

# *The* **CROWNDDEL**

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**This Month's Cover**



Canada's Prime Minister, the Rt. Hon. L. St. Laurent, waves au revoir to Ottawa just before taking off from Rockcliffe for Goose Bay, on the first leg of his round-the-world flight in the R.C.A.F.'s C-5.

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

# SGT. SHATTERPROOF HAS HIS DREAMS

Sir:

Now that the recent promotion examinations are already becoming no more than a hideous memory, I may speak with freedom. Men soon forget; and it is therefore improbable that my words will occasion the immediate liquidation of our Educational Branch. There is plenty of time for its personnel to revise their techniques before examination again breaks out, nor need they make more than minor changes of policy in order to escape the axes and cleavers of the candidates. Should they, however, decline to profit from the lesson of history — well, we must leave them to their fate.

It may well be that my traducers will say: "So! Smarting from his defeat by W.O.1 Gallstone last January, Shatterproof looks for less formidable victims upon whom to vent his spleen. Just as an old and toothless lion goes forth in search of human prey, so the aging wardog now seeks to impale our kindly padagogues upon his blunted rapier. The hour has come when we must turn elsewhere for guidance."

I do not think that such allegations call for any reply. Instead, I would ask those who make them to cast their minds back a few weeks. Let them recall those grim days when thousands of our officers and N.C.O.s went about their daily tasks with expressions that would have convinced even Damocles that he wasn't so badly off underneath his sword. The shadow of the electric pencil lay across their brows; their nights were haunted by dreams of vast presses printing mile-long sheets of multiple-choice questions. What (the loyal candidate asked himself) would it avail him, once the doors of the examination-room had closed

upon him, to point with pride to a virginal conduct sheet or to have been the life and soul of the last Mess Dinner? The thread from which his destiny now hung was his ability to pick the winners — and to pick them, furthermore, without even a pair of dice to guide him. We cannot, sir, regard it as any tribute to the vigilance of the R.C.M.P. that our Air Members were not clapped under lock and key upon the charge of conducting a nationwide gambling-ring.

It is in order to forestall such a distressing occurrence in the future that I am now offering our Educational Branch the fruits of my ancestor Captain Welkin Shatterproof's experience. According to the chroniclers, Welkin was the eldest son of the celebrated Goody Shatterproof, the Hen-Wife of Hartlepool; and he rendered sterling service to Henry VII during the Wars of the Roses. Like most senior officers throughout history, he was constantly perplexed by the problem of choosing the right men for advancement. Lacking electricity, ball-points, or even graphite, he was unable to make use of pencils of any sort — let alone of electronic brains to sort out the guesses made by them.

Being a conscientious officer, Welkin eventually sought his mother's advice. That wise and gentle old lady immediately retired to her boudoir to put the matter up to some rather well-informed skulls and dried adders with whom she shared the place. When at last she emerged, a little glassy-eyed but otherwise unshaken by long communion with her familiar spirits:

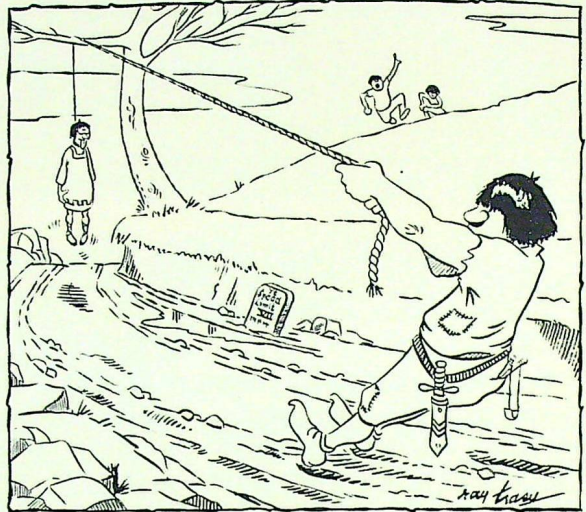
"Son Welkin," quoth she, "your affair is soon settled. Go you forth to the community gallows-tree during tonight's eclipse of the moon. Thereon

you will find, swinging in the wind, a learned scholar who was hanged but yesterday for having ventured to correct the Bishop's Latin. Bring me his right hand, and sever me also a fat cut from the merry lad. From these ingredients I will fashion you a Corpse Candle and a Hand of Glory. Then, upon a fair parchment, you shall write me the names of all your men-at-arms. The dead scholar's first digit, moving surely by the light of the candle clasped in his other four fingers, will point out to you those who may most worshipfully serve our Monarch and the House of Lancaster."

After the episode just described, Welkin is said to have risen rapidly upon the shoulders of his newly-appointed staff. Indeed, there is no telling where he might have ended had he not been surprised, a couple of years later, in the act of stringing up an emeritus professor of Greek shortly before the annual promotion board was due to sit.

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To us of a later age, Goody Shatterproof's approach to personnel work may smack somewhat strongly of the unconventional. Moreover, I suppose, a possibility exists that the cannibalization of our Educational Branch for the construc-



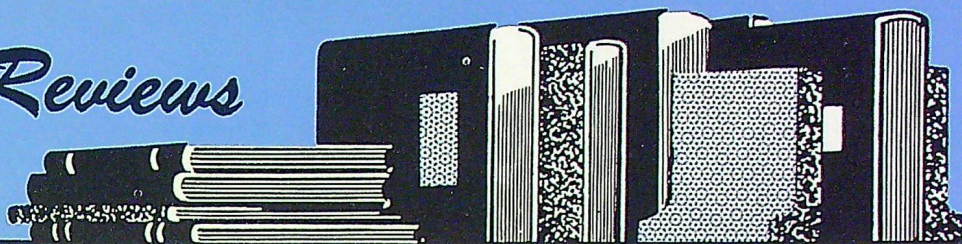
tion of Hands of Glory might be regarded by some as lacking in humanity, or even as downright mis-employment. None the less, Sir, having served the House of Windsor twice as a W.O.2. and thrice as a Flight Sergeant, perhaps I may be permitted the luxury of dreaming.

*Shatterproof*

### PUBLIC SERVICE

As soon as public service ceases to be the chief business of the citizens, and they would rather serve with their money than with their persons, the State is not far from its fall. (Jean Jacques Rousseau.)

## Book Reviews



# The Other Side of the Horizon

A Review Article by Wing Commander F. H. Hitchens, Air Historian.

HERE IN HEINZ KNOKE'S "I Flew for the Führer,"\* is the German counterpart to Pierre Clostermann's "The Big Show." It is the story of the war in the air over Western Europe as seen from the other side of the horizon through the eyes of a leading Luftwaffe fighter pilot who was credited with 52 victories in the course of more than 400 operational sorties.

It was a joy-ride in a barn-storming aircraft in the summer of 1938 that first inspired the 17-year-old high-school student "to combine a military career with the freedom and beauty of life as an airman." Submitting his application as an officer candidate for the Luftwaffe, Knoke passed the rigorous four-day medical, mental, and physical examination, and was awaiting his call-up when the war began in September 1939. The *blitzkrieg* in Poland was over and the war had become an apparent stalemate along the Maginot Line before the impatient youth received his orders, in November, to report to a flying training unit near Berlin. There he had the seemingly universal introduction to military life — slacks that were

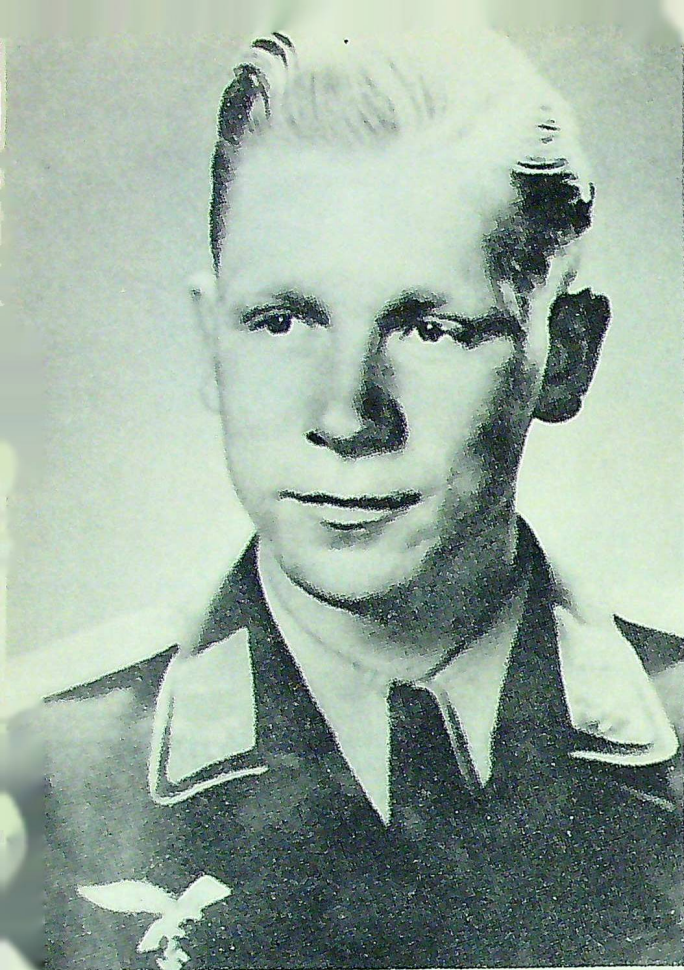
too loose and a tunic that was too tight — and for three months endured the "long grind" of basic military training before receiving his first flying lesson in February 1940.

Flying did not come naturally to him; his progress was slow and for a time he faced the "grim prospect" of being washed out and relegated to the flak corps. Finally, long after the other members of his class, he went solo, completed his initial training, and in August advanced to a Fighter School from which he graduated in December 1940, having survived the usual forced landings and other mishaps.

At the beginning of January 1941, Fahrnich (Flight Cadet) Knoke was posted to an operational unit, JG.52, and spent the next five months in the wing's reserve squadron, completing his operational training. During this period while the wing was moving from Germany to southern France and back to Germany, he received his commission as a lieutenant and fell in love with the girl who a few months later became his bride.

When the wing moved up to Ostend, late in May 1941, Knoke was at last permitted to go on operations, flying the Me.109E. (He flew various marks of this type throughout the whole of his

\*Heinz Knoke: "I Flew for the Führer — The story of a German Airman." Translated by John Ewing. Evans Brothers Limited, London: 1953. Pp 187, illustrated. Distributed in Canada by British Book Service (Canada) Ltd., Toronto. \$3.00.



Heinz Knoke, 1941.

career as a fighter pilot.) On his first war sortie, a ground strafe in the Canterbury area on 24 May, Knoke (like most novice pilots) saw little of what happened and was too excited even to fire a shot. In the next fortnight there were more fighter sweeps and low-level attacks over south-eastern England on which the new pilot saw his first enemy aircraft and engaged in his first dogfight. The wing did not remain in this active zone very long. Early in June it was moved to Suwalki in Poland for some mysterious mission which proved to be Operation "Barbarossa," the Nazi attack upon the U.S.S.R. Knoke's flight was employed in a fighter-bomber rôle to attack Communist camps and troop columns, but, to his great disappointment, his participation in the Russian campaign lasted only ten days.

From the busy Eastern front he was posted to another fighter wing, JG.1, stationed on the North Sea coast of Germany. It was very quiet there,

the only activity for many months being convoy escort, which Knoke found just as tedious as did the fighter pilots of the R.A.F. The "Scharnhorst-Gneisenau" affair in February 1942 afforded some relief in action and excitement, particularly for Knoke, who was thoroughly shot up while attacking a Blenheim. The author's account of this running battle through the Strait of Dover is somewhat unusual, as he spreads the action over three days, February 11th to 13th, whereas the usual version is that it did not begin until the 12th.

