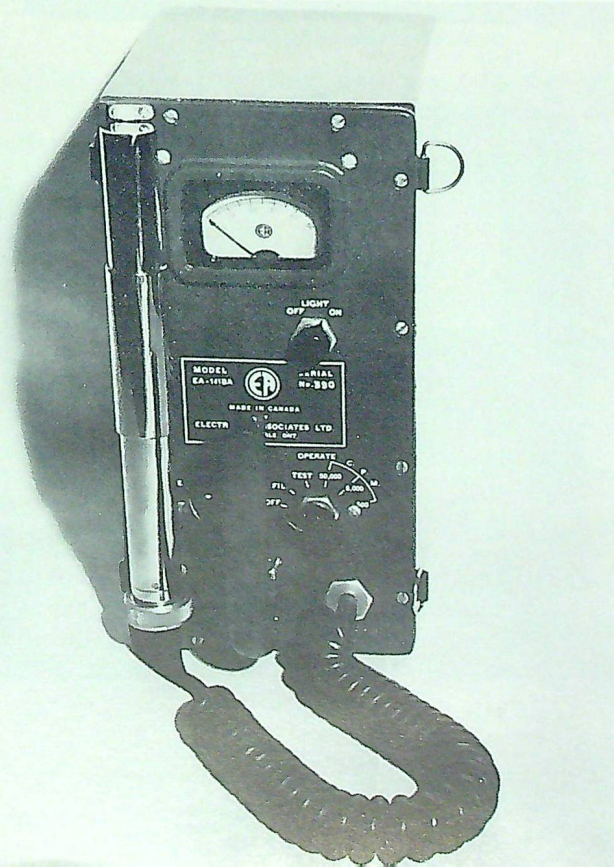
Passive defence, the third phase of our ground defence function in the R.C.A.F., has, with the advent of nuclear weapons, assumed a most important place in our planning. Since the connotations of the term "passive defence" are not generally well understood, perhaps a definition of the term and the concept is in order.

Simply stated, passive defence is the art of covering up. It can be likened to the defensive crouch assumed by a boxer against a determined onslaught by his opponent — a defence which is intended to afford him the best protection against the opponent's blows, yet which enables him to weather the attack and to strike back hard when the opportunity arises. That is the basic principle of, and the compelling reason for, passive defence in the R.C.A.F. Passive defence, then, consists of all measures which can be taken to lessen the effect

of the enemy's attack upon us, while preserving our capacity to retaliate and to achieve our own primary mission.

Of all the weapons the enemy can employ against us, certainly the most important from the standpoint of potential destruction are the nuclear bombs — the A-bomb and the H-bomb. It is a known fact that the design and production of nuclear weapons has reached the stage where their use against a tactical target such as an aerodrome is a perfectly logical presumption. Following nuclear weapons in potential importance are the other weapons — H.E. bombs, chemical warfare agents, biological warfare agents — which an enemy has in his arsenal. Fortunately, a good defence against the most powerful weapon — the H- or A-bomb — is also a good defence against his H.E. bombs, his chemicals, and his biological agents. That is why the chief passive defence effort is directed toward protection against atomic at-

Contamination control meter for detecting and measuring radioactive contamination on personnel or equipment.



The gamma survey meter, a portable instrument used in surveying radioactive areas.

tack. All that is planned in mitigation of the effects of atomic attack can be applied, with minor additions of equipment and training, to defence against chemical, biological, and H.E. bomb attack.

An atomic explosion on one of our airfields would be most serious. Of that there can be no doubt. Yet we cannot subscribe to the pessimistic premise that such an attack would result in complete and utter devastation of all our aircraft, our installations, and our personnel. Much has been written about the effects of atomic weapons, some of it factual, some of it irresponsible sensationalism of the wildest sort. As members of the R.C.A.F., we must, in order to achieve our mission, be able to separate the fact from the fiction and to apply our efforts toward meeting the threat as it actually exists. Because warfare is our business, and because nuclear weapons have become prime elements of modern warfare, we must ensure that our knowledge of these weapons is based upon a solid foundation of fact. Then and only then can we institute passive defence plans and devise passive defence measures which will be effective.



Chemical agent detector kit.

The prime aim of passive defence is self-preservation, both individually and collectively. A secondary aim is the ability to assess accurately the damage to our installations and to rehabilitate our facilities in order to restore our operational capability in the quickest possible manner.

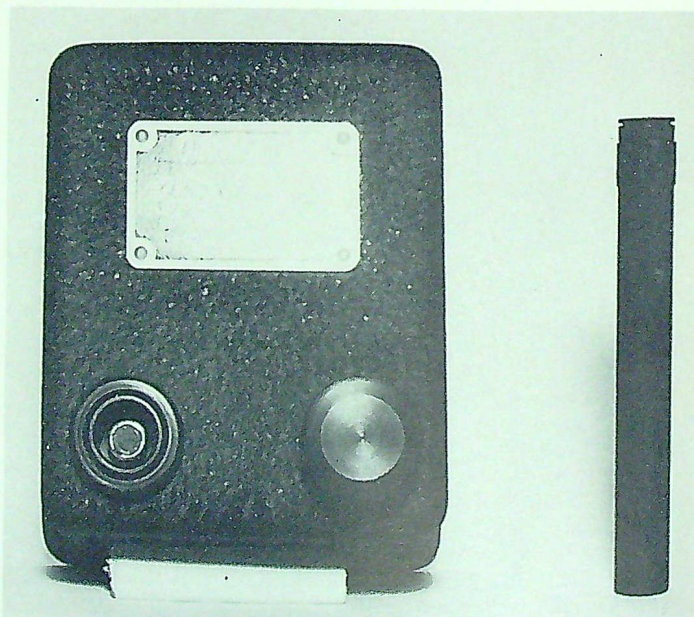
To accomplish these aims, it is of course necessary to train each member of the R.C.A.F. in the fundamentals of self-protection against atomic, chemical, and biological (A.B.C.) warfare agents. This training, which is conducted by personnel of the Ground Defence trade, must encompass the functioning and use of the various items of personal protective equipment which will be issued to each individual.

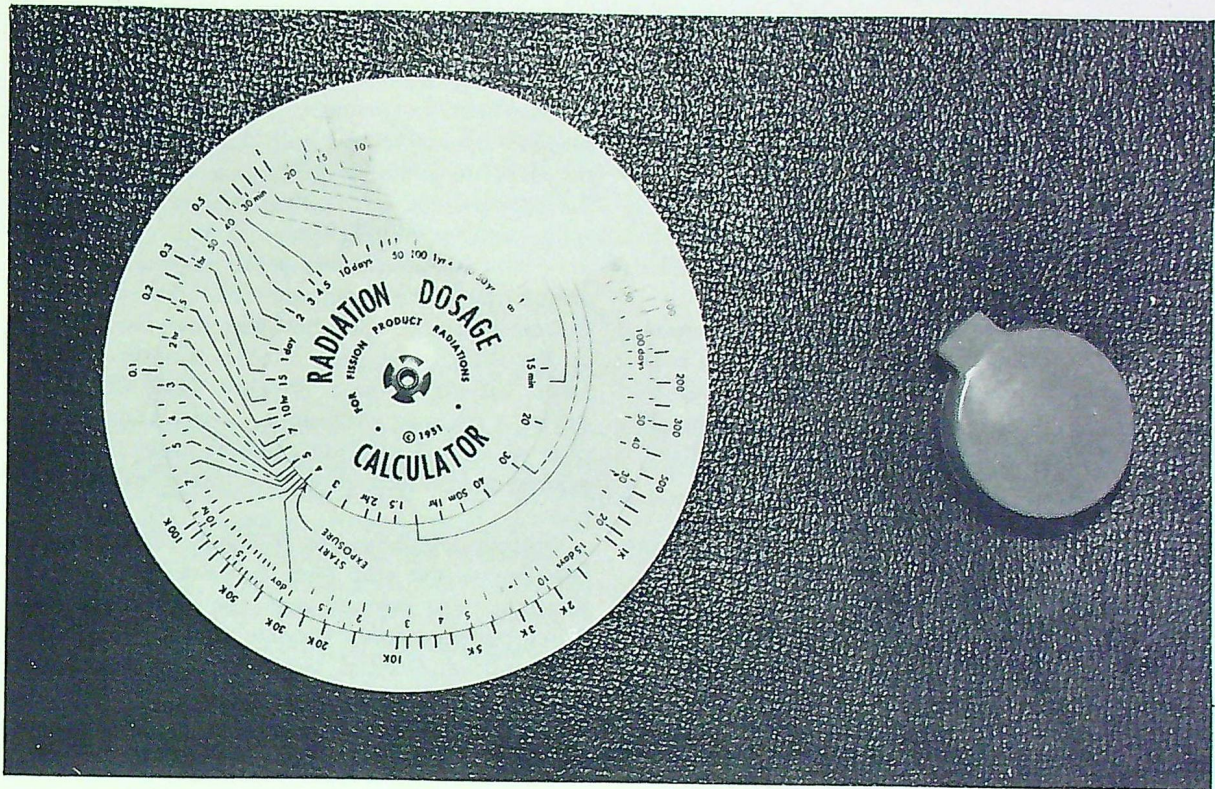
On certain R.C.A.F. installations, it will be necessary to provide for the training of radiation monitor teams to survey the extent of radioactivity after atomic explosions; decontamination teams to remove radioactive, chemical, or biological contamination of equipment, buildings, and areas vital to continued operations; cleansing-station teams to operate centres for the survey and decontamination of personnel who may be contaminated with radioactive particles; and other

specialized teams such as unexploded-bomb reconnaissance teams, light-rescue teams, and first-aid teams.

On these installations, equipment must be provided for the detection, measurement, and decontamination of A.B.C. hazards. Contamination meters (the so-called Geiger counters) are necessary to measure the radioactive contamination on vehicles, aircraft, and other items of vitally needed equipment, and on personnel. Gamma survey meters (ion chambers) are required to make surveys of radioactive areas to determine the extent and assess the potential hazards of contaminated areas. Pocket dosimeters (which in size and shape resemble fountain pens) are necessary to ensure that personnel who must work in contaminated areas do not receive an overdose of radiation. Gamma-flash dosimeters (small plastic discs) will be issued to all R.C.A.F. personnel to record any radiation they might receive as a result of exposure

The pocket dosimeter (right), about the size of a fountain-pen, which indicates the amount of radiation the wearer has received. On left is the dosimeter recharging and resetting unit, for use after dosimeter has been exposed to radiation.





to the instantaneous radiation given off by the bomb as it explodes. Chemical and biological agent detection kits must be provided to detect and analyze these agents should they be used against us. Everyone, of course, must be supplied with a respirator, which is an indispensable protective filter against not only chemical, but also atomic and biological agents. In short, a whole aggregation of A.B.C. equipment, together with the training required to use it effectively, is necessary for an adequate passive defence programme.

It becomes obvious that the training and planning for our passive defence is a major responsibility. Each installation commander, with the facts at his disposal and the advice of ground defence specialists at his command, must orient his passive defence planning and training efforts toward the problems peculiar to his own installation. As an absolute minimum he must ensure that the personnel under his command are trained in the

On left, the radiation dosage calculator, which simplifies the calculations necessary to determine radiation decay (i.e. abatement) rates, permissible exposure times in radioactive areas, etc. On right, the gamma-flash dosimeter, which consists of a small amount of photofluorescent glass enclosed in a plastic case of the approximate diameter of a fifty-cent coin. This device records the amount of radiation received by a wearer who is exposed to the high-intensity radiation given off as a nuclear weapon explodes.

fundamentals of self-protection, for the greatly increased potential of H-bomb warfare creates a possibility of radioactive fall-out from the atmosphere even at stations remote from actual target areas.

In passive defence planning, it is necessary to prepare always for the worst eventuality. Many devices — shelters, respirators, anti-gas suits, radiation meters — aid in providing passive defence protection; but by far the most important single passive defence measure is the knowledge of each individual R.C.A.F. member of how to pro-



tect himself. Equipment may be provided on the most lavish of scales, organizations may be created *ad infinitum*, reams of orders and directives may be published; but equipment is worthless without men who know how to use it effectively, organizations are meaningless unless the men who compose them are capable of accomplishing their mission, and orders and directives are fruitless without men who have the knowledge to follow them intelligently.