Immediately after the German battleships reached home waters, Knoke was posted to a special-duty unit detached to Trondheim, Norway, as a fighter cover for the fiord where the "Prinz Eugen" was being repaired. He had several chases after high-flying reconnaissance aircraft, and finally, on March 5th, intercepted a photographic-reconnaissance Spitfire at 22,000 feet. After Knoke had seriously damaged it, another pilot delivered the *coup de grace* and the British pilot baled out of his blazing aircraft. With his companion, Knoke shared both the victory and the bottle of brandy which their commander had offered as a prize.

Rejoining his wing at Jever, he resumed the monotonous round of convoy patrols. An assignment to Holland for special work on the development of ground-controlled interception (in which the Germans appear to have been a good three years behind the British) was a welcome break, as it produced a few more combats—but no victories. In the autumn of 1942, the Me.109G came into use, causing some initial uneasiness among the German pilots because of its tendency to catch fire in the air. Nevertheless, on his new "Gustav," Knoke, who now had risen to command of his flight, was able to shoot down a Blenheim in flames on the last day of October to score his only victory in over a year of convoy protection work. A week later he destroyed his third enemy aircraft by crashing a Mosquito into the sea after a long chase.

When 1943 opened, Knoke had been "at the front" for two years and had flown over 150 operational missions. Most of his service, however, had been on home defence, where the day fighters hitherto had had little to do. The situation was

soon to change. On 27 January 1943, a "new phase of the war in the air" was opened by the U.S.A.A.F.'s first massed daylight attack upon a target in Germany (Wilhelmshaven). Knoke was away from his unit at the time, conducting a training course for new N.C.O.s, but he immediately returned to Jever and at last came into his own as a fighter pilot. On February 26th he brought down his first American bomber when the 8th Air Force again attacked Wilhelmshaven; six months later he had eleven heavies, chiefly Boeing B.17s, to his credit and was recognized as one of the leading home defence aces.

Most of the bombers Knoke had brought down with his cannons and machine-guns in frontal attacks aimed at the control cabin. One, however, he destroyed with a new weapon that stirred up "an unholy flap." As Knoke tells the story, the idea originated with one of his pilots, Lieut. Dieter Gerhard, who, in a "post mortem" on the raid of February 26th, suggested using fighters to bomb the enemy formations from the air. Knoke got permission to carry out experiments and for a fortnight his flight did intensive practice at bombing in formation. On March 22nd Knoke himself gave the weapon its first test on operations when he caught up with an enemy formation over Heligoland and dropped his 500-lb. 15-second time-fused bomb on a group of Fortresses 3000 feet below. The explosion blew the wing off one bomber — beginner's luck! His success brought Knoke personal congratulations from Goering — and a blistering reprimand from the Air Corps commander for his unauthorized display of initiative. Indeed, the "wretched egg" caused so great a fuss among the brass that Knoke soon found himself wishing that he had never dropped it!

Knoke's account of the origin of air-to-air bombing is an interesting footnote, or corrigendum, to that given in the official history of the U.S. Army Air Forces in the Second World War. The American historians state (Volume 2, page 325) that the new technique was first observed over Wilhelmshaven on February 26th, while the German pilot describes its genesis as the sequel to that raid. The Americans agree with Knoke that

air-to-air bombing was also seen a month later, on March 22nd, but they disagree on the result: "the tactic failed to cause damage."

Despite the mixed reaction in high levels, Knoke's flight continued to carry bombs for the next four months. He scored no further successes himself, but claimed at least seven for his pilots. The most spectacular coup was that of a sergeant pilot whose bomb destroyed three Fortresses at one blow. On this occasion, after the Messerschmitts had completely disorganized the group of close-flying B.17s by their formation bomb attack, the fighters went in with their guns and shot down eight more for the loss of one aircraft, the pilot of which was rescued from the sea. This "great shooting-party" stirred Knoke to remark "I am really proud of 'my Fifth'." There can be little doubt that his flight were equally proud of their little red-haired leader who had now been promoted to Senior Lieutenant and decorated with the Iron Cross, First and Second Class, as well as the operational wings in bronze, silver, and gold, for his 200 war missions.

Knoke and his flight were certainly running up good scores (the Fifth had 50 heavies to its credit by May 14th), yet the German pilot repeatedly pays tribute to the extremely heavy defensive fire of the American bombers. Several times he was driven down with his aircraft damaged and, finally, he was himself hit in the right hand and lost part of one finger. In little more than a month he was back on operations, using a strap looped over the control stick so that he could fly with his injured hand.

Shortly after Knoke's return to the squadron the bombs were replaced by rockets ("stovepipes," the Messerschmitt pilots called them) for knocking down enemy bombers at long range. The American historians (Volume 2, page 678) ascribe the "first real success" of the new weapon to 28 July 1943, when one rocket caused the destruction of three B17s — a striking similarity to Knoke's statement that on that day one of his pilots brought down three Fortresses with a bomb. In Knoke's flight the "stovepipes" were used for the first time on August 17th, when U.S.A.A.F. formations striking at Schweinfurt and Regensburg lost 60 of their 315

heavy bombers. Although Knoke himself missed his target, two of his pilots scored direct hits with their rockets.

Of much greater significance — to Knoke personally and to the whole German fighter force — was a new development on the Allied side. Hitherto the German pilots had had only the American bombers to contend with. The appearance, on August 17th, of fighter escorts with the bombers completely changed the situation, and, in the months that followed, the Western zone became for the Germans “the great fighter graveyard.”

Knoke almost became one of its occupants on the very first day, and repeatedly thereafter he escaped it only by the narrowest margin. Although his Messerschmitt had been seriously damaged in combat with the American bombers on their way to Schweinfurt, he took off again to engage them on their homeward flight, destroyed a Fortress and was himself shot down with shrapnel wounds in his upper arm. Crash-landing in a field, his aircraft became “a total wreck”; only the tail wheel was left intact.

Six weeks later he was back in action with a brand new “Gustav”. Leading his flight in a formation attack on a box of Fortresses on September 27th, Knoke fired his two rockets at 2000 feet range and saw “a simply fantastic scene” as they scored a bull’s-eye on the target. Then the fighter cover of P.38s and P.47s arrived, taking the Germans “completely by surprise.” Knoke managed to knock down a Thunderbolt before he was shot down himself and had to take to his parachute. It was a black day for the squadron: at least twelve pilots were killed and sixteen or more aircraft written off. True, the squadron could claim twelve of the enemy — six of which were credited to Knoke’s “lucky Fifth”— but the handwriting on the wall was as clear as the contrails in the sky: in future the Messerschmitts would have to beat off swarms of American fighters before they could get at the bombers.

A week after his first parachute jump, Knoke had to “hit the silk” again when he went in for a close look at a Liberator that he had set on fire. The German pilot thought that all the bomber

crew had baled out, but the dorsal gunner was still at his post and put a burst into the Messerschmitt. An air-sea rescue boat retrieved Knoke from the sea. A few days later he had to forced-land after being shot up in combat: the next day he blew up a Thunderbolt in another dogfight, was shot down again out of control and, thoroughly scared, pulled off a successful belly landing.

With nineteen victories, including fifteen bombers, Knoke was now the top scorer in his area, and Goering came down to decorate him with the German Gold Cross. A speech which the painted and powdered Reichsmarschall delivered to the fighter pilots did not impress them that he had any clear conception of the problems they faced. Keenly aware of the Luftwaffe’s technical inferiority, Knoke felt that instead of lectures “we need more aircraft, better engines — and fewer Headquarters.”

The Americans were coming over nearly every day, and every time the escorting P.38s, P.47s, and P.51s tied the Messerschmitts up in dogfights. Losses steadily diminished the ranks of JG.1. Knoke had to curtail his Christmas leave when two of the squadron’s three flight commanders became casualties — and he joined them on the first sortie after his return. Over Munster on 4 January 1944, when his aircraft was hit by a burst of flak and then shot up by a Thunderbolt, Knoke for the third time had to jump for his life. The parachute snagged, and he fell thousands of feet before he could get free. Although badly injured, with a fractured skull and partial paralysis, he cut his convalescence to the minimum, and, with a remarkable display of sheer grit and will-power, rejoined his unit. More dogfights, a few more victories, more narrow escapes — and more casualties. “Our little band grows smaller and smaller.” The survivors lived in a permanent state of tension, nerves on edge, waiting for the daily call “enemy concentrations in sector Dora-Dora” (off Yarmouth) that was the prelude to action.

By early March the squadron’s normal strength of about 40 had been cut to 18; in the next few days it was reduced still further, and the commanding officer asked that his unit be withdrawn

temporarily to recuperate. The request was denied. On March 15th only six aircraft were able to take off; four came back. The squadron was then taken out of the line for six weeks to reform with new aircraft and new and inexperienced pilots. Promoted to Hauptman (Captain), Knoke was appointed C.O.—the youngest squadron commander in the Luftwaffe.

On April 29th his reorganized squadron returned to action — back to the “hell” of dogfights with Lightnings, Mustangs, and Thunderbolts. For Knoke the first sortie was the last. On his way back to base he was jumped by eight P.47s that shot him down in flames. Knoke fought back and brought down one of his opponents (his 26th victory) before crash-landing his blazing Messerschmitt. With a fracture at the base of the skull, a raging fever, and a complete nervous breakdown, the German ace was out of action for three and a half months.

When he was finally released from hospital, Knoke was boarded as totally unfit for flying, but he had a convenient “lapse of memory,” forgot to turn in his documents and thus was able to wangle a posting back to operations as a squadron commander in JG.1. The front was now in northern France where the Allied armies had broken out of the beach-head and were driving the Germans back towards the Seine. In his first sortie on August 14th Knoke shot down a Thunderbolt over Rennes and a fortnight later had run his score up to 37. But what was the use? Their own losses were heavier — five one day, twelve another day, on six missions over the Seine crossing. “We are finished.” His nerves were again on edge, waiting for the blow that sooner or later must fall: “every day seems an eternity.”

On the morning of August 28th, Knoke’s squadron had four aircraft serviceable for operations plus two “corks” that could barely fly. He was ordered to put all six into the air. On the take-off one of the “corks” crashed; the remaining five engaged 60 enemy aircraft over Tergnier and all five were shot down. In a final gesture Knoke rammed his Messerschmitt into his opponent and then, for the fourth time in eleven months, took to his parachute. Endeavouring to regain his

own fluid lines, the German eluded some French resistance workers by passing himself off as an American. He got back to his unit at Vailly, east of Soissons, just in time to direct its withdrawal to a new base in Belgium. Knoke records, with justifiable pride, that despite the jammed conditions on the roads every vehicle of his squadron reached its destination. In contrast to the good discipline of his own men he is very critical of the morale of the occupation troops of the German Army: “the retreat has degenerated into a cowardly, panicky rout . . .”

The next few weeks Knoke passes over very sketchily. From Belgium his squadron, still grounded by lack of replacement pilots and aircraft, was withdrawn into Germany. Although his own unit was out of action, he was able to get in some more missions with the wing’s headquarters flight, and, in dogfights with enemy fighter-bombers, he added to his “steadily rising score.” No details are given of these final fifteen victories.

At the end of September he was transferred to a base on the Danube above Vienna to reform his squadron for operations in the Hungarian sector. A few days later, while he was en route to a conference of fighter commanders, his car struck a road mine near Prague in Czechoslovakia and Knoke’s left knee and right pelvis were shattered. For eight weeks he lay in a cast. Then, despite a permanently crippled right leg, he forced himself to walk again, and in December went home to his family, hobbling on crutches and completely exhausted.