In short, there is no substitute for awareness, for that keen personal interest on the part of each individual which makes him aware of what he must know and do in order to protect himself. Without it, passive defence can never be effective.

CONCLUSION

In summary, it becomes clear that ground defence in the R.C.A.F. does not attempt to provide a separate "Army within the Air Force." The basic concept and the guiding principle of the R.C.A.F. ground defence programme is based upon the training and organization of personnel of all trades within the Air Force to provide defences on an emergency basis in order to counter emergency

situations. Ground defence organization and ground defence operations are superimposed upon existing organizational units, on a provisional basis, when the station is under threat of attack. Ground defence officers and N.C.O.s are provided to assist the installation commander in planning his defences against attack and in training the personnel to carry out his plans. Scales of equipment are provided to ensure that the material resources are available for a realistic and effective ground defence effort. It then becomes the responsibility of the installation commander, advised and assisted by his Ground Defence Staff Officer, to devise a training programme and an operational plan which will provide the best possible defence against any attack an enemy might launch upon him.

Ground defence in the R.C.A.F. can be only as effective as the skill and vigour with which our personnel are trained and the soundness with which our emergency defence plans are conceived and realized. Ground Defence has a limited rôle to play, but a most essential and vital rôle if our primary air effort is to be properly supported and sustained.

THE SUPERIOR MAN

The superior man is the providence of the inferior. He is eyes for the blind, strength for the weak, and a shield for the defenceless. He stands erect by bending above the fallen. He rises by lifting others. (Robert Ingersoll.)

The Characteristics of

WEAPONS

By Squadron Leader N. W. Emmott, D.F.C., C.D.

(When the earliest known weapon-unit — the amoeba with its stifling pseudopods — came up against something that could not be reduced to produce by mere ingestion, this planet's inhabitants embarked upon an armament race which has never ended. Until the arrival of a creature that could grasp a stick or stone, however, all weapon-units were self-contained — the pterodactyl and its teeth, the tiger and its claws, the bird and its beak, and so on — and the race went on for many millions of years strictly according to the laws of evolution. With the advent of man, the picture changed; and in a comparatively short space of time the first two-component weapon-units, consisting of men plus clubs or stones, have become the multi-component units of men plus bombers, submarines, and tanks. In this very interesting article, which was written as an R.C.A.F. Staff College thesis, Sqn. Ldr. Emmott traces briefly the development of weapons and war in the hands of Nature's most belligerent animal. — EDITOR.)

INTRODUCTION

WAR has always been fought with weapons. Even in the most ancient cave-drawings, primitive man at war is shown using weapons of some sort. Thus, over an indefinite number of centuries weapons have determined the conduct of war, and changes in weapons have changed (and sometimes revolutionized) warfare. The ignoring of changes has time and again led to disaster, as it did for the Chinese soldiers who opposed the Japanese in 1895 by setting off fire-crackers to frighten their antagonists. As a result, for centuries the question has been asked, "What makes one weapon superior to another?"

A weapon by itself is useless. It must have a man to operate it and it must be transported to the place where it is to be used. The necessary team — the man, the weapon, and the weapon-carrier

— will be referred to below as a "weapon-unit". In the simplest case, that of the naked fist, the weapon, the operator, and the carrier are all the same man. At the other end of the scale, the weapon-unit as exemplified by the battleship can include thousands of men and many individual weapons.

A weapon is a device for injuring another person or for damaging materiel, and as a rule it may either be used directly or used to shoot some sort of missile. Every weapon has two characteristics; a certain amount of hitting or destructive power, and a certain amount of range. All the other attributes that can be built into a weapon — size, explosive content, accuracy, or rapidity of fire — serve only to increase one quality or the other.

A weapon-carrier also has certain properties. It can carry a given weight at a given speed, and

sometimes, but not always, it can afford a given amount of protection. On the other hand it may have a degree of vulnerability. The weight-carrying and speed qualities may be included under the term "mobility".

LAND WARFARE

Shock Weapons

The very first weapon, the fist, depends for its effect on shock. Clubs, swords, lances, battle-axes, pikes, and halberds, are all essentially extensions of the fist, in that they all are complete in themselves and depend on extremely close contact for their effectiveness. All other weapons can be classed as missile-weapons, which hurl some form of missile at an enemy, and which can be used at a distance. In a few cases, such as the javelin, the weapon itself is the missile.

Military men for thousands of years have favoured the shock weapon, usually because of the prejudice that it is the more straightforward and honourable way to fight. Thus, in 1139, a Lateran Council forbade the use of the cross-bow because it was too terrible a weapon to be used against Christians. (Infidels, of course, were specifically excluded from consideration.) After the invention of gunpowder it was the practice of knights to execute any musketeer captured in battle, because the use of firearms made it possible for a base-born foot-soldier to destroy an aristocratic mounted knight. In 1877 such was the feeling for "l'arme blanche" that, among the British cavalry, nearly all training was in lance and sword, with only 40 rounds of ammunition a year allotted for training with firearms. This was years after the disastrous defeats of French cavalry by Prussian infantry in 1870, and in spite of the lessons afforded by the American Civil War, where nearly all cavalry had proved useful only as mounted infantry.

Shock Versus Missile

Throughout history, troops armed with shock weapons have met troops armed with missile weapons, and sometimes the fight has gone one way and sometimes the other. An analysis of these shifts of fortune may cast some light on the underlying principles which controlled them.

The first battle unit used by the Romans was the phalanx, a formation of heavy-armed infantry which confronted the enemy with a solid wall of shields and spears, and rolled over the opposition like a Juggernaut. Hannibal's Carthaginians, however, inflicted the most decisive defeat in history upon Roman infantry formed into phalanxes, by attacking it from behind where it had negligible protection. After this disaster the Romans, taking the lesson to heart, evolved the tactical solution that gained them the mastery of the world: their infantry attacked in lines with about three feet between each soldier, each man hurling two throwing-spears (*pila*) before he closed with the enemy.

The decisive factor here, to some extent at least, is the longer range of the *pilum* as compared with the broadsword of the enemy. This "artillery preparation" dislocated the enemy, allowing the Romans a decisive advantage in the vital early moments of a battle. Once at close quarters, the Roman soldier stabbed at his adversary's face, while his opponent usually tried to cut at him with the edge of a broadsword. The Roman method of attack rendered the legionary less vulnerable than his enemy, while he inflicted a more dangerous wound. Here the factors of protection and hitting-power led to victory.

The Cataphract

Ancient armies had long used cavalry, and they often won victories such as that at Carrhae, in 53 B.C. These victories were almost invariably won, however, by a cavalry charge against disorganized infantry, and thus always took place from the rear or from a flank. When a heavy infantryman met a cavalryman, the foot-soldier was usually the master of the field.

The reason for the supremacy of the foot-soldier lay in the failure to devise a rather simple invention. On the surface, it would appear that the logical next step after the heavy infantryman would have been to place him upon a horse, where he would have three times the mobility of a man on foot, and where he would be able to use the strength of the horse for greater protection. None

the less, until 600 A.D., history indicates that the saddle had not been invented, and the cavalryman sat on a simple saddle-cloth with his legs dangling. Since a seated man cannot deliver as hard a blow with sword or lance as a man standing, who can put his weight behind his weapon, and since a horseman who used a bow was in imminent danger of falling off his horse, the foot-soldier had much greater hitting-power. The infantry, therefore, was the ancient queen of battle.

Sometime after 602 A.D., however, the saddle came into use, and a rider could now rise in his stirrups and add the height of his horse to his own stature when he delivered a blow. With a hitting-power superior to that of the foot-soldier, the extra mobility of the cavalryman, the heavier armour that a mounted man could wear, and the initiative conferred on him by the speed of his horse, the armoured knight on his mailed horse (the "cataphract") drove the infantryman from battle (except as a skirmisher or an auxiliary) for seven hundred years. In close combat as well as in the first shock of a charge the horseman was supreme.

The cataphract enjoyed his supremacy because he had attained superiority in three of the four characteristics of the weapon-unit. There is evidence to prove, therefore, that the invention of the saddle, by giving this advantage only to a man who could afford both a horse and a suit of armour, influenced the whole character of Western Civilization. Chivalry, feudalism, knighthood — all hinge upon a pair of stirrups and the military advantages that goes with them.

The Bowman

The knight maintained his supremacy until the thirteenth century, when he sustained shattering defeats at both extremities of Europe simultaneously. In France, during the Hundred Years' War, English long-bowmen overwhelmingly defeated French knights at Poitiers, Crecy, and Agincourt. In Poland and in the Eastern marches of Europe, Mongol horse-archers ranged at will, striking down the Teutonic chivalry whenever it opposed them.

The English bowmen were almost without armour, they carried only light swords or bills, they had little mobility, and often in these battles they were outnumbered. Furthermore, an arrow carries less moral authority than a lance-tip backed by fifteen hundred pounds of man and horse. The secret of the archer's victory over the cataphract, who had been defeating bowmen for a thousand years, lay in the fact that the English bowmen pulled their bow-strings to their ears, and that they had been trained from boyhood as archers. Previous archers had pulled their bow-strings to their chests, with the result that the arrows they discharged would not penetrate armour. The English archer could pierce plate-armour with his arrow. Thus, when the French chivalry made their twelve charges at Crecy, the long-range, accurate English arrows mowed them down. The English arrows had more hitting-power than the arrows of the French cross-bowmen on the battle-field, but compared with the weapons of the knights, their only advantage lay in their extra range. As soon as the long-bows gained enough hitting-power to disable a knight, their long range won the battles.

Meanwhile, Mongol horse-archers were waging the most successful invasions warfare has ever known. The outstanding fact concerning the Mongols is that they were mainly dependent on their bows. Their other weapons, which consisted of a light lance, a light scimitar (the ancestor of the cavalry sabre), and a light battle-axe, were all inferior to the knights' weapons. The Mongol armour, mainly of leather, was also inferior.

Despite those facts, the superior range of the Asiatic bows was usually sufficient to allow them to shoot down their enemies before they came within range of the knightly weapons. Furthermore, before each action the Mongols laid down a heavy "artillery" bombardment from catapults. There was one occasion when a whole series of knights, posted to guard a ford, was cut down by catapult fire — a stratagem the knights would never have stooped to, since they were so firmly of the belief that the use of missile weapons was unworthy of gentlemen.

The decisive characteristic of Mongol armies was their use of missile weapons, in combination with their great mobility. Their swords and axes were used mainly to slaughter unresisting captives after the battle; during the fighting they trusted to their bows. In their conflicts with the knights, mobility plus range defeated mobility plus protection.

It is interesting to note that when the Mongols faced an army famous for its bowmen — the Mamluks — they were defeated again and again. The Mamluks, like the Mongols, were cavalrymen, but there is considerable evidence to prove that the Turkish horn-bow outranged even the English yew bow. Thus once again a long-range weapon defeated a shorter-ranged one.

The Musket

In the latter stages of the Hundred Years' War, the French commanders accepted the fact that their cross-bowmen could never fire as far, as fast, or with as much force as the long-bowmen, and cast about for another weapon. They found an effective one in the cannon that were in the fifteenth century just coming into use. Their bombards outranged the English bows, and were able to blow the English lines into confusion with impunity. It is said that at Formigny, in 1450, the English lost 5,000 men, and the French twelve. These figures, probably exaggerated though they may be, testify to the value, once again, of the long-range weapon.

Besides cannon, all armies included, shortly after the invention of gunpowder, a proportion of musketeers in their ranks. Because their rate of fire was so slow, they had to be protected by pikemen, who presented a wall of spears against charging cavalry. Gustavus Adolphus attained an effective rise in the rate of fire — and therefore in hitting-power — by marshalling his men in six ranks, and either having the rear men fire over their kneeling comrades and reload while the men in front of them fired in turn, or having the front man fire and then double around to the rear to reload. By this increase in controllable fire-power, Gustavus Adolphus won many victories with his Swedes and Finns.