He watched the last of the war from his home at Jever, still trying to do his bit as air liaison officer for the Wilhelmshaven garrison. When 8402 (R.C.A.F.) Disarmament Wing moved into Jever, one of its officers, Flt. Lt. J. H. Ewing, now a barrister in Vancouver, interrogated the distinguished ex-fighter pilot who was proudly wearing the Knight’s Cross of the Iron Cross. Impressed by Knoke’s intelligence and ability, Ewing encouraged him to write this “simple and straightforward account” of his life and subsequently translated it into English.

\* \* \*

Most readers, their curiosity possibly whetted by the title of the book, will be interested in the

author's political views. They are probably typical of his generation of German youth who followed the 20th-century Pied Piper of Hamelin, although the reader may perhaps wonder to what degree Knoke's diary represents his views at the time and to what degree they may have been coloured by the afterthoughts of later years.

Knoke had not yet reached his twelfth birthday when Hitler came to power as German Chancellor. Young Heinz was a member of the Boy Scouts in his home town (Hamelin), and his first contact with National Socialism was in a series of fights between the Scouts and young toughs of the Hitler Jugend. When the Boy Scouts were declared an illegal organization and its members incorporated in the junior branch of the H.J., Heinz was able to keep his Scouts together in a troop of their own. Although he later "yielded to pressure" and joined the H.J., he was not happy there, and he returned to the junior group, eventually becoming a district leader. He organized and supervised sports and boys' camps, keeping "drill and regimentation at a minimum and placing the emphasis on freedom and good fun and fellowship."

"The Hitler Youth," Knoke writes, "was like every other Nazi organization. It eventually became intolerable, because of failure to apply correctly in practice the fundamental principles of National Socialism." (What they were, the author does not say.) "It must be remembered, however, that the fundamental principles and ideals appealed very strongly to young people. We supported those ideals with unqualified enthusiasm, and we were able to take a real pride in the powerful resurgence of our beloved country during the years when we were young."

So, despite his own unpleasant experiences with the H.J., Heinz became one of the "many millions of enthusiastic young people who have absolute faith in Hitler and dedicate ourselves to him without reservations." When, as a fledgling officer cadet, he heard the Führer speak, he recorded his belief that "the world has (never) known a more brilliant orator than this man. His magnetic personality is irresistible. We have never before experienced such a deep sense of patriotic devotion

towards our German fatherland . . . It is a deeply moving experience."

When Knoke's suspicions of fallibility in the brown-shirted leader of the German nation were first aroused is not too clear. The attempt to assassinate Hitler in July 1944 he branded as "treason of the most infamous kind." Yet he added: "We (the ordinary German fighting soldiers) know only too well the effect of the Nazi regime, with its follies and excesses. We see that conditions in the Reich leave much to be desired. The elimination of this unsatisfactory state of affairs will be the first duty of the German fighting soldiers as soon as the war is over. First things first, however. The immediate problem is Germany itself; for the very existence of the Reich is at stake . . ."

A few weeks later, in September, Knoke had clearly lost his faith in the Führer. "The reputation which Hitler established for himself at the beginning of the war as 'the greatest military genius the world has ever seen' is slowly but surely evaporating. He would do better to leave to his experienced generals the business of conducting the war." Knoke condemned as "idiotic" an order by Hitler that the first jet aircraft were to be used for reprisal purposes. "The German Fighter Command is slowly bleeding to death in defence of the Reich; our cities and factories are being razed to the ground, practically without opposition, with deadly precision by the British and Americans. And the only idea Hitler can think of is 'reprisal'!"

Finally, when Hitler was dead and his Third Reich overthrown in total, crushing defeat, Knoke wrote: "We are dazed by all the sensational disclosures and events which occur in rapid succession . . . Despotism without conscience has been revealed among the Nazis in the background around Hitler. Disgusted and indignant, the German fighting soldiers and officers turn away from those whose brutal war crimes and atrocities are now exposed. These criminals, whose activities were as a rule restricted to the concentration camps and labour camps in rear defence areas, have dishonoured the name of Germany. The atrocities committed under the sign of the Swastika deserve



*Heinz Knoke, 1945.*

the most severe punishment. The Allies ought to leave the criminals to the German fighting soldiers to bring to justice."

But it is not Hitler and National Socialism that constitute the dominant political theme in the book; it is Bolshevism, "the arch-enemy of Europe and of Western civilisation." When Operation "Barbarossa", the German attack upon the U.S.S.R., began in June 1941, Knoke was de-

lighted: "We have dreamed for a long time of doing something like this to the Bolsheviks." From that time until the end of the war (and particularly after June 1944) the menace of Communism keeps recurring. "On its (the German Reich's) survival depends the delivery of Europe from the threat of Bolshevism . . . It is not Germany which is the real menace to their (the Western Allies') life and liberty, but Soviet Russia." It is on this theme that the book closes: "Communism has now reached the heart of Europe . . . The destruction of the German Reich means that the last bulwark against Red world-revolution has been overthrown. Over Berlin the Red Flag now flies. There we have the real victor in this war. The way is now open to Stalin. When will his tanks roll across Europe?"

\* \* \*

The book is illustrated with 37 photographs from the author's snapshot album. Two of them are a striking portrayal of the impact of the war upon one man. The frontispiece shows Knoke as a cheerful, carefree youth in the summer of 1941. The other, taken in May 1945, portrays a grim-faced, disillusioned man, his tunic covered with decorations and his eyes staring into an uncertain future. The four years that intervened between the two pictures seem to have left the stamp of twenty.

## ONE STILL TO GO

The use of the sea and air is common to all; neither can a title to the ocean belong to any people or private persons, forasmuch as neither nature nor public use and custom permit any possession thereof. (Queen Elizabeth I of England.)



## TELECOMMUNICATIONS IN THE R.C.A.F.: PART ONE

By Wing Commander D. Gooderham, O.B.E.

*(The following article, which will be printed in three parts, is by far the longest yet to appear under the above headline. We feel fully justified, however, in the departure from our usual policy of completing each "Party Line" presentation in a single issue. Wing Commander Gooderham set himself the task of producing, in a minimum number of words, a truly comprehensive treatise on all but the purely technical aspects of R.C.A.F. telecommunications. So well has he succeeded in his purpose that no serious-minded member of the R.C.A.F. can afford not to read what he has written on a subject that daily assumes more and more importance in our Service. Wing Commander Gooderham, who is now attending the R.C.A.F. Staff College Course, was commissioned in the R.C.A.F. in 1940. After a radar course in the United Kingdom in 1941, he served as O.C. at R.A.F. Radio Direction-Finding stations in the U.K. and Iceland before leaving for the Far East, where he spent more than three years in Bengal, Burma, and the Assam area, as Senior Radar Officer and Deputy Chief Signals Officer in the R.A.F.'s Eastern Air Command, S.E. Asia. He left the R.C.A.F. soon after his return to Canada in 1945, and rejoined it in 1948. Subsequently he served as C.O. at Kittigazuit, on the staff at North-West Air Command, and finally at A.F.H.Q. as Deputy Director of Telecommunications Engineering, in charge of Programmes and Requirements. EDITOR.)*

### WHAT IS TELECOMMUNICATION?

TELECOMMUNICATION is held by some people to be a modern miracle; others hold less kindly views. Certainly life would be simpler if the Air Force could do its job without having to resort to a very expensive assortment of black boxes, zealously attended by a tribe of fanatics who talk a language so obscure that many regard it as a deliberate

smoke screen. Unfortunately, however, the business of flogging aircraft about the sky and of winning a war in the air requires a number of incidental abilities.

One is the ability to COMMUNICATE. Legend has it that a battle — and a kingdom — were lost when a courier's horse threw a shoe. This little drama could be re-enacted today with a radio tube replacing the horse-shoe in the rôle of villain.

Communications are vital to war.

A second is to NAVIGATE. Airmen have always envied the soldier's ability to ascertain his whereabouts by simply popping into the nearest pub. The airman is occasionally quite concerned to know just where and how far up he is in the wild blue yonder. Usually he wishes to drive his flying-machine to some prescribed place. Sooner or later he may want to visit the pub too, and this involves the troublesome business of landing, maybe in a fog. Should he find himself sitting in a wet rubber dinghy rather than in his pub, he will certainly be anxious to advertise his location so that search aircraft may find him before closing-time.

Thirdly, we must be able to DELIVER OUR BOMBS on the persons, real estate, and property of the enemy, including his machines of war, be they aircraft, missiles, tanks, ships, or subs. This involves obtaining information on the whereabouts of the enemy relative to ourselves and guiding our bombs to him. Sometimes he refuses to co-operate, and even seeks to confound us by employing electronic counter-measures. We, of course, then counter his counter-measures, at the same time mounting counter-measures to his original intent to deposit *his* "confetti" on *us*. The whole business can become highly confusing.

It has been found that the indefatigable electron, cleverly controlled in black boxes, can accomplish the above three simple tasks — though the degree of the accomplishment will always be less than that which is held to be desirable. Together, these three skills constitute the art formerly known as "Signals," and now known in the R.C.A.F. as "Telecommunications" or simply "Telecom". (An exception to the truth of this statement will be noted and explained later on.)

It is proposed to discuss each of the three branches of telecom under a separate heading. This does not imply that they are operationally independent: on the contrary, the success of a sortie very often depends on the proper operation of equipment of all three types. Separate treatment of them, however, seems desirable here, where our purpose is to explain the subject as simply as possible to readers in all walks of Service life.

## COMMUNICATIONS

Orders, questions, and information are usually conveyed from the brain of one man to that of another by speech, by writing, or by pictures (television, weather maps, etc.). Each of these three forms of intelligence is readily conveyed by electronic communication systems. A fourth form of communication, worthy of special mention, is the transmittal of "data" at extremely high speeds — e.g. flight-control signals sent to pilotless aircraft and to missiles, or radarscope pictures sent from one place to another. Electronic equipments used for these purposes are usually called "data transmission systems." It should be noted that such systems can also carry written speech (i.e. messages), if desired.

Communications of the sort outlined above are normally handled by one or other of two major forms of electronic systems: *landline* and *radio*.

### Landline and Radio

Landlines (usually copper wires bunched into cables) can carry voice to complete satisfaction. They are able to carry written messages at all speeds of which our present sending and receiving machines (teleprinters) are capable. They can be used to carry pictures, such as weather maps, whenever relatively low speeds (an 8" x 10" picture in half an hour) are acceptable. For all practical purposes, conventional landlines cannot, today, handle high-speed transmissions of any kind, and are seldom used in data transmission systems. Radio is capable of carrying all four forms of communications.

No attempt will be made here to define "radio": the reader probably has a clear enough conception of it already — a conception of which any perusal of the official jargon might well deprive him. The technical vocabulary runs to the heavy — and in the opinion of many laymen, unnecessary — use of two alphabets. Talk of LF and VHF, of HF and EMF, of E layers and F layers, of  $\pi$  squared and delta matched antennae, fills the air. It is actually no more confusing than shorthand, but it can still be exasperating to the chap who receives it in an answer to a simple question. At the risk of compounding confusion, however, let's

have a shot at explaining some of the terms which inevitably crop up in any discussion of R.C.A.F. telecom problems.

### Telecom Terms

Two widely-used terms are POWER and FREQUENCY. Power relates to transmitter output, the energy fed to the antenna for onward transmittal through space. High-power transmitters are sometimes required for precisely the same reasons that a lecturer may need a loud voice: the listener may be a long way off, he may be deaf (i.e. have low-sensitivity ears), he may be standing in a noisy place, he may be a chap who responds readily to a strong sound but sluggishly or not at all to a weak one. Unfortunately, increase of transmitter power is much the same as a raising of the voice at a cocktail party: within minutes everyone else has followed suit and the would-be listener still misses much of what's being said.

FREQUENCY is something else again. Our home receiver must be tuned to a certain "frequency" to hear CBL. The word relates to the "pitch" of the electromagnetic energy produced by CBL's transmitter. The pitch of the energy produced by our vocal chords ranges from about 200 cycles (bass) to 3,000 cycles (soprano). Radio frequencies, for all practical purposes, range from 15,000 cycles to 150,000,000 cycles. This is not the absolute limit by any means, but frequencies higher than this are today of interest to research workers rather than to practical radio men. To make these figures easier to handle, it is customary to refer to them in terms of bigger units — i.e. kilocycles and megacycles.

It is useful to know the standard frequency terminology — LF, HF, WHF, and so on.

LF = Low Frequency, the term given to all frequencies between 30 and 300 kilocycles.

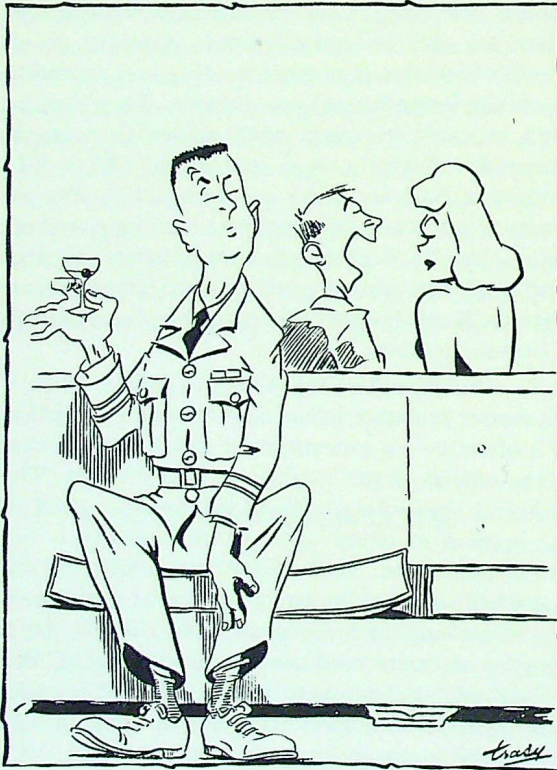
MF = Medium Frequency — 300 to 3,000 kilocycles.

HF = High Frequency — 3,000 to 30,000 kilocycles.

VHF = Very High Frequency — 30,000 to 300,000.

UHF = Ultra High Frequency — 300,000 to 3,000,000 kilocycles.

(From here on, the adjectives become somewhat difficult to repeat in polite society.)



Even when one uses units such as megacycles, the higher frequency figures are unwieldy, particularly for engineers who use slide rules to multiply 2 by 2 and solemnly arrive at "approximately 4". So, when frequency gets above a few hundred megacycles, it is common practice to refer to the WAVELENGTH rather than the frequency. As you may recall from your physics days, these two are related, and have as their mathematical product a constant (which happens to be the speed of light and also of radio waves). This is very convenient, for, as frequency figures go up, wavelength figures come down. When next you hear some chap speak of gear as being "on 10,000 megacycles" and, in the next breath, of its being "3-centimetre," do not accuse him of usurping a woman's privilege. He is merely changing yardsticks. Incidentally, when such people talk in terms of wavelength rather than of frequency, they cannot use the frequency terminology; and they therefore resort to L-Band, S-Band, X-Band, K-Band, Q-Band, and so on. Don't worry about

the wavelengths or frequencies contained within these bands. It is remarkable how well you can converse over a so-called microwave radio link without knowing whether the thing works in S- or in X-Band.

It is not proposed to embark upon learned dissertations on "frequencies as a factor in radio propagation". Instead, a few comments are offered on the electronic vagaries that force the R.C.A.F. to equip itself with gadgets operating on many, if not all, of the frequencies in the radio spectrum.

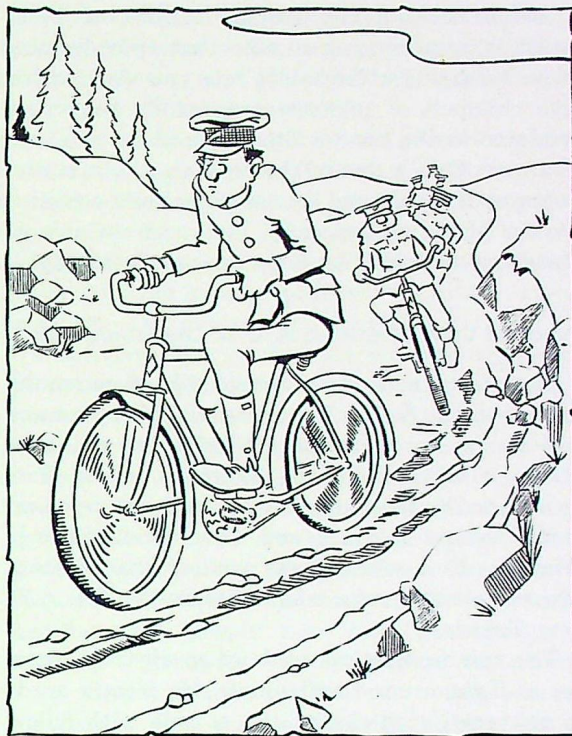
### Band-Widths

LF transmissions can usually be depended upon to get from any one point on the earth to any other point in a predictable — that is, a reliable — manner. Unfortunately, with current techniques, a lot of brute strength (use of high-power transmitters) is involved. Furthermore, the band is narrow, and not many circuits can be accommodated. A practical equivalent would be the routing of a large number of C.N.R. telegram-boys over a very narrow sidewalk. No matter how many boys and bikes were available for the job, only a few could deliver their messages simultaneously.

HF transmissions, under favourable atmospheric conditions, can span great distances without using high power. Furthermore, its "band-width" is much wider than that of the LF band. Using the analogy of the telegram boys, HF has the width of a normal road compared to the narrow sidewalk of LF. More bicycles can be used, more messages delivered simultaneously. The chief disadvantage of HF is its lack of reliability. HF transmissions are subject to severe and protracted fading and to interference from atmospheric and man-made noises.

VHF, compared to HF, is a veritable 8-lane highway. Many bicycles can be used, many messages passed simultaneously. Transmissions on VHF are reliable to a point easily equal to that of LF. The chief drawback of VHF is that transmissions on this band won't go round the curve of the earth and are limited to what is commonly referred to as "line-of-sight."

To continue our analogy, UHF is a highway wider than an airport runway. A great many



messages can be transmitted simultaneously in this band. It compares favourably with VHF in reliability and conforms generally to the same laws of propagation, that is, it is efficient for transmission over line-of-sight distances only. It may be wondered why VHF is used when UHF has equal reliability, the same propagation characteristics, and much greater traffic capacity. The answer lies in the state of the art. As frequencies go up, so do the problems of designing components, particularly tubes capable of giving satisfactory performance. Until quite recently, application of UHF to military communications was not a practicable proposition.

Frequencies above UHF are currently used by the military only in the radar field. Transmissions on some of these higher frequencies are affected by atmospheric conditions in manners which are interesting but which have no useful place in these paragraphs. So much for the theory side of frequency.

Before leaving the specific subject of band-width it is interesting to note that voice requires more band-width than does telotype. As many as five channels of telotype can readily be accommodated in the band-width required for one voice channel. This is one of the reasons why a station commander's demand for an extra voice circuit to Group H.Q. is frequently met with "Can't be done, but we might be able to wangle a telotype."

### Practical Considerations: A/G/A Communication

Now to turn to the practical side of communications in the R.C.A.F., our special problems and how we try to meet them. What do we do about "radio blackouts" during Exercises, apart from retiring to the Mess and leaving the Sergeant to explain matters to irate and very senior officers? What is done when Plans advises that Station Moose Pelvis is to be taken over by the R.C.A.F. next Tuesday?

The communication needs of an air-crew member in flight are few and simple. He merely needs to converse, with clarity and at will, with fellow crew-members, with other chaps flogging about the skies, and with any or all earthbound mortals within range of 12,500 miles. Since the need is simple, and since our air crew are reasonable fellows, they are satisfied with equipment which provides them with these services in a simple way — say, like their home telephones.

Conversation with fellow crew-members is effected by an "intercom" system, not dissimilar to inter-office "squawk-boxes" except that each crew-member has a microphone and earphones instead of the speaker-box familiar to office-workers. The aircraft intercom system is a bit more complicated, in that each member of the crew must be able to "listen in" at will to various radio facilities, such as the radio compass receiver and the command or liaison communications receivers.

Communication from air to ground and from ground to air (usually abbreviated A/G/A) must be able to cater for aircraft *within* line-of-sight range of the ground station and for aircraft *beyond* line-of-sight range. These two categories of air-

craft have one requirement in common: the air-crew must be able to contact, at will, a large number of different ground agencies, each of which (to avoid interference) makes use of radio equipment set up on a different frequency. Airborne communication radios must therefore be multi-channel devices on which frequency may, if possible, be selected by merely "pushing a button." The number of channels which any one aircraft requires is rising rapidly. Long-range flights, such as from Dorval to Paris, now require the use of up to 30 channels. Tactical control of fighters, accomplished quite effectively in the Second World War with four-channel radios in aircraft, now requires radios affording 20 or more channels.

A/G/A communication over distances greater than line-of-sight (called "liaison" circuits) is normally effected by radios working in the HF band, using either voice, telotype, or International Code (CW). Voice is usually the most desirable medium with which to operate, but CW is widely used for long-distance work because it needs less power than does voice. High power involves considerable weight, bulk, and electrical power consumption, all undesirable in aircraft. R.C.A.F. aircraft use equipment capable of working long ranges on CW, with provision for voice when range and other conditions permit. Telotype communication on A/G/A circuits is still not practical for military service.

HF radio equipment in aircraft always consists of a transmitter and a receiver. If the two are built more or less as one package, tuned to frequency by a common control, the combination is called a "transceiver." There is nothing exceptional about it except, perhaps, the price, of which more will be said later.

A/G/A communication over distances less than line-of-sight can best be carried out by radios working on frequencies in the VHF or higher bands (for reasons already explained). The R.C.A.F., in common with most air forces, currently uses equipment in the VHF band but has programmes under way to replace this with UHF gear. The primary reason for this move is the inability of the VHF band to accommodate all the channels required by both civil and military

users. The move to higher frequencies for A/G/A communication has been led by the U.S. armed forces, with whom Canada and the U.K. have a tripartite agreement to equip on similar frequencies.

There is much talk of the armed forces in Canada, the U.S., and the U.K. having sought and obtained exclusive use of the "UHF band." To express the matter more accurately, however, what they have done is obtain exclusive use of a band of frequencies which lies partly in the VHF band and partly in the UHF band. It actually occupies only 3.7 percent of the UHF band as defined in previous paragraphs. The term "UHF" has been applied, albeit incorrectly, to distinguish the new military band from the one now used, which is squarely in the VHF band.

The UHF airborne transceiver being adopted by the R.C.A.F. in common with other forces is notable for features that reflect current requirements and current techniques. This set, the AN/ARC34, affords flexibility of tactics. It provides 20 channels, available by dialing; it is pressurized and can work at high altitudes; it is comparatively small, light, and easy to maintain; and it employs miniaturized components built into "plug-in" sub-assemblies.

Before we go on to talk of equipment used on the ground end of A/G/A communication circuits, it is useful to note some of the ground agencies that air crew must deal with while in flight. They include control tower operators, airways control operators, navigational aids such as homers or fixers, landing aids such as G.C.A.s, and last but by no means least — Operations. By Operations is meant those people directly concerned with the mission of the flight, i.e. controllers at radar stations, ops rooms, maritime reconnaissance bases, etc. Under the same general heading come also other contacts such as ships, army units, search parties, and downed flyers.