By the eighteenth century all armies were equipped with smooth-bore firearms, which were woefully inaccurate. At 300 yards not even one hit out of twenty could be guaranteed on a target eighteen feet square. Frederick the Great overcame this inaccuracy by volume of fire, achieved by perfect drill. By moving his men quickly into position and having them fire a simultaneous volley, he gained a shot-gun effect in which the volume of fire made up for individual inaccuracies.

Napoleon increased his fire-power by organizing his men into columns, thus gaining considerable hitting-power at a decisive point. However, it is doubtful if he would have won so many battles if it had not been for his lavish use of artillery.

Napoleon's guns were formed up ahead of his infantry, and opened the battle with a heavy bombardment designed to disorganize the enemy and break up his ordered ranks. It must be noted here that the success of this manoeuvre depended on the fact that the cannon outranged the muskets of the opposing infantry. During the American Civil War, on the other hand, rifles actually outranged the cannon, allowing the gunners to be picked off by sharpshooters. For this reason, at Fredericksburg, the Union troops were forced to attack without any artillery preparation at all.

Cavalry versus Infantry

Cavalry charges against infantry were a feature of the Napoleonic wars. The standard infantry defence against cavalry was to form a square, with the front rank kneeling with bayonets fixed while the other two ranks fired over the heads of the men in front of them. The fire from the square was usually effective enough to decimate charging cavalry, and when the cavalryman reached the square he found himself facing a man stabbing at him with a musket which, with its bayonet, was six feet long and outranged his sabre. To counter the length of the musket and bayonet, the lance was relied upon. Thus, as late as 1823, the 17th Regiment of British Cavalry returned its carbines to store and drew lances. However, long-range infantry muskets and their fire-power could usually defeat cavalry mobility and hitting-power.



The Rifle

The American Civil War developed a new type of warfare. The first of the rifle wars, it soon saw a series of battles in which direct frontal attacks never succeeded. There were two main reasons for this. The first was the long range and accuracy of the rifles in use, which were sighted to five or six hundred yards. An advancing soldier was thus subjected to enemy fire for at least four to five minutes, during which time the enemy riflemen could get off ten or fifteen aimed shots. Secondly, infantrymen defending positions used "head-logs" extensively, besides other entrenchments. Civil War head-logs were pairs of logs piled with just enough space between them for a rifle. By using these, the soldier reduced the target he presented to one as small as a man's hand. Any attacker thereupon found himself under long-range attack, while he had to close with the enemy before he could use his own weapons. Protection against missile weapons was thus demonstrated to give effective longer range. The terrible Civil War infantry casualties showed how effective this was.

An example of the influence of a superior weapon on the outcome of a battle was given at Sadowa in 1866, when the Prussian armies decisively defeated the Austrians. The Austrians enjoyed the advantage of having a long-range rifle, but it was a muzzle-loader which the soldier could load only when he was standing up. The Prussian "needle-guns," on the other hand, were breech-loaders which could be loaded by a man lying on the ground. The Prussians crawled up a hill to within range of the Austrians, taking advantage of every bit of dead ground, and inflicted heavy losses on the upright enemy ranks. They thus cancelled out the range advantage of the Austrians, and reversed the Civil War situation in which the attackers always had a shorter effective range than the defenders. The characteristics of protection, which the Prussians were able to use while the Austrians were not, once again resulted effectively in longer range.

It will be noted that the Germans here used the same tactics to win the war of 1866 that proved so successful in 1940 in France. They introduced a

method of giving their assaulting forces longer effective range than that possessed by their enemies. Just as the tanks made it possible for an attacker to close the range without being put out of action, the needle-gun made it possible to close within effective range, and thus both weapons capitalized on the characteristic of protection.

The Machine-Gun

In the Russo-Japanese War the use of rifles by both sides, together with the first large-scale use of machine-guns, made conventional infantry rushes costly and ineffective. Again, in the First World War the machine-gun proved to be the ruler of the battle-field. This was due to the fact that it greatly increased the fire-power of the defenders, while the attackers still had only one rifle per man, which could not be used until the range was closed. The result was that the Flanders battle-lines from the autumn of 1914 to March 1918 never moved in any direction by more than ten miles.

The first attempt to break the stalemate was by the use of artillery-fire. Once again a weapon — the machine-gun — was attacked by another weapon having greater range and hitting-power. None the less, the defenders usually defeated the cannon by taking cover, demonstrating again that protection can be used to nullify range. Later the Germans used the infiltration technique whereby small groups of men worked their way behind enemy strong-points. In so doing they attempted to repeat their success at Sadowa, whereby they used cover to allow them to approach enemy positions.

The Tank

The Allied war-winning machine was the tank. A tank in 1916 was a mobile machine-gun nest, and also an attempt to defeat the range and hitting-power of enemy weapons by providing protection. Furthermore, by moving a machine-gun into the ranks of the attackers, it gave them greater equality of fire-power with the defenders.

Tanks armed with field-guns are of correspondingly greater value. With the recent fitting of fire-control apparatus they have become theoret-

ically the perfect land weapon-units, since they possess range, hitting-power, protection, and mobility, thus going one better than the Mongol horsemen. Their success may be gauged from the fact that every successful invasion from the invasion of Poland in 1939 to the invasion of Korea has been spear-headed by tanks.

SEA WARFARE

The best laboratory in which to study the effect of weapons upon fighting is found on the sea. On the featureless plain of the ocean there are no differences in terrain to be exploited, and visibility, weather, and sea conditions, are the same for one side as for the other. One side may make better use of conditions, but naval battles have often enough been decided by superior weapons alone to make naval history replete with examples for study.

The Punic Wars

Before the birth of Christ, the Romans and the Carthaginians fought the Punic Wars. If training, experience, and seamanship could have decided the wars, the Carthaginians should have won. However, sea-battles at the time were fought between boarding parties armed with shock weapons, and the Romans' chief task was to bring their ships close enough to the enemy to allow the well-trained Roman soldiers to board their antagonists' ships. The decisive weapon was a swivelling board mounted in the bow of the Roman galleys and armed with a large spike, which could be brought down on to the enemy deck. The spike, on being driven into the Carthaginian ship's planking, held the two ships together, and the Roman soldiers could pour across into the enemy vessel and capture it after hand-to-hand fighting.

The Armada

Eighteen hundred years later, when the Spanish armada sailed against England in 1588, the Spaniards sought to repeat the victory of the Romans. Their fleet's chief fighting instruments were the soldiers who garrisoned each ship, and who were charged with boarding the English vessels. It was a task they were supremely fitted to

do, since at that time Spanish infantry was the best in Europe. The British, however, routed the Spanish fleet by refusing to close with the galleons. Instead, Drake's men kept out of grappling distance and pounded the Spaniards to pieces with guns. The missile weapons beat the shock weapons because of their superior range, and because the weapon-carriers had superior mobility.

After the defeat of the Armada, nearly all the European navies were armed with cannon which varied little from nation to nation, and differences in weapons had little effect upon warfare. Victory came to the better strategist or tactician. For some two and a half centuries naval design was almost static; British ships of the line served for seventy and eighty years, and their guns changed but little.

The "Dreadnaught"

The really revolutionary change in sea warfare came with the introduction of the all-big-gun ship, the "Dreadnaught." Steam propulsion, although eventually it succeeded in making sailing ships obsolete, came into favour gradually, while the outfitting of ships with a few big guns instead of a varied armoury of smaller ones came much more suddenly. What made the dreadnaught so superior to the old-fashioned ships with their guns lined up side by side was not the weight of metal it threw, although that was impressive; it was the fact that the bigger the gun it carried, the longer was that gun's range. The older ships, unless they were remarkably lucky, could not get close enough to the dreadnaughts to use their armament, while the all-big-gun ship had only to sit out of range of its enemy and pound it to pieces.

It was the range of its weapons that made the battleship the queen of the sea for so long. Her armour was not necessarily decisive; a battleship could be sunk by the torpedoes from a destroyer, provided the destroyer could get within torpedo distance of her big adversary. As a rule, however, any destroyer so foolhardy as to try would be blown out of the water long before it could close the range enough to make its own weapons decisive. The futile British destroyer-launched torpedo attacks on the Scharnhorst and the Gneisenau when

they escaped up the English Channel in 1943 were unsuccessful because, out of respect for the ships' guns, the destroyers launched their torpedoes at 4000 yards range — and none hit.

The Carrier

In the Second World War, in the Pacific, a new situation arose. The Battle of the Coral Sea and the Battle of Midway saw both battle-fleets dealing and receiving great damage without ever being in contact at all. All the fighting, except that done by the submarines which finished off damaged ships, was carried out by aircraft. The carrier had become the new sovereign of the seas, although the ship itself is poorly-armed, has little armour protection, and has a speed exceeded by that of many other fleet units. The reason for this supremacy was the range of carrier aircraft. A carrier, four miles from a battleship, can be sunk with a salvo; when it is two hundred miles from a battleship, the other vessel is at its mercy. Because its weapons so enormously outrange those of the battleship, the carrier has decisive power. Like the Spanish galleon, the battleship finds itself hopelessly outclassed because its weapons are out-ranged.

AIR WARFARE

It is the aircraft which is the reincarnation of the horse-archer. Like its prototype, it combines mobility and fire-power with negligible protection.

Bomber versus Fighter

It has been observed that the battleship once ruled the sea, while the bomber is often an all-but-helpless prey to the fighter. The crux of the matter is that the fighter is the more heavily armed of the two. Being usually armed with cannon that outrange the bomber's guns, it often has, in addition, more guns firing at one time than the bomber. Furthermore, it has a mobility advantage, which allows it to pick the time and place of encounter, and often to achieve surprise. Thus, having a triple advantage in mobility, firepower, and range, it can scarcely lose.

With the advent of air-to-air guided missiles, a new factor may have been introduced into air

fighting. If a bomber, because of its size, can carry a much greater weight of electronic counter-measure equipment than an attacking fighter, it may be able to ward off the fighter's weapons while using its own to destroy the fighter. If this state of affairs arises, combats like the battleplane fights at sea may take place, and the battleship envisaged by Douhet and de Seversky may take its place in the skies.

CONCLUSION

Weapon-units have four characteristics — mobility, hitting-power, range, and protection (or vulnerability). All through history, as weapons have changed, warfare has changed also. In every case, these changes have resulted from an advantage gained by some weapon in one of these four characteristics.

The two characteristics of the weapon-carrier, mobility and protection, are useless by themselves. They are subsidiary and complementary to, but do not replace, the range and hitting-power possessed by the actual weapon. Mobility, by conferring on the weapon the ability to move quickly, may allow it to gain a hitting-power advantage, while protection has much the same effect as range.

Generalship, manoeuvring ability, administration, or clear thinking (even in such respects as the provision of a good accounting system), can do much to increase the hitting-power of a weapon, of a group of weapons, or of the collective weapons of an army or an air force. However, practically nothing can increase the range of a weapon or of a number of weapons except actual re-design of the weapons themselves.

Thus we find ourselves presented with a lesson. Research and development should be devoted in the future largely to increasing the range of the weapons with which the armed services may be called upon to fight. The extent to which this principle has been neglected in the past may be gauged from the fact that the actual range of the guns used in the aircraft of the Second World War was in many cases the same as that of the rifles of the Boer War.

In general it can be stated that the weapon-

characteristic which has most often been decisive, which provides the most effective basis for development and the best principles upon which to base

tactical and strategical manoeuvres — and which can best augment the effect of other characteristics — is that of long range.

TOM, DICK OR HARRY?

From the correspondence columns of "The Times Weekly Review" the following interesting facts emerge regarding the relative popularity of Christian names in England. There seems (if one may judge from the few but fairly representative records studied) to have been almost a complete reversal of parental taste, in respect of certain names, during the last 750 years.

In the 13th century, an English boy had roughly 43 times as many chances of being called William as he had of being called David, whereas in 1953 the Davids outnumbered the Williams by about two to one. Ann, however, which rated bottom in public favour at the time of the signing of the Magna Carta, by 1953 had risen to a very close second. The two following lists of names are arranged in order of frequency of occurrence.