A/G/A communications is a complex business, demanding a high order of equipment compatibility, a high order of organization (assignment of frequencies, etc.), and a high order of discipline on procedures. In Canada, the Department of Transport is the governing authority over use of

the "airwaves" by military and civil aviation. It controls frequency allocation, permissible transmitter powers, and all procedures that involve talking to civil flight agencies.

Radio equipment used on the ground for communications with aircraft must, of course, complement that used in the aeroplane. Equipment now in use by the R.C.A.F. works in the HF and VHF bands. Ground installations, particularly those involved in long-range work, usually employ separate transmitters and receivers rather than transceivers. This permits the physical separation of transmitters and receivers, which is usually a necessity for the satisfactory simultaneous operation of several channels working on high power.

Speaking of power, the question is frequently asked, "Why is a 50-watt transmitter used on the ground to talk to an aircraft which replies with an 8-watt transmitter?" The answer lies chiefly in the relative efficiencies of the antennae. Even when the aerodynamics people were not too unhappy if "Signals" festooned the exterior of an aircraft with wire, it was very difficult to obtain antenna efficiencies even approaching that which can be obtained easily on the ground. As aircraft speeds increase, the clothes-lines have to be trimmed, till



today's jets must, perforce, use antennae (known as "suppressed antennae") which do not protrude out of the skin of the aircraft at all. To ensure that the aircraft receiver gets a signal of adequate strength, it is necessary to use ground transmitters of relatively high power.

The low-efficiency antennae used on aircraft, combined with the low-powered airborne transmitters which must be used because of space and weight considerations, result in ground receivers having to work on relatively weak signals from aircraft. To make it worse, many of the places at which it seems logical to install ground receivers are heavily infested with electrical devices producing radio noise which completely drowns out weak signals received from aircraft. Receivers must therefore, often be installed at "remote sites"—usually several miles from built-up areas. To avoid putting operators at these sites (usually a costly business, for administrative reasons), use is made of remote-controlled receivers capable of being adjusted by operators located at the airfield, radar station, or other central location.

The control of aircraft during interceptions and when flying near busy airports is so complex that communications must be concise and accurate in the highest degree. Faulty procedures or sloppy diction can be fatal. Civil aeronautical control authorities, such as D.O.T. and C.A.A., long ago established the value of recording all conversations that occur on busy circuits. The recordings are played back as required, in order to establish "what went wrong" and to further efforts to devise more effective procedures. The R.C.A.F. uses recorders at vital spots such as busy control towers, G.C.A.s, and radar stations.

That's about all there is to the business of communications in so far as flyers are concerned. Now for a look at what is involved in providing communications for the groundlings.

#### **Practical Considerations: Point-to-Point Communication.**

Electronic black boxes are quite impartial in their handling of operational and administrative messages, but the accepted difference between the two is a prime factor when circuits are being plan-

ned and engineered. Ops circuits can usually brook no delays, and the circuit must be "straight-through," without time-consuming or error-producing relays. Circuits must be free of garble and free of breakdown. This generally precludes the use of exchanges, relay centres, pooled circuits, and other devices aimed at economy of equipment. It usually requires also that ops circuits be backed up by equipment able to carry the traffic in the event of a breakdown of the primary facility. Admin "traffic" (a communicator's word for flow of messages) can usually tolerate moderate delays and minor errors. Speed and reliability can, in some measure, be sacrificed in the interests of economy.

With minor exceptions (a few telephone exchanges and short lengths of cable) the R.C.A.F. owns no telephone equipment. All long-line circuits are rented from commercial communication companies under terms of lease similar to those available to any other customer. Long lines are leased for admin circuits whenever the resultant costs are less than would be the case if the traffic were passed by long-distance 'phone calls. Long lines for ops circuits are invariably leased, because the delays attendant on long-distance calls cannot be accepted. Unlike the Canadian Army, the R.C.A.F. has no tradesmen skilled in telephone installation and maintenance work. Repair of such telephone plant as we do own is effected by contract.

Radio circuits, using equipment owned and operated by the R.C.A.F., are established wherever landlines are not available for rental or where radio is more desirable for reasons of economy, flexibility, etc.

Point-to-point (P/P) communications can be readily carried by radio circuits working on any of the frequency bands—low, medium, high, very high, or ultra high. The choice for any one circuit is made with the following factors in mind: distance, type of country between ends of circuits, dependability required, nature of communications to be passed, number of messages to be passed simultaneously, other technical reasons, and, last but by no means least, costs—both initial and recurring. It should be noted that many of these factors sometimes receive less consideration than

they merit, for when you want a circuit quickly, you use what you've got! We shall have more to say later about the time required to procure new telecom equipment.

For sheer economy there is nothing today to equal HF for long-distance circuits (a hundred miles or more), and a large number of R.C.A.F. communications circuits operate in this band. Its use, however, is limited by two weaknesses: paucity of channels, and unreliability (particularly in the Arctic and sub-Arctic). Roughly speaking, the problem of HF unreliability baffles the back-room boys today no less than it did twenty years ago. True, they know why it is unreliable, but they have yet to find a cure. If unreliability cannot be accepted, recourse can be had to LF, VHF, or UHF, each of which affords the reliability that HF lacks. A measure of relief from the paucity of channels in the HF band is afforded by a device called a multiplexer. This equipment enables up to four telotype messages to be transmitted simultaneously on one channel.

Whenever high capacity, high speed, and high reliability are essential, use is frequently made of the so-called "microwave" radio links. The R.C.A.F. uses such links to interconnect various units of its air defence system and to connect message centres to remote transmitter and receiver stations.

A microwave radio link consists essentially of UHF radio transmitters and receivers located at two points which require to be interconnected, with relays so located as to secure line-of-sight between adjacent relays and between relay and terminal. Each relay consists of a receiver and a transmitter: signals transmitted by an adjacent relay or terminal are received and re-transmitted to another relay or terminal. Theoretically, there is no limit to the number of relays that may be used to connect two terminals, but with present techniques, the number is restricted, for all practical purposes, to some 50 or less, depending upon a multiplicity of factors. With present-day equipment, it is theoretically possible to separate relays by as much as forty or fifty miles. This is seldom realized in practice because of an unfortunate lack of high hills strategically located. Towers

of up to 250 feet are commonly used in lieu of, or in addition to, hills. Siting of a microwave radio link is a nice trick, usually requiring aerial photography to establish accurately the contour of the proposed path. Ordinarily, several paths must be considered, because a path which affords the least number of relays is not always the least expensive, since inaccessibility of site can make a relay very expensive to install and to maintain.

Remote receivers were mentioned in paragraphs dealing with A/G/A communication. Transmitters and receivers used on LF or HF point-to-point circuits are commonly located at "remote" sites too. The need to place receivers in a noise-free area still applies; also, it is usually necessary to go to the country to obtain sufficient space to erect large aerials. Without rather elaborate aerials, the interference problems (which currently afflict communication in the HF band) would be worse. Furthermore, higher-powered transmitters would be required. The assemblage of aerials at a transmitter or receiver station is commonly called an "antenna farm," or "park."

Before leaving point-to-point communications, a word should be said on "radio telotype" (RTT). This simply consists of telotype messages sent by radio rather than by landline. The telotype machines at Ottawa and Winnipeg, for example, will chat away merrily all day without knowing whether the electronic pulses they produce and receive are carried by landline or radio. Telotype transmissions may be carried over radio circuits in a number of ways. One technique, favoured for its economy of band-width as compared to others, is called "frequency shift keyed" (FSK). This system is widely used by the R.C.A.F. on its long-haul HF circuits such as Ottawa-Winnipeg, Edmonton-Vancouver, etc. It employs conventional transmitters and receivers plus some extra black boxes known as keyers and converters.

Communications people in any Service will tell you, without encouragement, that staff officers are people who write a letter only if unable to collect their thoughts sufficiently to write a signal. This may be unjust, but there is no disputing that a vast number of messages are originated each day, the handling of which currently requires

3½ per cent of the total non-officer strength of the R.C.A.F.— despite a very considerable organization streamlined for performance at minimum cost in manpower.

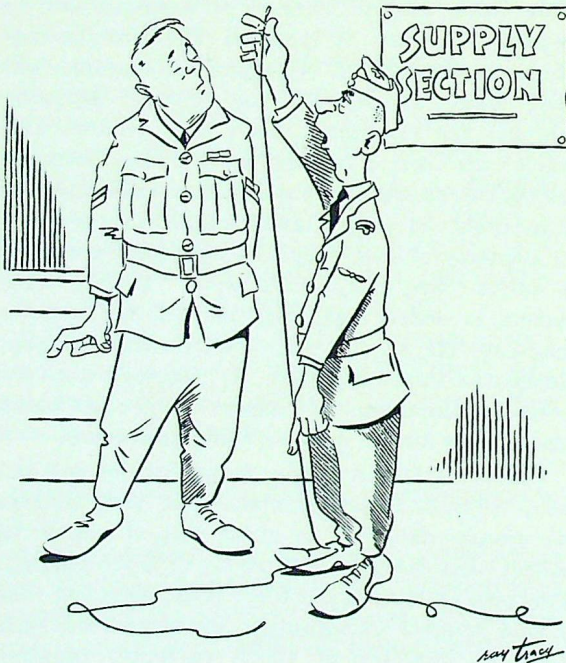
Certain of the R.C.A.F. P/P facilities have been integrated with those of the R.C.N. and of the Army to form what is called the National Defence Communications System (N.D.C.S.). This consists essentially of Joint Tape Relay Centres, situated at Halifax, Ottawa, Winnipeg, Edmonton, and Vancouver; Minor Relay Centres as required; and P/P communication circuits (either landline or RTT) between the Major and Minor Relay Centres. Relay Centres have no direct contact with the officers who actually originate or receive messages; between Relay Centres and those who write and read messages are the Message Centres located at each unit, station, and headquarters. Message Centres are strictly one-Service affairs and are not part of the N.D.C.S.

Here is an example of how the system works. No. 11 Supply Depot at Calgary is having difficulty with No. 1 Supply Depot at Weston over a shipment of Boots, Airmens' Large, which turned

up at Calgary with laces of non-regulation length. Flying Officer Snodgrass at Calgary dictates a message addressed to No. 1 S.D. which, having been typed and signed, is hand-carried to No. 11 S.D.'s Message Centre. Here it is typed on a teleprinter machine which produces (for the record) a page copy of what it is simultaneously transmitting to Calgary's Minor Relay Centre. Here the message is received on a paper tape which, when punched by the electronic results of Flying Officer Snodgrass's pungent phrases, resembles a strip cut from a player-piano roll. This tape is fed directly into a machine which transmits to the Joint Tape Relay Centre in Edmonton. Here the message is also received as a series of holes punched in a paper tape. By courtesy of the Army (which mans the Edmonton J.T.R.C.) the tape is fed into a machine transmitting to Winnipeg. Note that the message may go to Winnipeg via either Army or R.C.A.F. circuits, which are pooled for common use by J.T.R.C.s. At Winnipeg J.T.R.C. (manned by the Navy) the message, still only a punched tape, is re-transmitted to Ottawa. Ottawa J.T.R.C., manned by the Army, re-transmits to Trenton Minor Relay Centre. This Centre re-transmits to No. 1 S.D., where, for the first time since leaving No. 11 S.D., the message appears in printed form ready for hand-carrying to whatever individual is deemed best able to divine what Snodgrass had in mind when he dictated it.

This example sounds full of tape, and so it is. N.D.C.S. consumes miles of tape each year. Handling this tape is a task lending itself to mechanization, with substantial savings in staff, faster and more accurate handling, and increased message-handling capacity. Much has already been done in this direction.

Turning back to organization, it is noted that N.D.C.S. seeks to achieve high capacity at low cost by pooling both resources and loads, thereby obviating overload on some circuits while others, requiring just as many operators, are running "empty." The "funneling" of messages from Message Centres into Minor Relays and on into a still smaller number of J.T.R.C.s is an economy device needing no explanation.



### Cryptography

Before leaving the subject of P/P transmission, we must make mention of cryptography, the science of confusing people. In the R.C.A.F., cryptography is handled as a branch of communications; and a considerable effort in terms of personnel and machines is involved. Various engineering developments can provide some measure of relief on the manpower side, but battle is still joined between the cryptographic boys and the staff types who automatically classify as SECRET the date of the St. Swithin's Sunday School Picnic. Such people are properly classed with those who allot high precedence to the

handling of messages when delivery by tomorrow would do equally well.

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Communications in the R.C.A.F. also covers such activities as office intercom facilities, aerodrome vehicle control radio systems, public address systems, and facsimile systems. When not engaged in such prosaic activities as have been described, telecom communications people rush around fixing the C.O.'s radio and collecting complaints.

*(To be continued.)*

## 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.*

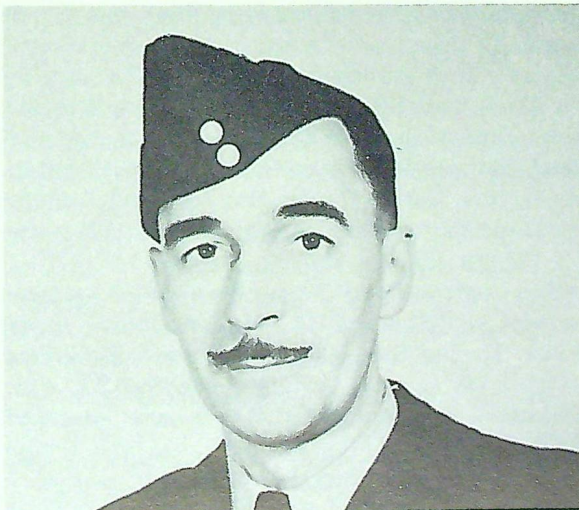
Flt. Sgt. W. V. B. Goff, of R.C.A.F. Station Gimli, having carried out numerous experiments with adhesive

cement, demonstrated its value for the repairing of a variety of textile materials and for the bonding of various combinations of materials. His suggestion will effect considerable economy of both time and labour.

Cpl. E. Lewis, R.C.A.F. Station Rockcliffe, put forward a useful suggestion for the fitting of safety hand-rails on crash-boats.

*Flt. Sgt. W. V. B. Goff.*

*Cpl. E. Lewis.*



# The ROYAL CANADIAN AIR CADETS



By Arthur Macdonald, Air Cadet League of Canada

## LEAMINGTON, ONT.

The following information was sent to us by officials of No. 535 (Leamington) Squadron who are anxious to point to a new feature of a community which, up until now, has been chiefly famous for ketchup.

To begin with, No. 535 is the largest Air Cadet group in Canada, with an enrolment of 285 names. This number is actually well above approved squadron strength, and a second squadron is being formed. Another claim to fame is the Leamington Air Cadet Pipe Band, which has been enthusiastically welcomed by the whole town.

The story of the Squadron's formation is one of co-operation between two sponsoring bodies and the community at large. After the formation of No. 422 Wing of the R.C.A.F. Association in 1949, discussions were begun with a view to forming an Air Cadet squadron. At first it was felt that a small group should be formed, and plans were begun accordingly. However, discussions with the Leamington District School Board revealed that they would welcome the Air Cadet movement for the entire High School Cadet training programme.

This was a welcome development and ensured success for the Air Cadets. It was arranged that the cadets would be sponsored jointly by the Leamington District High School Board and No. 422 Wing of the R.C.A.F.A. Instrumental in the actual formation were J. F. Scruton of the Air Cadet League of Canada, and Flt. Lt. Farrell, R.C.A.F. Liaison Officer; together with the Leamington District School Board under chairman J. R. Dean, and No. 422 Wing under the then president, A. R. Cullen.

The organization and training of the cadets is now carried out as part of regular high school activity. The commanding officer is Sqn. Ldr. R. M. Nicholson, a former R.C.A.F. officer and now a member of the High School staff. The position of No. 422 Wing is that of a co-ordinator between the High School and the R.C.A.F. The Wing provides financial backing for the squadron, supplying items such as shirts, socks, and ties, which are not issued by the R.C.A.F. to the cadets. The Wing has also given strong financial support to equipping the pipe band.

Mention of the band brings into prominence a third, and unofficial, sponsor — the community. When first formed, the squadron had its own bugle band, which is still maintained and which is instructed by a well-known leader of boys' bands, J. C. Lougheed. However, the later suggestion that a pipe band be formed in addition was so well received that the Leamington town council offered a large grant toward the cost of equipping the band. Under the direction of Windsor's famed piper, Pipe-Major Jock Copland, M.B.E., the pipe band has developed rapidly. On its first public appearance, during the opening ceremonies of the new Leamington District High School in November 1953, it stole the show.

The cadets have been reviewed at annual parades in 1952 and 1953, and have drawn much praise. During the past year, two members were selected for summer training with the R.C.A.F. Cadets H. Simpson and J. Smith were presented with their Air Cadet wings during the school opening ceremonies mentioned above.

This summary of events shows how the Air



*No. 535 Squadron's two bands.*

Cadet movement has grown to be a secure and permanent part of the community, and we believe that the same formula could be applied successfully elsewhere.

#### **FORT WILLIAM, ONT.**

To an Air Cadet, spending a day working with the regular Air Force is a big event.

That is how Sgt. Bernard Doughton of No. 66 (Fort William) Squadron felt about his day as commanding officer of the local recruiting centre, when he supervised three members of the regular staff, signed on an Air Force recruit, and dealt with Headquarters and other R.C.A.F. units in Canada.

The day with the Air Force was an award for his prize-winning essay on "Why I am an Air Cadet," entered in a recent contest sponsored by the Fort William R.C.A.F. unit.

The 15-year-old Grade 10 student at the Collegiate Institute thoroughly enjoyed his day as commanding officer, and felt that he gained much valuable experience.

Bernard is taking his Air Cadet training very seriously, since he intends to make flying his career. A native of London, England, he stated that he intends to return eventually to his native land and join the Royal Air Force.

"Saturday changed a lot of my ideas about the Air Force," said Bernard in an interview. "Previously I had intended to go into the Air Force right after high school. But after talking to officials, I hope to attend university under the Air Force training plan, then spend the required three years in the R.C.A.F. before joining the Royal Air Force."

During the day, Bernard learned recruiting methods first-hand by signing in a Dryden youth, 18-year-old R. Pilkey. The various papers required were explained to Bernard and he was allowed to fill out some of them on his own.

Another interesting feature of the day was the instruction he received on how to operate the teletype machine, which has direct connection with Winnipeg and subsequent connections with other Air Force centres in Canada.

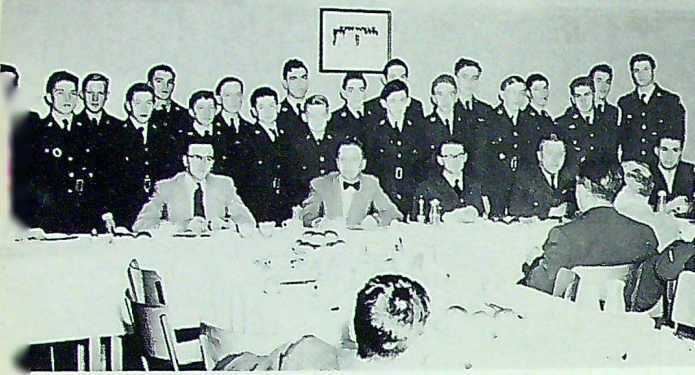
Bernard was also given an insight into the accounting procedure of an R.C.A.F. unit, and he was interested in learning about advertising funds and other phases of financing and administration.

What Bernard enjoyed most of all, he said, was talking to Flt. Lt. D. R. W. Brooks, Commanding Officer, who discussed many phases of the Air Force with the young cadet.

#### **GALT, ONT.**

A rare privilege will be extended to members of various Air Cadet squadrons in the district. Cadets who wish to enjoy glider flying at the Waterloo-Wellington airport will be able to do so without becoming members of the W-W Flying Club — provided they are in good standing in their particular squadron.

This proposition was introduced by Galt's Frank Ashton at a meeting of the club's board of directors in the airport lounge. There was some opposition to the move, but the majority finally



*Father-and-Son Night, No. 353 (Dawson Creek Squadron).*

decided in favour. Their present glider, a Sweitzer 222 fitted for dual operation, will be used for the scheme.

Before Mr. Ashton's motion was adopted, any flier participating in the operations of the W-W Gliding Club had first to become a member of the flying club. Now, however, any cadet of the Galt, Kitchener-Waterloo, Guelph, and Stratford squadrons may use the sailplane, provided he is accompanied by an expert pilot and has a slip of paper from his commanding officer that verifies his good standing. A cadet will still have to be a flying club member to be able to take part in powered flight.

Cadets will have to pay the small fees for the towing 'planes. These would amount to about one dollar per 1,000 feet of rise behind the pull.

#### HALIFAX, N.S.

The following item — a tribute to a deserving Air Cadet — was written by Sqn. Ldr. W. P. Allen, Commanding Officer of No. 12 Wing, Halifax:

"At last year's summer camp, two members of No. 250 (Lions) Squadron were reduced in rank as a result of misdemeanours. Neither of these lads could be classed as having criminal intentions, but, being spirited boys, they decided on several occasions to stay out later than regulations permitted. The inevitable happened, not so much because they had failed to do what was required of them, but rather because they were non-commissioned officers, and, as such, were in a position of trust and were required to set an example to cadets over whom they had control. If N.C.O.s do not set the example of being model cadets, and thus do not foster that spirit in all others subordinate to them, then it is difficult for the younger lads to maintain the discipline that is eventually required of them.

"At the beginning of the cadet year in September 1952, I had a frank talk with these cadets, and I informed them that, because of what had happened at camp, they had two choices.

To accept the demotion in each case was obligatory on their part; but, in addition, they could either remain with the squadron and redeem themselves, or they could turn in their uniforms. One chose to turn in his uniform and the other decided to remain.

"The chap who remained with the squadron not only got his rank back, but received one additional promotion and also won the Lion's Squadron Award for the best cadet in the squadron for the training-year just ending. That cadet is Flt. Sgt. Martin Lewis. Flt. Sgt. Lewis has set a grand example, and he has, I feel sure, overcome all prejudice that may have been built up against him. He has, in my opinion, demonstrated forthrightly that Air Cadet training is not only training for citizenship, but is also good business.

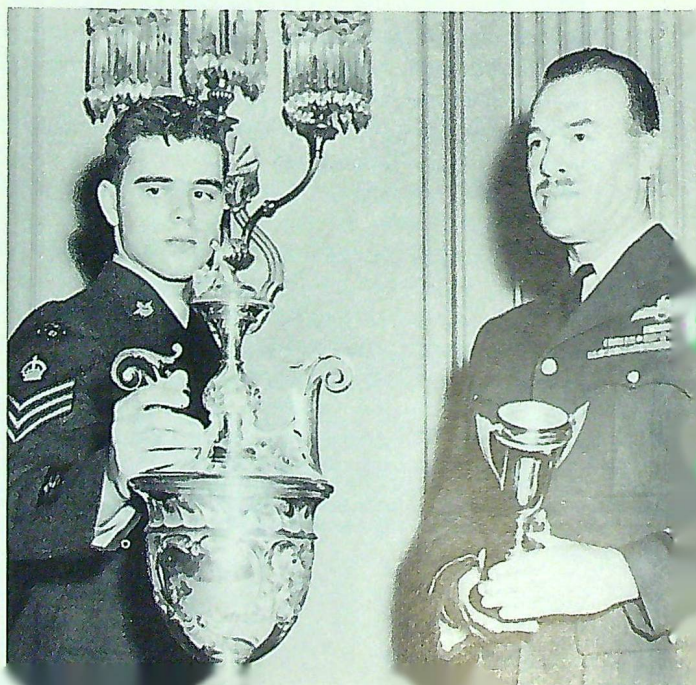
"I had nothing to do with the selection of the best cadet in any of the three squadrons of No. 12 Wing, and I knew nothing about the award being granted to Lewis until it was presented to him. It is also interesting to note that the command of that particular squadron changed during the year, as did the position of one other officer — all indicating that Lewis made the grade on merit alone."