13TH CENTURY

- Boys*
1. William
 2. John
 3. Robert
 4. Richard
 5. Thomas
 6. Walter
 7. Henry
 8. James
 9. Peter
 10. Michael
 11. David

- Girls*
1. Alice
 2. Matilda
 3. Joan
 4. Margery
 5. Agnes
 6. Margaret
 7. Sarah
 8. Elizabeth
 9. Mary
 10. Susan
 11. Ann

1953

- Boys*
1. John
 2. David
 3. Richard
 4. Charles
 5. Michael
 6. Peter
 7. Andrew
 8. James
 9. Nicholas
 10. Christopher
 - Robert
 11. William

- Girls*
1. Mary
 2. Ann(e)
 3. Elizabeth
 4. Jane
 5. Margaret
 6. Susan
 7. Caroliné
 8. Sarah
 9. Clare
 10. Amanda



andrew

WHAT'S THE SCORE?

“What is it,” asks Sgt. Shatterproof in a recent letter, “that chiefly distinguishes the boy in the field from the rest of mankind? Is it the flame of loyalty that burns quenchlessly within his breast? Is it the massive intellect that shines forth beneath his Napoleonic brow? Or is it the aura of unbowed bloodiness that surrounds him as he marches inflexibly forward beneath the bludgeonings of his Service destiny? These, Sir, are questions which all Christendom is asking itself; and I feel that it behoves us to answer them.” — The only infallible yardstick that we know of for determining whether or not some fine upstanding young Canadian is or is not an airman, is the kit issued to him by R.C.A.F. Once Christendom has checked the colour of the uniform, it should then proceed to undress the presumed airman and analyse his attire. If, for example, he is found to be wearing (instead of underdrawers, wool) a satin-and-elastic girdle and long nylon hose, the chances are that he is not an airman at all. This months' questionnaire is intended as a guide for the suspicious — and all items of equipment mentioned in it are those issued to the recruit at Manning Depots. — EDITOR.)

1. The shaving-brush which the meticulous airman applies to his face at least thrice daily contains:
 - (a) Wood.
 - (b) Nylon.
 - (c) Horse-tail or badger hair.
 - (d) Marine glue.
2. The cap, blue, winter, which crowns his manly head contains:
 - (a) Pure wool.
 - (b) Wool and cotton.
 - (c) Wool and nylon.
 - (d) Wool and fibre-glass.
3. Encasing his able hands are gloves, leather, made of:
 - (a) Kid.
 - (b) Horsehide.
 - (c) Rawhide.
 - (d) Cowhide.
4. And within those gloves there is a lining of:
 - (a) Nylon wool.
 - (b) Wool.
 - (c) Cotton rayon.
 - (d) Fleece.



5. His jacket, blue, waist-length, is made of:

- (a) Unfinished worsted.
- (b) Nylon wool.
- (c) 65% wool, 35% cotton.
- (d) The same material as his cap, blue, field service.

6. The jacket, khaki, hip-length, contains:

- (a) Only cotton.
- (b) 65% rayon, 35% wool.
- (c) Nothing but wool.
- (d) Nylon twill.

7. The pyjamas in which the ambitious airman dreams of promotion are woven from:

- (a) Rayon.
- (b) Cotton broadcloth.
- (c) Mercerized nylon wool.
- (d) Nylon cotton.

8. Resin forms a large part of the material from which is made the airman's:

- (a) Toothbrush.
- (b) Bag, kit.
- (c) Razor kit.
- (d) Kit box.

9. As the unbowed airman plods doggedly from dining-hall to hangar, his feet are apt to be encased in:

- (a) Kip cowhide.
- (b) Horsehide.
- (c) Leather made from old bulls.
- (d) Any sort of leather at all.

10. Melton is the material used for the airman's:

- (a) Jacket, blue, hip-length.
- (b) Muffler.
- (c) Trousers, olive drab.
- (d) Overcoat, blue.

11. His shirts, blue grey, are of:

- (a) Wool.
- (b) Flannel.
- (c) Broadcloth.
- (d) Linen.

12. Clad only in his socks, black, he is arrayed in:

- (a) Pure wool.
- (b) Mercerized cotton.
- (c) 3/5 wool, 2/5 cotton.
- (d) 60% wool, 40% nylon.

13. When he goes abroad in the rain, his correct dress is a raincoat, blue, made of:

- (a) Fine twill cotton.
- (b) Rubber-impregnated nylon wool.
- (c) Fine worsted.
- (d) Mercerized cotton.

14. Spun glass is used in the manufacture of his:

- (a) Holdall.
- (b) Kit box.
- (c) Tooth-brush.
- (d) Boot-brush.

15. The noble horse makes its appearance in only two items of the airman's equipment, one of which is his:

- (a) Belt, leather, black.
- (b) Bag, kit.
- (c) Boot-brush.
- (d) Holdall.

16. The term "mercerized", as applied to the cotton of his undershorts, means:

- (a) Treated with alkali to impart lustre.
- (b) Waxed.
- (c) Very closely woven.
- (d) Treated with acid to give softness.



17. Rayon is:

- (a) A product of coal.
- (b) An artificial silk made from cellulose.
- (c) An artificial cotton made from milk-weed.
- (d) A plastic, rather like nylon.

18. Twill is:

- (a) A type of linen.
- (b) A method of weaving wool.
- (c) A weave which produces diagonal lines in the fabric.
- (d) A waterproofed fabric.

19. A kip skin is:

- (a) A very thick hide.
- (b) The hide of a young animal.
- (c) A hide tanned by a certain process.
- (d) A smoked (or kippered) hide.

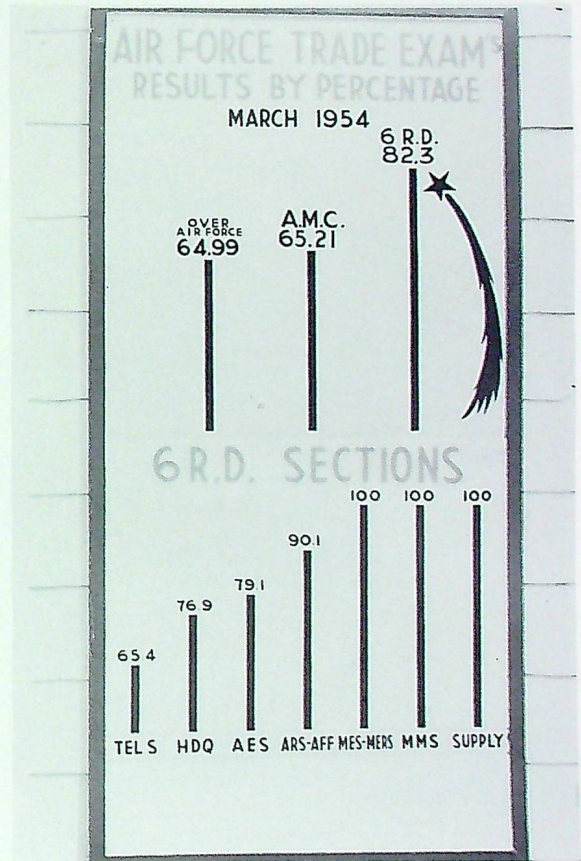
20. Linen, a product of the flax plant, is used:

- (a) For no item of the airman's personal equipment.
- (b) For his shorts, gymnasium.
- (c) For his handkerchief.
- (d) For his laces, shoes, white.

(Prepared with the assistance of the Dept. of National Defence Inspection Services.)

CONGRATULATIONS TO No. 6 R.D.

The accompanying photograph shows No. 6 Repair Depot's trade examination score-board as it appeared in March of this year. Seven feet tall and four feet wide, it is kept on the wall of the station's Training Centre. It will be noted that No. 6 R.D.'s average percentage was 82.3, as compared with the general Air Force average of 64.99. In June, by the way, it was only slightly lower: 79.8 — while the Air Force average dropped to 58.0 The entire station has been warmly congratulated by the A.O.C. Air Materiel Command for its continuing fine results.



Pin-Points in the Past ★ ★ ★

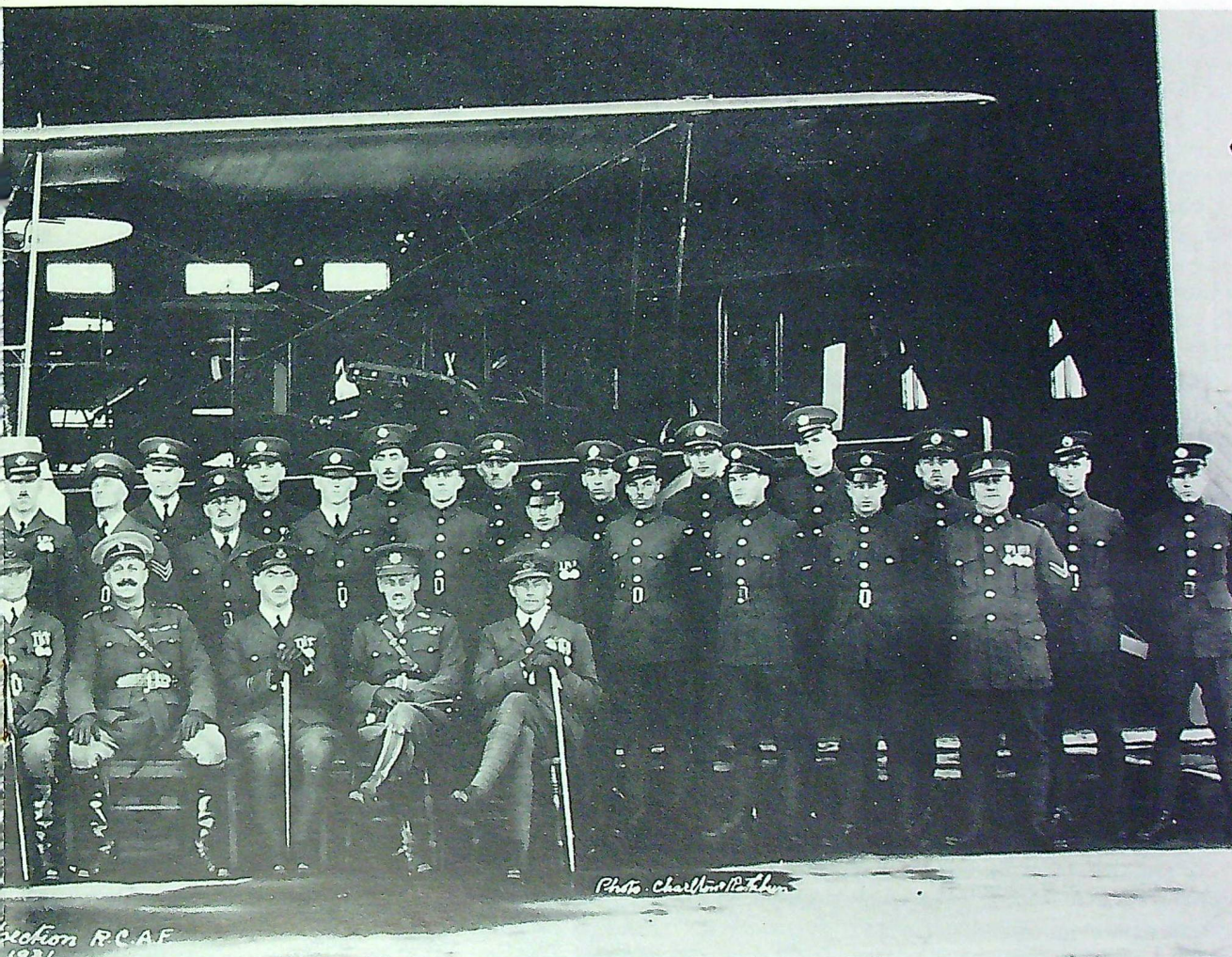
From Flt. Lt. L. J. Doucet, of R.C.A.F. Station Lincoln Park, Alta., we have received the interesting photograph that serves as this month's Pin-Point. It was taken at R.C.A.F. Station Jericho Beach, Vancouver, in October 1931, after an inspection by the District Officer Commanding Military District XI. In those days, it may be remembered, the chief of the Air Force was known as Director of the R.C.A.F. and was responsible to the Chief of the General Staff.