#### TRAIL, B.C.

At the annual meeting of the Royal Canadian Flying Clubs Association, held recently in Ottawa, Flt. Sgt. L. Northey, of No. 531 (Trail) Squadron, was named as 1953 winner of the famous Tudhope Trophy. The trophy is given annually to the top-rated applicant for a private pilot's license, and the winner is chosen on the results of written and flying tests conducted by the Department of Transport.

Winning an important trophy was only part of the thrill as far as Cadet Northey was concerned.

*Flt. Sgt. Northey receives Tudhope Trophy from the Chief of the Air Staff.*



He was flown to Ottawa in an R.C.A.F. North Star, and attended the Jubilee Dinner of the Association, at which he received the impressive trophy from the hands of Air Marshal C. R. Slemon, C.B., C.B.E., the Chief of the Air Staff. He later took part in a radio broadcast, appeared on television, and was given a flight in a CF-100 at R.C.A.F. Station Uplands. There was also the usual round of sightseeing in Ottawa, which included visits to the Parliament Buildings, National Defence Headquarters, and Air Cadet League Headquarters.

In his own words, it was a "terrific experience" for the 18-year-old Air Cadet.

### EDMUNDSTON, N.B.

A publicity campaign was undertaken recently by No. 313 (Edmundston) Squadron, with the following aims in view:

- to inform the townspeople of Air Cadet matters in general,
- to remind them of the achievements of the squadron and thus foster local pride and support, and
- to persuade them of the benefits of Air Cadet training, thereby encouraging enrolments.

A two-page spread (in both English and French) and an editorial in the local paper, a window display, and periodic announcements on the Edmundston radio station all helped to put the campaign over.

Sqn. Ldr. A. P. Stothart, Commanding Officer



*No. 313 Sqn. cadets display its trophies. L. to r.: Cpl. L. Lavesque (with the Strathcona Shield), W.O.1 D. Steeves (Provincial Air Cadet League Trophy), Flt. Sgt. R. Leblanc (Strathcona Trust Trophy), Cpl. G. Zaichick (St. John Civilian Rifle Ass'n Cup), Flt. Sgt. K. MacFarlane (Air Vice-Marshal Morfee Trophy).*

of the Squadron, says that the interest was very gratifying, and that results to date have been quite encouraging.

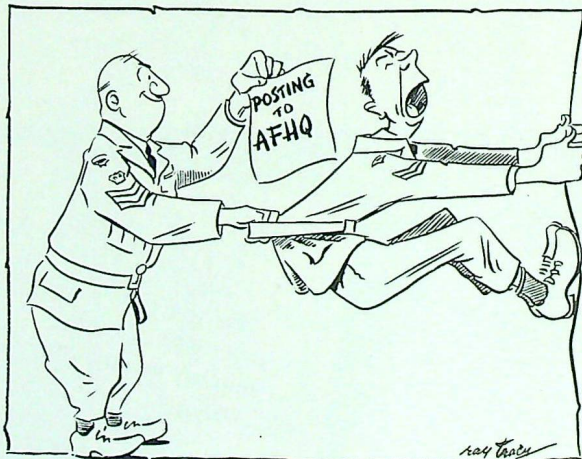
## THE MOTE AND THE BEAM

Be not angry that you cannot make others as you wish them to be, since you cannot make yourself as you wish to be. (Thomas à Kempis: 1380-1471.)

# ★ What's the Score?

This month's questionnaire should be a piece of cake for the extremists among us. The members of the Editorial Committee, however, who are all gastronomers of nicely poised judgment, apparently found it a little indigestible. Their average score was only 9. Correct answers appear on page 48.

- The high-minded airman who wishes to scale the loftiest peak in Canada should pack his crampons and set out for:
  - Mt. Robson in British Columbia.
  - Mt. Logan in the Yukon.
  - Mt. Tremblant in Quebec.
  - Mt. Thule on Bylot Island.
- Having achieved the summit, he will be looking down from a height of:
  - 29,002 ft.
  - 12,480 ft.
  - 19,850 ft.
  - 17,648 ft.
- The low-minded airman, on the other hand, would probably find the world's greatest depths in the:
  - Caribbean Sea.
  - Pacific Ocean, off New Caledonia.
  - Pacific Ocean, off Mindanao.
  - Atlantic Ocean, off Halifax.
- To touch bottom at this point, he would have to descend approximately:
  - 28,250 ft.
  - 20,500 ft.
  - 40,500 ft.
  - 35,500 ft.
- The greatest altitude ever reached by man (in a balloon) is:
  - 65,281 ft.
  - 94,194 ft.
  - 52,864 ft.
  - 72,394 ft.
- The altitude record for aeroplanes stands at:
  - 71,280 ft. (in a Skyray).
  - 63,668 ft. (in a Canberra).
  - 65,668 ft. (in a Bristol Fighter).
  - 58,462 ft. (in a B-17).
- The greatest ocean depth so far reached by man is about:
  - 10,000 ft.
  - 8,000 ft.
  - 6,000 ft.
  - 12,000 ft.
- Prof. Picard and his son, in their bathyscaphe, touched bottom at this depth in the:
  - Tyrrhenian Sea.
  - North Sea.
  - Indian Sea.
  - English Channel.
- Service personnel can reach the lowest depths which are attainable without going underground or beneath the surface of the ocean, by simply:
  - Strolling on the bottom of the Grand Canyon.
  - Floating on the Dead Sea.
  - Floating on the Red Sea.
  - Being posted to A.F.H.Q.



10. Anyone who is determined to go over the highest falls in North America in a barrel can realize his ambition only:

- (a) At Niagara.
- (b) At Grand Falls, N.B.
- (c) In Yosemite National Park.
- (d) In Algonquin Park.

11. The highest shade temperature ever recorded was:

- (a) 110°
- (b) 136°
- (c) 124°
- (d) 202°

12. The hottest spot in the world is in:

- (a) Arizona.
- (b) Tripoli.
- (c) Paris.
- (d) Central Africa.

13. The lowest outside temperature ever officially recorded was:

- (a) -90° F. (at Verkhoyansk, Siberia).
- (b) -109° F. (at Goose Bay, Labrador).
- (c) -60° F. (at Fairbanks, Alaska).
- (d) -78° F. (at Little America, Antarctica).

14. The highest seat of government in the world is:

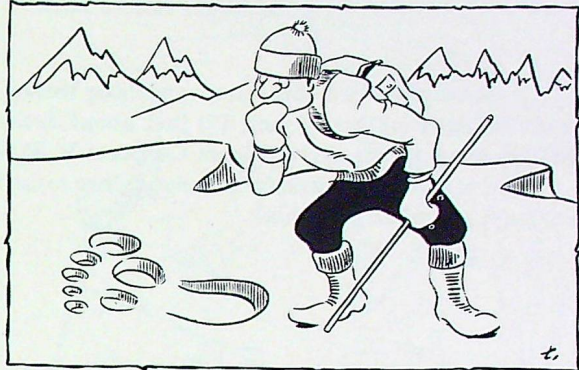
- (a) La Paz, Bolivia.
- (b) Lima, Peru.
- (c) Quebec City, Canada
- (d) Berne, Switzerland.

15. The deepest mine in Canada is:

- (a) Lake Shore, Ont.
- (b) Sullivan, B.C.
- (c) Noranda, Que.
- (d) Spring Hill, N.S.

16. The Abominable Snow-Man, reputed to haunt the topmost slopes of the world's highest mountain, leaves his footprints on the snows of:

- (a) Kangchenjunga.
- (b) Popocatepetl.
- (c) Everest.
- (d) Kilimanjaro.



17. If he breathes at all, therefore, he must be able to do so (apparently, without oxygen equipment) at an altitude of:

- (a) 34,365 ft.
- (b) 30,098 ft.
- (c) 29,860 ft.
- (d) 29,002 ft.

18. Should the Abominable Snow-Man decide to go into business, he would probably rent an office in the world's tallest building, which is the:

- (a) Bank of Commerce Bldg., Toronto.
- (b) Empire State Bldg., New York.
- (c) Stock Exchange Bldg., London.
- (d) Chrysler Bldg., New York.

19. The highest temperature in which a human being, without artificial aid, has survived unharmed for a period of twenty minutes is:

- (a) 195° F.
- (b) 105° F.
- (c) 228° F.
- (d) More than 250° F.

20. If we admit the hypotheses of modern physics, there is no larger circle in the universe than:

- (a) The outside circumference of the Milky Way.
- (b) A navigational great circle on Jupiter.
- (c) The path traced by the unobstructed light of a paper match.
- (d) The outermost of Saturn's rings.

## PROTOTYPE

Pyrrhus, when his friends congratulated to him his victory over the Romans under Fabricius, but with great slaughter of his own side, said to them, "Yes; but if we have such another victory, we are undone." (*Francis Bacon: 1561-1626.*)

# Feminine Gen

It was a close call this month: nothing turned up for "Feminine Gen" until twelve hours before the deadline. As a matter of fact, I'd just about decided that we'd turn the section back to the men, when the following article arrived from Corporal V. R. Dudley, of R.C.A.F. Station Trenton.

I've not had the pleasure of meeting her myself, but I somehow feel that I might learn a lot from her. Anyway, see what you think.

*Alice Twitterwhistle Cpl.*

## THE HIGHER ETIQUETTE

By Corporal V. R. Dudley

I have never had a *penchant* for figuring out box scores, be they for baseball, basketball, or (above all) a sport called "Pari Mutuel." Thus, after racking my brain, I still can't tell what my standing would be on the tradition-cum-*savoir-faire* quizz in the October "Roundel." However, I have a sneaking suspicion that that's why I'm a Corporal rather than the up-and-coming Squadron Leader to which it refers.

Perhaps Sgt. Shatterproof would be interested in my answer-reasoning\* on some of the more debatable questions.

Let's take the first question:

"The punctilious airman, upon finding himself in an elevator with a lady, will:

- (a) Remove his head-dress.
- (b) Salute upon entering and leaving the elevator.
- (c) Leave his head-dress on his head.
- (d) Give the lady an ardent glance."

My answer is (d). As a female, oh-so-slightly past 30, I would be downright insane to give any other answer. While absolutely nothing could come of the others, (d) might change the whole course of the airman's life. He might even end up by marrying the girl.

Shall we skip along to 3? This has to do with a Flying Officer in a homburg hat. (He is also wearing

other apparel). He meets a Wing Commander in civilian clothes. We are asked if he should:

- (a) Raise the homburg.
- (b) Touch his forelock.
- (c) Ignore the Wing Commander completely.
- (d) Cross the street.

My only recourse here is, again, (d). This conclusion was reached after conjuring up visions of all the Flying Officers I have known and how they would look in homburgs. Were a Flying Officer actually to WEAR a homburg and actually to meet a Wing Commander while wearing it, my theory is that the latter would burst out in wild guffaws. Thus, the Flying Officer would really be doing his superior a service by removing himself from his path.