Shown in front of the Vickers Vedette are (back row, left to right): L. Findlay (released), A. W. Mitchell (Sqn. Ldr., retired), C. H. C. Hoseason (Sqn. Ldr., A.F.C.), D. H. McLean (Flt. Lt.), B. D. W. Beaumont (Sqn. Ldr., retired), A. Greenwood (Cpl., rel.), J. T. E. M. Paquette (Flt. Lt., ret.), L. S. Thompson (Sqn. Ldr.), J. Hunter (Sgt., rel.), I. H. O'Neil (Flt. Lt., ret.), C. Hill (W. O., rel.), J. P. O'Sullivan (Flt. Lt., ret.), J. Dexter (Sqn. Ldr., ret.), G. L. Smith (rel.), J. P. Johnstone (W.O.2), W. E. Beckett (rel.), S.



Broadbent (Sqn. Ldr., deceased), unidentified, F. D. Gibbs (Flying Officer). Middle row (l. to r.): Q.M.S. S. Parsonage (R.C.C.S.), P. Sorensen (Wing Cdr.), C. Bendall (Sqn. Ldr., ret.), L. J. Doucet (Flt. Lt.), A. Moore (Flt. Sgt., rel.), W. Dye (Sgt., rel.), K. Birchall (Sqn. Ldr., ret.), J. Nicholson (Sqn. Ldr., ret.), J. Lovegrove (Flt. Lt., ret.), N. E. Small (Sqn. Ldr., D.F.C., A.F.C., dec.), T. Hayes (Flt. Sgt., rel.), W. M. Pearce (Flt. Lt., ret.), W. S. Haynes (Sgt. rel.), G. H. Desbiens (Flying Officer, dec.), H. Bryant (Wing

Cdr.), H. L. Taylor (Wing Cdr.), J. A. Fenn (Wing Cdr., ret.), L. C. Brice (Flying Officer, ret.) A. A. Larocque (rel.), J. A. Davy (Flt. Lt.), J. McVie (R.C.A.M.C.). Seated (l. to r.): Flying Officer R. H. Barker (rel.), Flt. Lt. A. P. Campbell (Group Capt., C.B.E.: R.A.F., ret.), Major Miller (R.C.E.), Sqn. Ldr. E. L. MacLeod (Air Cdre., ret.), Brig. Gen. J. Sutherland-Brown (D.O.C.M.D. XI), Flt. Lt. L. E. A. de Niverville (Air Vice-Marshal, C.B., ret.), Major Hemingway (R.C.R.), Flying Officer G. B. Holmes (rel.).



Feminine Gen

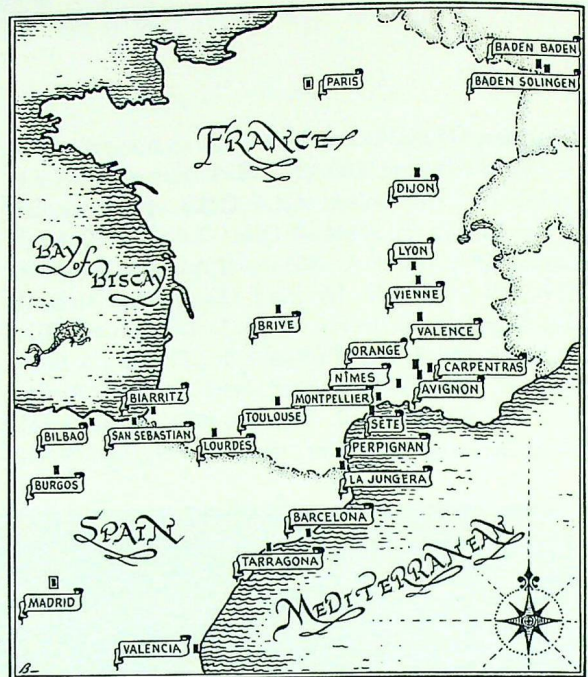
Last April, two airwomen set forth together on an 11-day tour through France and Spain. They were L.A.W. Alice Pilgrim and Cpl. Evelyn ("Tom") Thomson, both of No. 4 (Fighter) Wing, Germany. In the following article, L.A.W. Pilgrim describes their —

LATIN SPRING

TOM AND I were the only Canadians among the 28 people who boarded the bus at Bühl, near our base at Baden-Soellingen, bound for Barcelona and Madrid. The manager of the tour, "Oolie", introduced us to our special interpreter, a delightful lad of about 25, named Wolfgang Meyer. His English was perfect, idiomatically, but he spoke it through his nose with a western American accent, and his favourite exclamation was "Jesus!" He had, we learned, spent one year at Oregon University. Oolie, by the way, was also quite a linguist. He had a way of speaking in three languages at once — for example, "pas ein penny."

During the first evening and night of travel we got to know a few of our fellow-passengers — a very sweet-faced young nurse from Hamburg and her formidable mother, a crippled professor of mathematics who spoke a precise school-English, a philosophic and contented-looking building-master from Bühl who sat quietly enjoying himself throughout the trip, and the inevitable "character", Herr Rotthoff.

Herr Rotthoff (we renamed him "Grandpa") was a 72-year-old artist. He smoked some vile-smelling home-grown and — Heaven help us! — home-cured tobacco in a very large and very crooked pipe. Erect and lean, he had long and thinning white hair, and he was astonishingly dressed in an olive green ensemble. The crown of his hat was high and slightly pointed, the brim small, and the whole confection was adorned by a large feather. He wore a longish belted jacket and vest. His trousers resembled nothing so much as too short and too skimpy plus-fours, and his legs



and feet were housed in knee-length socks and a pair of odd little boots. He spoke no English; but he thoroughly enjoyed all the attention he got, and he was such a friendly old dear that we had to forgive him his horrible smoking.

We arrived at Lyons around 6.30 a.m., somewhat the worse for lack of sleep. German buses can't compare with the Greyhound variety. The seats are narrow and hard, and they don't tilt back; nor is there any space for knees.

After breakfast (which was the worst meal of the whole trip — poor coffee, bare tables, dirty cutlery, and cracked cups) we drove on down the Rhône valley, where the cherry and peach trees were already in blossom. At Vienne we stopped to see some cathedral or other, but I've seen so many magnificent cathedrals in Europe that I've become a little *blasée* about such things. The budding lilacs pleased me more.

We lunched at Valence. When we had eaten, we asked the pretty nurse, Marie Louise, where the wash-room was. She told us that it was on the first floor, and warned us that it was a very odd one. It was — exceedingly odd! The room was completely empty of any equipment, but there was a hole in the floor, and close to it were two foot-plates. I say no more.

Some 50 kilometres north of Avignon we came to a village that seemed to be decorated for some sort of carnival. On closer inspection, we saw that the decorations consisted of rack upon rack of rainbow-coloured dust-mops, brooms, and feather brushes. The village, we gathered, was the centre of France's broom industry.

There were at least four professors of history, with their wives, on the bus, so we stopped at every old Roman stone-pile. Personally I rather enjoyed them. That section of France was once a large Roman province, and Orange was a base camp for Roman operations to the north. The triumphal arch for the returning victorious Roman legions is remarkably well preserved, considering that it was built in 25 A.D. There is also a very extensive amphitheatre carved into the rock of a hill-side. Everywhere we went these ruins were in the process of restoration. It was most interesting: having our professors along with us, we not only saw things but we also knew what we'd seen.

For some reason known only to one of the history professors, we detoured over to Carpentras and then on to Avignon, arriving about 6.30 p.m. What a time with the bus in those narrow streets!

Two W.D.s and the Mediterranean.



Dinner was distinguished by an entrée of something that looked like sausage rolls but was really a delicious puff pastry with cheese inside. After dinner we went to bed immediately and slept like stones . . .

Having partaken of the usual skimpy continental breakfast, we loped off after our history professors. Whenever they took off with that determined stride, we knew that there was something to see, and followed closely. While waiting for the Palais des Papes to open, we walked through the gardens surrounding the palace, viewed the famous Pont d'Avignon (part of which has been broken down to allow ships to pass), and bought some more post cards and a spoon. The tour of the palace lasted for fifty minutes, during which the guide expounded in French and one of the professors translated into German. I managed to pick out the odd word in one or other of the versions, helped by vague memories of history lessons in which I had once learned that the Pope lived in Avignon around 1400. The palace walls and rooms are restored, but there are no furnishings except for several large tapestries. The main chapel has a marvellous echo lasting nearly eight seconds. The guide sang three notes and they came back blended into a chord. Think how a choir and organ would sound there!

We left Avignon in mid-morning. Outside Nîmes we saw a huge Roman aqueduct bridging a river valley, and later we went on a drive around the city to find the remaining two of the original seven fortified gates of the old Roman town. At the huge Roman amphitheatre the professors again took off, so we followed them and eventually arrived at a building which looked like a small edition of the Parthenon. Always hungry after breakfast, Tom and I stopped to buy some cakes, and disgraced ourselves by being five minutes late for the bus. True to German tradition, each day was carefully planned and the plan was followed as closely as possible. As in many of the other places that we visited, there were three other German buses in Nîmes. The Germans are inveterate tourists.

It was nearly two before we got to Montpellier for lunch. Washroom facilities were the same as in

Valence, but we now accepted them quite naturally. We left immediately after lunch and headed for Perpignan. Rather than follow the main highway we made a pleasant detour to the harbour of Sete. Here we had our first glimpse of the Mediterranean. As we drove by the docks of Sete, all the fishermen were sitting mending their nets, precisely as one sees them portrayed in most of the art-galleries of the world. Farther along we stopped by the shore and went wading. We also picked up a beautiful and quite useless collection of shells along the sandy beach.

Too soon we had to leave. Continuing on, we left the sea and were once more in the grape country. We arrived in Perpignan in the evening. All the hotels we stayed in were of the obviously second-class type (after all, the whole trip was only costing us \$71.65 each), but none the less our dinner included an entrée of delicious baked fish and lovely tiny new potatoes. We also had the usual wine to drink, as it is not safe to drink the water in France or Spain, especially for strangers who are not used to it. I didn't mind doing without water at meals, but there were lots of times when a glass of it would have been wonderful.

* * *

Next day we crossed the border into Spain at La Junguera. It took us 2½ hours to get across — one hour waiting for the French office to open, one hour negotiating, and half an hour changing money. We noted that the guards wore German-type uniforms, as indeed, did many of the other military personnel that we saw throughout Spain.

While waiting around at the border, Tom decided to sneak a picture of Grandpa. We were afraid that, if we made it too obvious that we wanted a picture of him, he might be insulted. Quite the contrary! When he caught us, he insisted on having more pictures taken with each of us in turn.

The change in the Germans once they got across the border was amazing. In Spain they were in friendly territory, among allies. They immediately began to wave to people in the villages, and the people all waved back. The Spanish wave with a very intriguing beckoning motion. As Wolf said: "They *ought* to be friendly. We won the Civil



Tom and Herr Rotthoff.

War for them." To which I replied that "it wasn't out of sheer good will that you did that," and he readily agreed that Spain had been an invaluable testing-ground for German arms. The mutual hatred and distrust between Germans and French has been growing for hundreds of years. Mrs. Maurer, our station librarian, told us that her husband was killed fighting in France in this war, her grandfather in the war before that, and so on, and that now her sixteen-year-old son wants to join the army only in order to fight the French. She says that the women forgive and look for peace, but the men want to carry on. And, of course, the reverse applies to the French.

As soon as we got into the country we began to see scrawled in black print on the walls and villages: "Gibraltar — España." Wolf was of the opinion that Gibraltar rightfully belongs to the Spanish, and we had several discussions on the subject.

We came again to the seaside, and drove the rest of the way to Barcelona close to the shore. We would have loved to spend a week in Spain at one of those seaside villages. Some of them are terrible to drive through. Still, they give you fair



warning. If the sign to the entrance to a village reads "Traverso Difficile", beware! — donkey-cart-wide streets, wicked corners, and no paving. The actual highway is good — paved, and wide enough for two cars to pass easily (though traffic on the highway is practically nil).

We lunched in Barcelona, and after lunch took off for Montserrat, a monastery and place of pilgrimage in the mountains, some 40 kilometres from Barcelona. When we got there, we took the cable car to the top — although we had only recently seen a film in which the wire of a cable car breaks and the passengers are stranded, waiting for the other wire to break. The present church dates from 1900, and I gathered that it was all rebuilt after the Civil War. We could see nothing in the church, because all the statues and paintings were shrouded until Easter Sunday. I don't know who attracted the most attention up there, Tom in her slacks (Spanish women just don't wear slacks) or Grandpa.

Returning to Barcelona, we saw hundreds of people out taking their stroll before dinner, for which the hour is nine or ten. The Barcelonans stroll in the streets as well as on the side-walks, as the city is singularly devoid of cars — or at least was devoid of them while we were there. All the women wear small black lace mantillas instead of hats, but the comb seldom appears in daily life. The city is beautifully planned, without overhead wiring except for the street cars, and with innumerable trees and beds of beautiful tulips on the boulevards. It also possesses a subway.

We were up at six in order to leave by seven. The people at the hotel thought we were crazy, and I was inclined to agree with them. From the window of the dining-room we watched a church procession — first some altar-boys with a banner, then all the women, mostly in black, then the men carrying a lighted candle each, and finally some priests carrying the cross with Christ upon it. As in Quebec, the chief and biggest building in every Spanish village is the church.

We stopped in Tarragona to look at another Roman stone-pile, this time an amphitheatre. Here in Tarragona, incidentally, our first and really big delay occurred when search-parties were sent out

for some of the crowd who had got lost in the old quarter of the city.

And so we went on, all day long, through towns and villages, eating snacks and tree-ripened oranges, and passing thousands of donkeys. Everywhere — and indeed, throughout the whole trip — I was struck by the sign "Mejores No Hay" lettered neatly on walls. Wolf explained that it meant "There are no better ones" and that it referred to those who had been killed in the Civil War, no matter on which side! Apparently, the anniversary of the Civil War had taken place recently.

We reached Valencia in the evening, and at 8.45 on the following morning Tom and I were camped on the door-step of one of the stores, waiting for it to open. We had been in Spain all this time, but so far we had no opportunity to spend those hundreds of pesetas which we got at the border. We raced all over the store and bought black lace mantillas, combs, blouses, souvenir kerchiefs, a fan, and a pair of green beads.

Shortly after ten we set off for Madrid, and arrived there about nine hours later. Our hotel room was very comfortable, with hot water and a shower. Such a spree as we had getting clean again! — washing ourselves, our hair, and our clothes, in the softest water I have encountered since my arrival in Europe. After dinner we went with the others to the Edelweiss Cafe, which is run by a man from the Bühl district. When we left, his wife gave us each a coloured Easter egg.

As I lay reflecting before going to sleep that night, it struck me as odd that I had come all the way to Madrid for my first ride on a subway.

* * *

We slept in until nine. After breakfast we went on a bus tour of the city, with the son of the owner of the Edelweiss Cafe acting as our guide. We saw a lot of buildings about which I remember nothing. King Philip's palace is an uninteresting box-like structure, somewhat resembling Buckingham Palace. I was disappointed, as the books had said it was something special. Madrid has many beautiful boulevards with trees and flowers, and squares with fountains and statues; and the park is magnificent and spacious. Half the city is new, with

fluorescent lights, lovely new ten- and twelve-story apartment buildings, etc., while the other half is old, crowded and dirty, and lit by gas. The new section of the city is new because it has been rebuilt after destruction in the Civil War.

Later we took a look at the market area. Such a collection of old junk you never saw — dirty old torn magazines and books, a 1948 telephone directory, odd dishes, cheap shoes, second-hand tools, pieces of wrecked bicycles, scraps of cloth and leather, old clothes, broken furniture, etc., etc.

In the afternoon we went to the bull-fights. The arena was of the usual round amphitheatre type, with cement seats graduated steeply down to the ring. (Fortunately, little cushions could be rented.) Men were running about selling programmes, in Spanish, English, German, and French. Others were hawking little bags of hard candy and small glasses of cognac which they measured out from a big bottle. Despite the huge U.S.A.F. Headquarters we had seen under construction in the city, the American influence had not yet been strong enough to introduce pop-corn. Every seat was filled by the time the show started at 5.30. There were six fights and six bulls killed. It must be in Mexico where it is against the law actually to kill the bull — though, if they follow the same routine that we saw in Madrid, they might as well kill the poor thing anyway.

We were not at all impressed. There was no real fight between the bull and the man. It started with two fellows, dressed in ancient costume, riding around the arena on horse-back, bowing to the President, and going through the ritual of taking the keys to the bull-pens. After this performance, all the matadors and their various helpers marched in. Then followed the only part that I really liked: the big black bull came charging out, so full of energy and fire and just looking for something to run at. There were about six men with pink capes in the arena who tired the bull by getting him to run here and there, first at one and then at the other. This was quite exciting, but, if things got too tough, these fellows would dodge into little protected areas against which the bull would dash his horns. Another man, riding a horse that was

blindfolded and protected on one side by a thick blanket affair, had a great long sharp goad with which he goaded the bull on the front shoulders, just behind the head, when the others had manoeuvred it into attacking him. The horse was well trained and dug his feet in to resist the charge of the bull, so that the goad was well driven in. Several times the bull managed to knock the horse down. On one occasion a horse had to be replaced, and on another a fighter was carried off. We felt sorry for the horse. Apparently they used not to have the horse protected. I am sure that it wasn't finer feelings that started them protecting the horses, but rather the expense of replacing them. Protected though they were, I noticed that most of them were scarred from previous fights.

Blood was now pouring down the bull's shoulder. He was usually goaded three times, after which another fellow ran at him, stepped aside from his charge, and drove two arrow-like weapons into the same spot. They did not always go in far enough to stay, as the bull sometimes turned more quickly than expected. Three different sportsmen did this, and eventually the bull was charging around, looking rather like a pin-cushion. He was badly winded, wounded, bleeding profusely, and obviously quite weak. Then, after the President had signalled with a white scarf, the brave matador took over. The matador is allowed fifteen minutes after the President's signal in which to kill the bull. However, with the wretched animal in such a condition, it presents little problem. Furthermore, the other six men were still in the arena and they came forward to entice the bull to charge at them and so tire himself still more.

The matador shook his red cape at the bull until he charged, and then stepped nimbly aside. That is the brave and daring bit we always see in pictures. The skilful handling of the cape, we learned, is supposed to be artistic. Occasionally a bull would gain possession of the cape and toss it around and stamp it into the ground. At this stage, though, the bull is so weak that he has to be really enticed into charging. If, however, despite his weakness, he becomes too dangerous, those other chaps are still hanging around in order to lure



Lunch in Barcelona. Left to right: Tom, Wolfgang, Herr Oberle, and the writer.

him into charging in another direction. At this point the crowd is always roaring for the kill, though not — as it should be — out of pity. Our sympathies were such that we would have been honestly glad to see a matador killed.

After some minutes of this play, the matador drove his sword to the hilt into the vital spot on the bull's shoulder. This thrust so affected most of the bulls that they staggered, fell, and were unable to struggle to their feet again. If the bull could not get to his feet, another fellow finished him off with several dagger-thrusts in the head. Occasionally another sword thrust was necessary before the bull went down. One of our fellow passengers, a colonel with a bad heart, passed out at this stage.

The gallant matador had killed the bull, the band began to play, three decorated mules came out and dragged the body away by the horns, then men with scrapers scratched the blood into the sand, and we were ready to watch the killing of another bull.

Such a way to spend Easter Sunday!

* * *

On Monday and Tuesday we continued our journey — Burgos, Bilbao, Loyola (birth place of the Jesuits' founder), San Sebastian on the Bay of Biscay, and so back to the Spanish-French border and across into the "unfriendly" territory of France, where the atmosphere seemed to close down suddenly on our Germans.

We drove around Biarritz, which struck me as a place I would like to visit only if I had a large bank account, and arrived in Lourdes at about ten. A chill from the snow-capped Pyrenees was in the air. In the morning, being too lazy to get up early, Tom and I found ourselves left with only half an hour in which to dash down and look at the Cathedral and Grotto. No doubt you remember the story of Bernadette. Lourdes is where it all happened.

Three churches have been built on a hill-side, one on top of the other. One hundred years ago Lourdes was only a tiny village; now it is a prosperous town with more souvenir shops than I have ever seen in one place, and with all kinds of hotels to take care of the thousands of pilgrims who visit it each year. All sorts of school children, of many nationalities, were marching towards the church in separate groups, one of which was carrying a banner bearing the school crest. The crowds were terrific. There is supposed to be an old section of the Grotto filled with the crutches, etc., left behind by the people who have been cured at the shrine, but we had no time to see it. Inmates of the cripples' home nearby bathe in the healing waters of the spring.

Then on again, paralleling the Pyrenees. Lunch-time found us in Toulouse, where we could see nothing we wanted to buy except a heavy black zipper which I wanted for my purse and which the saleslady would not sell me because she said it was not the right type for the purpose I wanted. Was I annoyed! Toulouse is a filthy town, and the most disgusting thing about it is the soapy water and sewage which runs down both sides of the street in the gutters. While strolling along, we met Wolf and one of the passengers, a handsome lad named Dietmar. Wolf said that they had had an interesting time, got some good pictures, and been accosted on four occasions.

Dietmar now spent more time at the back of the bus with Tom, Wolf, and me. Up in the front, he had been considerably more sedate, as all the older women and professors were there. Since Tom started to tease him about his beautiful wavy hair and long eyelashes he had begun to be freer with us. He spoke only a few words of English, but I somehow suspected that he understood considerably more than he could speak.

In Brive, where we stayed for the night, Tom and I had the best beds of the trip and plenty of covers. No freezing to death as at Lourdes. Dinner was excellent, and a group of us stayed on awhile afterwards and drank champagne. When I got up to leave, my purse was missing. After a few minutes of wild dismay, while I thought of my passport and other valuables, Dietmar confessed.

There was not much of interest to see on the last two days of the tour. The countryside of Central France is very much like that of Ontario — rolling farm-land.

At Dijon, for the first time, four passengers were assigned to one room. Marie Louise and her mother were with us. We were not sure how it would work out as Marie Louise's mother was a holy terror. She was always complaining or feeling offended about something. She had had poor Grandpa and his pipe banished to the back of the bus, and Dietmar was told about his smoking when he accepted a cigarette which Tom offered him. We always felt sorry for Marie Louise.

That evening a group of us went to a club out of which Herr Oberle, our bus driver, had been forced to shoot his way during the War. It was quite an entertaining spot, though it bore no evidence of Herr Oberle's escapade. I have never heard a band that played the same number for so long — at least twenty minutes for each selection, and forty minutes for each period of dancing. The floor show was "different". There was a man who could sing in a powerful soprano just as well as in a good baritone. Arriving home very late, Tom and I attempted to sneak into our room. Frau Zimmerman was up in a flash. Luckily for us, she could not speak English. The last thing she did was ask Tom to put her little alarm-clock in her



Alice in Wonderland. An orange grove near Valencia.

suitcase in the dressing-room: the ticking disturbed her. After we had complied, we could hear that wee alarm ticking away in the other room rather like a time-bomb in a suspense movie.

We didn't need the alarm to wake us, because Frau Zimmerman was up and clumping about at six o'clock. With some satisfaction, we packed our suitcases full of dirty clothes for the last time.

On this, the last day of our grand tour, Dietmar and I finally found the most successful medium of conversation: our atrocious school French!

Back in Bühl at last, we shook hands and said "Auf Wiedersehen" to our fellow passengers as to old friends. We had come to know many of them quite well. The last thing Dietmar did as he was stooping down to help the mathematics professor with his suitcase, was to take one of Tom's shoes (which she had kicked off) and give it to me to hide. I was especially sorry to say good-bye to "little brother" Dietmar.

* * *

We returned to the station at about 9.30 — a heated hotel with hot water and showers! During supper in the Snack Bar, we were, of course, besieged with questions, especially about the bull-fights. Since there was rather more to tell than I have told here, it took us about two weeks to answer them all . . .

FIRST WINNER of the QUEEN'S SHOOTING-MEDAL

Our June issue contained a description of the recently approved "Queen's Medal for Champion Shots of the Air Forces," together with a brief summary of the rules of the competition.

The first competition for the medal was held in Ottawa last August, during the annual meet of the Dominion of Canada Rifle Association. Many members of the R.C.A.F., from various parts of

Canada, competed, and the winner was Flt. Sgt. J. V. Martin, of R.C.A.F. Station Camp Borden. His score was 163 out of a possible 200, obtained on a day when a strong cross-wind and unseasonable cold made the conditions far from ideal. Runners-up were: Sgt. R. H. Cunnington, of No. 1 (F.) Wing; Sqn. Ldr. D. C. Bullock, D.F.C., of R.C.A.F. Station Foymount; and Flt. Sgt. W. S. Garland, of No. 25 Air Materiel Base. Their respective scores were: 157, 155, and 153.

Flt. Sgt. J. V. Martin.



Three Commendations by the Queen

Three R.C.A.F. personnel have received the Queen's Commendation for Brave Conduct. They are: Wing Cdr. R. W. McNair, D.S.O., D.F.C., Flt. Lt. G. C. Whitaker, and Flt. Sgt. L. O. Jones.

Wing Cdr. McNair, who is at present serving with Air Defence Command, was flying as a crew-member of a North Star transport which crashed on landing at R.C.A.F. Sea Island, Vancouver. The aircraft came to rest upside down in a wrecked condition, and an explosion and fire appeared imminent. Wing Cdr. McNair, knowing the number of passengers carried and the state of turmoil that must exist, fought his way to the passenger compartment, where he set to work restoring calm,

Wing Cdr. R. W. McNair, D.S.O., D.F.C.



Flt. Lt. G. C. Whitaker.

and, "through prodigious effort," assisted all passengers in getting out of the aircraft as quickly as possible. He then personally searched through the debris, to make sure that no one had been overlooked, before leaving the aircraft himself. During all this time Wing Cdr. McNair was soaked in gasoline.

Flt. Lt. Whitaker, an armament officer stationed at No. 2 (Fighter) Wing, France, was present on the station when the cartridge designed to blow the canopy from the cockpit of a Sabre

fighter failed to explode during an attempted bailout by the pilot. Fortunately the pilot was able to land; but detailed examination of the canopy ejector mechanism failed to reveal any reason for its failure. It was therefore necessary to find out immediately why the cartridge had not exploded or else to ground all the fighters in the Wing (and possibly all those in other Wings of the Air Division) until the trouble could be located. Flt. Lt. Whitaker volunteered to take the defective live cartridge to pieces and find why it had not exploded. He succeeded in doing so without accident, and located the reason for its failure to detonate.

Flt. Sgt. Jones, of R.C.A.F. Lincoln Park, Alta., was instructing a party of airmen in ground defence tactics at Sarcee Camp when one of the trainees, who had successfully thrown one grenade, became confused on throwing his second. After activating the grenade, he placed it on the parapet and stood looking at it. Flt. Sgt. Jones, who had properly withdrawn to a safe position, dashed back



Flt. Sgt. L. O. Jones.

to the throwing-bay "at considerable risk to his own life" and hustled the trainee to safety just as the grenade exploded.

"FISSIONABLE"

The following letters appeared not very long ago in the correspondence columns of "The Times Weekly Review" (U.K.).

Sir:

The lawyers are as much at fault as the scientists. The naturalist Robert Lovell taught in 1661 that metals were not fissile; now we know that some of them unfortunately are, we need not slang them as "fissionable." It is too bad that the draftsmen of the United States Atomic Energy Act of 1946, with so much else to answer for, should have imposed on my countrymen a legal definition of "fissionable materials." In this country, where the Atomic Energy Act, 1946, refers more vaguely to "prescribed substances," the choice is still relatively free. Probably most British and American physicists, if the choice were put to them, would prefer "fissile"; some of the best in both countries do habitually use it; and the word is

firmly established in a conveniently analogous sense in geology. The real problem in the terminology of fissility or fissileness is to distinguish between materials and natural or artificial nuclear splits. Possibly the former might be called "fissive"

Sir:

It is unquestionable that "fissionable" is objectionable to the impressionable; but to the knowledgeable it is unexceptionable.

Sir:

Fissionable is fashionable and surely reasonably admissible. Fissile is risible.

Sir:

Is fissive admissible?

Sir:

This fissionable business is becoming serious. An alarming question arises. Are modern pictures exhibitionable?

ROYAL CANADIAN AIR FORCE

Association



National President's Fall Tour

After a summer at Oro Lea Beach, the National President returned to duty with a tour of the Northern and Eastern Ontario Wings. The tour began in North Bay on 13 September and concluded in Oshawa on 20 September. The following Wings were visited: North Bay, Kirkland Lake, Sudbury, Chapleau, Cornwall, Brockville, Kingston, Belleville, and Oshawa. Flt. Lt. A. MacKell accompanied Air Vice-Marshal Brookes on this tour.

National Executive Council Meeting

The annual meeting of the National Executive Council of the Association will be held in Ottawa on 25 and 26 November 1954.



During the summer, No. 412 Wing of the Association and the Windsor Flying Club jointly sponsored the Windsor Centennial Air Show at Walker Airport. The show, which lasted two days, was a great success, and more than thirty thousand visitors attended. At the conclusion of the Air Show, a very successful dance and social evening was held in the Wing club-rooms, where our photograph was taken. Seated are Mr. and Mrs. K. Doherty, and standing are (l. to r.) Mr. and Mrs. R. Allan, Mrs. Cecil Raven and Mr. Raven.

R.C.A.F. Movements Officers and members of No. 302 (Quebec) Wing examine gifts to be distributed at a "Bon Voyage" party aboard the "Samaria". The party was given for a draft of airmen and their dependents, and for the 63 teachers leaving for a two-year stay in Europe to teach Canadian airmen's children. Left to right: Miss M. Fortin, P. Delaney, R. Dorval, Miss J. Prince, S. Lax (president), Pilot Officer Jeffries, Flt. Lt. R. Albert, L. Pelletier, H. Caouette, Miss A. Bélanger, Mrs. R. Dorval. (Studio Audet photo.)





Canadian paraplegics participated for the first time in the 1954 Stoke Mandeville games in Britain, which were held in Aylesbury, Buckinghamshire. The Olympiad attracted competitors from fourteen countries. The teams competed in archery, netball, javelin-throwing, snooker, swimming, and table tennis. The members of the team shown in the accompanying picture, all of whom come from Montreal, are (left to right): W. Handley, J. P. Rochon, W. Hepburn (sports manager of the Canadian Paraplegics Association), P. Brusseau, and H. Ward. The nurse is Nonie Stratford, who comes from Sarnia, Ont.; and the attractive woman paraplegic is Miss Pamela Russel, of Winnipeg, who was injured in a riding accident four years ago. Pamela Russel was one of the outstanding competitors at the Games, and is a crack archer. The Canadian team are members of the Montreal Wheelchair Wonders. The World Veterans Federation was largely responsible for helping to bring competitors from far afield. The games were attended by many notables from Great Britain and the Continent.

R.C.A.F. Jet Cavalcade: Western Canada

The tour of jet aircraft authorized by the R.C.A.F. was enthusiastically received at all points. At this time we have not received all reports, but from No. 600 Wing (Regina) we learn that some 30,000 people were on hand to witness the display. Stan Malach reports that the show was terrific, and only the highest of compliments were voiced by the public.

Library Books for Overseas Units

We have received the following letter from Wing Commander R. W. Thompson, A.F.C.:

"I have just returned from a visit to all Air Division units in company with the Air Member for Personnel. It was a most informative and enjoyable visit.

"You will be glad to know that, while at Langar, we visited the Station Library, and the Air Member for Personnel noted a large number of books donated by No. 306 Wing, Montreal. These books are, of course, most appreciated by the Station personnel, and Air Vice-Marshal Wait has asked me to send you this note so that you can pass on the gratitude of the Station Commander and his personnel to No. 306 Wing."



No. 303 (Sherbrooke) Wing's 1954-55 executive. Left to right: K. Ross (treas.), R. Fuller (2nd vice-pres.), L. Gingras (pres.), F. Edwards (past-pres.), F. Hill (sec'y). Absent: S. Hart (1st vice-pres.). (Gerry Lemay photo.)

A request for 2000 hard-cover books has been received from Zweibrücken, and No. 424 (Cornwall) Wing has accepted the responsibility of securing them.

Canadian Legion Convention, Toronto

The close relationship which the Association enjoys with other veterans' associations was evidenced when the Secretary of the Association attended the annual Canadian Legion Convention in Toronto as a guest. The Legion again expressed their desire to assist Wings of the Association wherever such assistance would be helpful to us.

Wing Activities

It is the usual custom for Wings to decrease their activities during the summer months, and, for this reason, reports from Wings will not be carried until the next issue of "The Roundel".

It is assumed that all Wings have by now held their initial Fall meeting, and that plans have been made for an active and interesting season.

The successful operation of a Wing rests entirely with the Wing executives. They must provide direction on all projects, and it is their responsibility to make arrangements for monthly meetings and to obtain outstanding speakers and good films. If the standard is kept at a high level, interest and attendance will also be high. By obtaining

favourable publicity, Wing executives can bring the aims and objects of our Association to the attention of the citizens of their communities, thus laying the groundwork for a full-scale new membership campaign. Don't forget that everyone has an equal opportunity of winning the Association Grand Prize in November.

U.S.A.F.A. Convention

The 8th annual convention of the United States Air Force Association was held in Omaha, Nebraska, in August of this year. On the invitation of the President, General George Kenney (ret.), the R.C.A.F.A. was represented by Air Vice-Marshal K. M. Guthrie, C.B., C.B.E., (ret.), Chairman of the National Executive Council of the R.C.A.F. Association.

Approximately 1600 attended the convention, which, in addition to lengthy business sessions, featured such diversions as a detailed briefing on the rôle of the Strategic Air Command; a static and flying air display at Offut Air Force Base, the headquarters of S.A.C.; a large static display at the Civic Auditorium; and the "Air Power Ban-

Cadets of No. 547 (Canuck) Squadron attending a lesson on aero-engines given by J. Fetterly. This squadron is sponsored by No. 306 (North Bay) Wing.



quet," which was held at the famous "Boys' Town".

The specific theme of this year's convention was "Security in the Hydrogen Age", while the basic theme of the U.S.A.F.A. — air power — was also stressed throughout. Mention was made on many occasions that one of the chief tasks of the Association was to bring home the necessity of air power, with all its problems and responsibilities, to every citizen of the United States.

One of the opening meetings of the convention was the "Air Power Symposium", presided over by General James H. Doolittle. Delegates heard authoritative speakers on such subjects as the Reserves, American foreign policy, electronic equipment as applied to modern aircraft, and a talk on the general aspects of research and development given by the Hon. Donald A. Quarles, Assistant Secretary of Defence. In addition, the Hon. W. Sterling Cole, Chairman of the Joint Congressional Committee on Atomic Energy, gave a talk in which he referred to the need of a mutual air defence treaty between Canada and the United States.

The first morning of business was followed by the Air Power Symposium luncheon, at which the principal speaker was General Nathaniel Twining, Chief of Staff of the U.S.A.F. Other speakers included Colonel Jimmie Stewart (who told of some amusing incidents in the filming of his latest picture, "Strategic Air Command") and T.V. star Arthur Godfrey.

After the luncheon all delegates and their guests visited Offut Air Force Base, where they were greeted by General Curtis Lemay, commanding general of the Strategic Air Command. All visitors were given a one-hour briefing on S.A.C. — its background, operational mission, and equipment.



Group Capt. R. B. Ingalls, D.S.O., D.F.C., presents trophy to Cadet Flt. Sgt. J. Wronkewich, of No. 66 (Fort William) Squadron's winning drill team for the North-Western Zone. Looking on are members of the sponsoring R.C.A.F.A. Wing, No. 501 (Lakehead).

This was followed by a close look at aircraft in the air and on the ground.

One of the problems at the last business session was where to hold the 1956 convention (the 1955 convention is being held in San Francisco), and Air Vice-Marshal Guthrie says that a great deal of amusing and good-humoured "lobbying" took place before Miami won out over Atlantic City for the honour.

The final dinner was held in the gymnasium at Boys' Town, with about 1900 guests in attendance. Head-table guests included nine winners of the Air Force Medal of Honour, and the guest speaker was the Hon. Harold E. Talbot, Secretary of the Air Force, who centred his remarks around the Air Force manpower problem.

Previously unfinished business was concluded on the Sunday morning, when the new President, John Allison, addressed the delegates.

The R.C.A.F.A. is pleased that, by sending a representative, it has been able to further good relations with the U.S.A.F.A.

Who says what he likes will hear what he dislikes. (Turkish proverb.)

THERE'S ONE ON EVERY STATION!

by ray trace

WELCOME OFFICERS
TO THE
SERGEANTS' MESS
PARTY

ENJOY YOURSELVES! IT'S LATER THAN YOU THINK!

...AND IT ISN'T JUST THE FACT THAT I HAVEN'T HAD A PROMOTION IN NEARLY THREE YEARS, NOR IS IT OTTAWA'S COMPLETE DISREGARD OF MY LATEST APPLICATION FOR COMMISSION, BUT, ALSO, MY MOTHER-IN-LAW DOESN'T LIKE IT HERE AND SHE FEELS THAT A TRANSFER TO THE WEST COAST WILL CURE THE WIFE OF HER DIZZY SPELLS AND SINCE YOU KNOW THE RIGHT PEOPLE IN THE...
...MAY I GET YOU ANOTHER DRINK, SIR?...



THE EAR-BANGER!

The ROYAL CANADIAN AIR CADETS



By Arthur Macdonald, Air Cadet League of Canada.

THESE notes are being written at the close of another season of special Air Cadet activities across Canada. More than 4,400 cadets took part in this year's summer programme, which can be accurately described as the biggest and best on record.

Air Cadet summer camps were held this year at R.C.A.F. Stations Greenwood, Clinton, and Abbotsford. Approximately 4,000 cadets attended

the three camps, which offered advanced instruction in Air Cadet subjects, a full programme of organized sports, and the very popular familiarization flights in R.C.A.F. aircraft. According to all reports, this year's camps were the finest ever conducted by the Service.

A full quota of 250 senior cadets was selected for the R.C.A.F. Scholarship Flying Training Courses. The cadets reported to the civilian flying clubs across Canada early in July and were given a course of at least forty weeks' duration.

Overseas cadets at Mr. and Mrs. C. D. Taylor's home in Ste. Agathe, P.Q.





The courses offered thirty hours in the air, plus sufficient ground school tuition to qualify the lads for private pilots' licences. Present indications are that well over 90% of the cadets on course will qualify for private licences as well as Air Cadet Flying Badges. This will bring to almost 2,000 the number of cadets who have learned to fly under the R.C.A.F. Scholarship Scheme.

Another one hundred cadets from all provinces spent the summer at R.C.A.F. Station Camp Borden, where the second Air Cadet Senior Leaders' Course was conducted. These lads have now returned to their squadrons with a thorough grounding in administration, drill, instructional techniques, ground defence, and other subjects which will prove helpful to their home units.

Top man on the Senior Leaders' Course was

Social evening held for cadets of No. 314 (Grand Falls) Squadron and their friends. Behind table are (l. to r.): Sqn. Ldr. J. Bardsley, C.O. of No. 161 (Saint John, N.B.) Sqn.; Flying Officer J. St. Amand, of No. 2 (F) Wing; Flt. Lt. J. Hughes, C.O. of No. 314 Sqn.; H. Folster, Fin. Sec'y of Grand Falls Air Cadet Committee; Flying Officer S. Schachter, No. 314 Sqn.; Mr. R. Butelsen, Pres. of Grand Falls Rotary Club (the squadron's sponsors); and Flt. Lt. R. Wright, of M.G.H.Q. Cadets are T. McCluskey, R. Green, F. Carrier, M. Anningson, B. McCarthy.

Corporal R. J. Lawson of No. 259 (Penticton) Squadron, who received the President's Trophy awarded by Mr. H. L. Garner. Second and third places went to Corporals R. R. Purdy of No. 205 (Nanaimo) Squadron and G. Welsby of No. 288 (Kirkland Lake) Squadron, respectively. Other special awards went to: Sergeant R. A. Brown of No. 525 (Vancouver) Squadron and L.A.C. W. I. Ross of No. 536 (New Liskeard) Squadron for

marksmanship, Sergeant W. C. Camley of No. 201 (Centre O: Toronto) Squadron for swimming, and Flight Sergeant G. W. Pake of No. 294 (Chatham) Squadron for track and field.

A unique feature of the Senior Leaders' Course this year was a drill competition between the east and west for the Marsh Trophy awarded by Canadian Pacific Airlines in memory of the late Lawrence S. Marsh of Montreal, a vice-president of the Air Cadet League. The Trophy was won by the eastern team commanded by W.O.1 P. R. Murray of No. 562 (Cabot) Squadron, North Sydney, N.S.

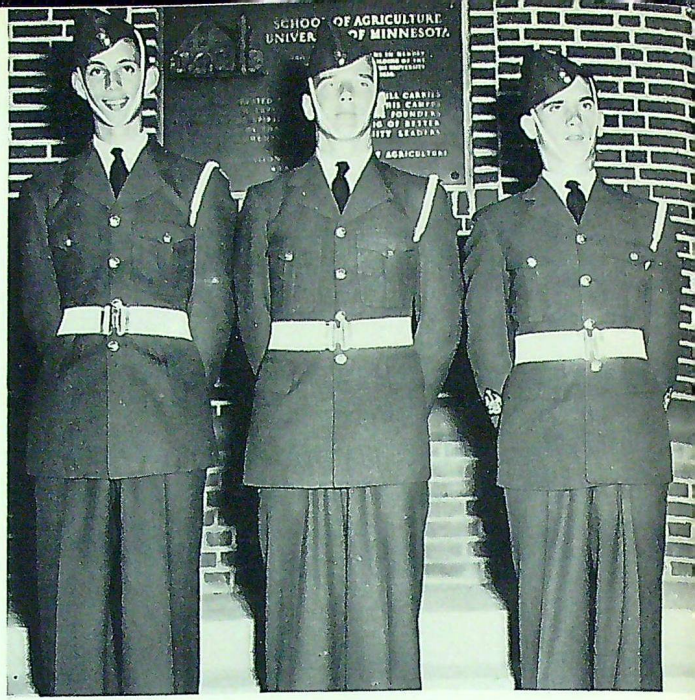


Mr. Dudley Roden presents the President's trophy to Cpl. R. J. Lawson, of No. 259 (Penticton) Squadron, who was rated as top cadet in the 1954 Senior Leaders' Course.

A Yeoman Warden points out the Bloody Tower to (l. to r.) M. Parker, T. J. Harvey, and G. Dickson, during their exchange visit to the U.K.



A team of forty cadets, selected from the Camp Borden group, represented Canada in the International Drill Competition held in conjunction with the Minnesota State Fair at Minneapolis. At stake was the General Beau Trophy, won by Canada four times in the previous six years. This was the most colourful single event of the Air Cadet year, including as it did two highly trained precision drill squads from Canada and the United States, along with the Royal Canadian Mounted Police Band and the widely known U.S.A.F. Drum and Bugle Corps. Upwards of 25,000 spectators saw the competition, which resulted in a victory for the U.S. Civil Air Patrol by a three-to-one vote of the judges. The record



Three members of the team which competed in the International Drill Competition. Left to right, they are: W. B. Knowles, R. K. Brown, and P. R. Murray (captain).

Cadets at Leone's Restaurant, New York. (U.S.A.F. photo).



now stands at four victories for Canada, two for the United States, and one for Great Britain.

Six countries participated with Canada in the international exchange visits programme this year. Canada sent a total of fifty-eight cadets to the United States, United Kingdom, Norway, Sweden, Holland, and Denmark, while return groups from each of these countries were entertained by the League and the R.C.A.F. in Canada.

Space unfortunately does not permit a complete

report on each of the exchange tours, but the following brief comments will give an indication of the wide scope of this ambitious project.

The Canadian group visiting the United States spent several days in Washington, D.C., toured the State of Pennsylvania, and wound up their visit with a lengthy stop-over in New York City.

U.S. Cadets with Chief Ranger Tom MacCormack, in Algonquin Park.



The overseas party, meanwhile, travelled widely throughout England and Scotland, and also visited the Isle of Man. A total of eight cadets, travelling in pairs, visited the four Continental countries and received "red carpet" treatment wherever they went.

An off-moment at summer camp.

Sqn. Ldr. S. Dawson, escorting officer, discusses points of interest with British cadets visiting Canada.



The provinces of Ontario and Quebec played host to the thirty-three air cadets who visited Canada from five overseas countries. The cadets enjoyed an extended stay in the Montreal area, a camping trip in Algonquin Park, and a Laurentian week-end as guests of Mr. and Mrs. C. Douglas Taylor. They also visited Ottawa, Toronto, St. Catharines, Niagara Falls, and Quebec City, during their three-week stay in Canada. The incoming U.S. cadet group received lavish hospitality in the three maritime provinces before visiting Algonquin Park, Barrie, Montreal, and other points of interest in Ontario and Quebec.

Without exception, the exchange tours were rated as outstanding successes this year, and there is every indication that selection for one of these trips will continue to be the top award for which any air cadet may qualify.

EMPIRE GAMES GOLD MEDALIST



Air Commodore W. A. Orr, C.B.E., A.O.C. No. 12 Air Defence Group, examines the gold medal won by L.A.C. Keevil Daly (right) at the British Empire Games held in Vancouver last August. Standing at left is Cpl. Victor Cassis, who also competed in the Games.



Letters to the Editor ★ ★ ★

NO OTTAWA MONOPOLY

Dear Sir:

On page 26 of the July-August issue of "The Roundel" you state that only two Airmen's Mess Dinners have been held in the R.C.A.F., both of them in Ottawa. In point of fact, two similar functions have been held at this Detachment, one of them before the event reported in "The Roundel".

Sqn. Ldr. G. E. Grindlay, M.B.E.,
C.E.P.E. (S.E.S.) Detachment,
Suffield, Alta.

ex-members of the squadron as possible. Since almost all R.C.A.F. and ex-R.C.A.F. personnel read "The Roundel", we feel that a notice in your magazine would be of great help to us in making the event a success.

The reunion will be held in Toronto on 26 November 1954, and all ex-members of the squadron who will be able to attend are asked to contact the undersigned as soon as possible.

L. W. Armstrong,
6559 10th Ave.,
Rosemount,
Montreal, P.Q.

R.C.A.F.'s FIRST JETS

Dear Sir:

Can you tell me what was the first type of jet aircraft used by the R.C.A.F.? Personally I think it was the Vampire, but a friend of mine maintains that it was the Gloster Meteor.

L.A.C. G. S. Woodward,
No. 2 C.M.U. Detachment.

(The first jet purchased by the R.C.A.F., the De Havilland Vampire, was received on 23 January 1948. Gloster Meteors were flown by R.C.A.F. pilots, both at the Central Experimental and Proving Establishment and at the Winter Experimental Establishment, in the summer of 1946; but the aircraft belonged to the R.A.F. —Editor.)

NO. 10 B.R. REUNION

Dear Sir:

A number of ex-members of No. 10 (B.R.) Squadron are organizing a reunion and are attempting to contact as many

★ ★ ★

Answers to "What's the Score?"

- | | | | |
|---------|---------|---------|---------|
| 1: (b) | 2: (a) | 3: (b) | 4: (a) |
| 5: (d) | 6: (b) | 7: (b) | 8: (d) |
| 9: (a) | 10: (d) | 11: (b) | 12: (c) |
| 13: (a) | 14: (b) | 15: (c) | 16: (a) |
| 17: (b) | 18: (c) | 19: (b) | 20: (a) |

Views expressed in "The Roundel" upon controversial subjects are the views of the writers expressing them. They do not necessarily reflect the official opinions of the Royal Canadian Air Force.