In regard to Question 4: "On entering the ante-room of the officers' mess, the aspiring Squadron Leader, will:

- (a) Stand briefly at attention.
- (b) Make a resounding click with his heels.
- (c) Salute.
- (d) Walk straight in."

I have been informed by a supercilious person that (d) is the correct answer — that the aspiring Squadron Leader should, in fact, "walk straight in." Personally, I think (b) would be much more dashing. It would also serve as a warning that the aspiring Squadron Leader was about to enter the lounge and . . . well, let's hide some place away from the bar where he can't notice us, shall we?

Question 8 sent me scurrying to a Dale Carnegie volume on the subject of winning friends, etc. I find, as a result of my perusal of it, that I can

\*"Answer-reasoning" is a new term, meaning: even when you know you're wrong — SHOUT! People may take this as supreme confidence and change their own minds.

accept only (d). In other words, if a Pilot Officer and a Squadron Leader meet another Squadron Leader on the street, "the Squadron Leaders should shake hands."

I like immensely the idea of the two Squadron Leaders (absolute strangers, preferably) stopping for a moment and shaking hands — a friendly gesture which would leave a nice opening for the Pilot Officer to whip up a smart salute to both at one time. The Squadron Leaders (by then good friends) would probably be captivated by his action and invite him to a party where he would undoubtedly be introduced to a charming companion. He might even end up by marrying the girl.

Proceeding on to number 19, we are confronted by the problem:

"On meeting a lady of his acquaintance on the street, a uniformed officer should display his gallantry by:

- (a) Giving her an ardent glance.
- (b) Lifting his head-dress.
- (c) Bowing briefly from the waist.
- (d) Saluting in the normal manner."

Since the head-dresses of a large proportion of the Flying Officers whom I have met would certainly flop limply from the peaks, we'd better rule out (b). The next solution would be equally unwise: the Flying Officer might be a martyr to lumbago, or he might break his suspenders. As for (d) — anyone who has been watching salutes closely these days would deplore this choice. The "normal" salute today resembles a cross between a friendly wave and the flicker signals on English cars. Better the uniformed officer walk past the lady with eyes averted.



But if method (a) is adopted — that is, if the Flying Officer gives the lady an ardent glance — the problem is solved, be the lady six or sixty. If she's in the in-between stage, she may be a gorgeous creature. Why, he might even end up by marrying the girl!

I know — Sgt. Shatterproof will say: "It takes a thousand inklings to make a clue, and you haven't even an inkling!"

Oh well, I like the Corporals' Club.

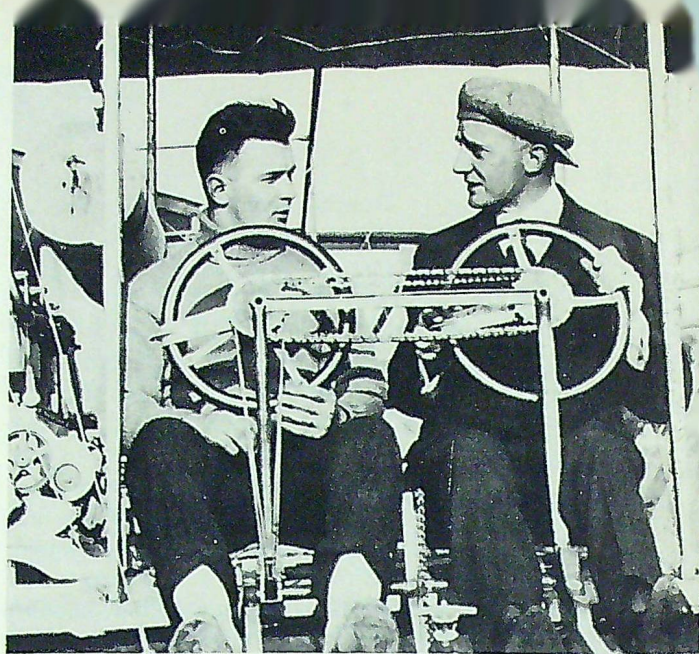
## MONA LISA SMILES

Out of old fields comes all this new corn from year to year; and out of old books comes all this new science that men learn. (*Geoffrey Chaucer: 1340-1400.*)

# Pin-Points in the Past

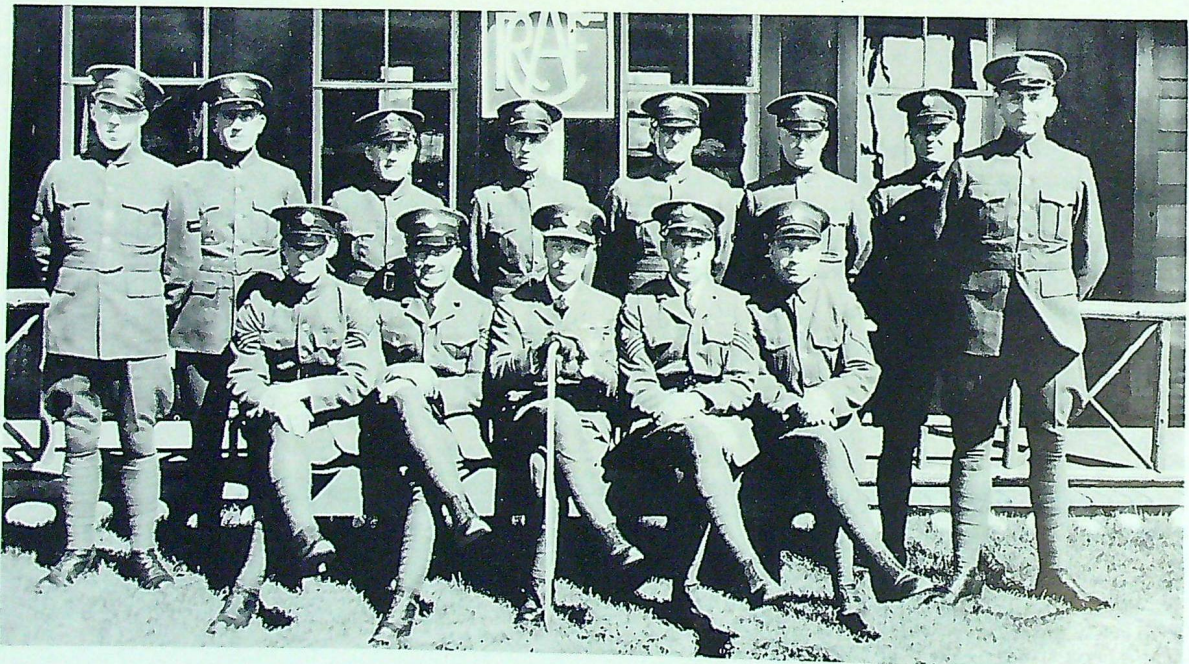
This month our questing pin reaches back to a moment in 1915 when a young Canadian named L. S. Breadner was about to receive his first flying instruction in a dual-control Wright biplane somewhere in the United States. He subsequently became Chief of the Air Staff, R.C.A.F., and, later, A.O.C.-in-C. of the R.C.A.F. overseas. Air Chief Marshal Breadner, C.B., D.S.C., died in March 1952. His instructor, J. C. Simpson (at right of photograph), who was also a Canadian, joined the Royal Flying Corps and was killed while flying in France in 1916.

The other photograph shows the personnel of the M.T. Section of Camp Borden in 1934. Back row (left to right): L.A.C. W. A. Wheeler (Flying Officer, retired), A.C.1 J. P. Johnston (W.O.2), A.C.1 F. A. Bourne (Flt. Lt.), A.C.1 L. Burke (deceased), A.C.1 E. Bartlett (W.O.1), A.C.2 R. McFarlane (released), A.C.2 Lawless (rel.), and A.C.2 E. Dewsnap (Flying Officer). Front row (l. to r.): Cpl. R. L. Coulson (Sgt., rel.), Sgt. H. T. Bourne (Flt. Lt., ret.), Flt. Lt. A. L. James (Air Vice-Marshal, C.B.E.), Flt. Sgt. L. H. Perry



(W.O.1, rel.), and Cpl. G. Grenkie (W.O.1). We are indebted to Sqn. Ldr. J. R. L. Schingh for this photograph.

(We wish to apologize to Sqn. Ldr. C. E. Elliott, of R.C.A.F. Station Camp Borden, for having failed to thank him for the photographs which appeared in our December "Pin-Points".)



# Personnel Movements ★ ★ ★

## OFFICERS: DECEMBER

W/C H. F. Darragh, AFC — 1 Air Div HQ, France, to 416 (F) Sqn, France.  
 W/C T. H. Spear — 1 FWgHQ, U.K., to AFHQ.  
 S/L D. Warren, DFC — ADCHQ, St. Hubert, to 410 (F) Sqn, U.K.

## OFFICERS: JANUARY

W/C F. C. Aitkens — TCHQ, Trenton, to AMCHQ, Ottawa.  
 S/L E. Atkins, DFC — ADCHQ, St. Hubert, to AFHQ.  
 S/L C. D. Barnett, DFC — 1 (F) OTU, Chatham, to 431 (F) Sqn, Bagotville.  
 S/L C. T. Brighton — 1 Air Div HQ, France, to AMCHQ, Ottawa.  
 W/C J. N. Brough — 1 SD, Weston, to 12 TSU, Weston.  
 S/L D. K. Burke — 1 (F) OTU, Chatham, to 2 FWgHQ, France.  
 W/C R. D. Carter — AMCHQ, Ottawa, to TCHQ, Trenton.  
 S/L G. Clayton — RCAF Stn Camp Borden to RCAF Stn St. Johns, P.Q.  
 S/L C. E. Endersbe — 1 AROS, Clinton, to RCAF Stn. Portage la Prairie.  
 W/C W. M. Foster, DFC — CJS London to 3 FWgHQ, Germany.  
 S/L E. R. Heggteit — RCAF Stn St. Hubert to ADCHQ, St. Hubert.  
 S/L W. G. Lafferty, DFC — 2 ANS, Winnipeg, to 2 (M) OTU, Summerside.  
 S/L G. W. LaRocque — AFHQ to AMCHQ, Ottawa.  
 S/L R. H. Mack — RCAF Stn St. Johns to RCAF Stn Camp Borden.  
 S/L F. E. McLaren, DFC — AFHQ to CJS Washington.  
 S/L D. F. McRae, DFC — 1 TAC, Edmonton, to TCHQ, Trenton.  
 S/L G. R. Moar — AMCHQ, Ottawa, to 2 TTS, Camp Borden.  
 S/L G. G. Monson — 2 (M) OTU, Summerside, to 404 (MR) Sqn., Greenwood.  
 S/L A. B. Morabito, DFC — AFHQ to CJS Washington.  
 G/C T. A. Spruston, MBE — 1 FWgHQ, U.K., to 1 Air Div HQ, France.  
 W/C W. M. Stephen, DSO — RCAF Radio Centre, Ottawa, to 1 Air Div HQ, France.  
 S/L L. P. Valiquet — 1 Air Div HQ, France, to Air Attaché, Paris.

## WARRANT OFFICERS: NOVEMBER

WO1 J. Kerr — 2 FWgHQ, France, to 430 (F) Sqn, France.  
 WO1 H. C. Sparrow — 2 FWgHQ, France, to 430 (F) Sqn, France.

## WARRANT OFFICERS: OCTOBER

WO2 C. J. Waroway — RCAF Stn Portage la Prairie to 1 Base Maintenance Unit, Portage la Prairie.

## WARRANT OFFICERS: DECEMBER

WO2 T. L. Hogg — RCAF Stn Summerside to 2 (M) OTU, Summerside.

## WARRANT OFFICERS: JANUARY

WO1 J. H. Blundell, MBE — RCAF Stn St. Johns, to RCAF Stn Winnipeg.  
 WO1 W. E. Burnham — TCHQ, Trenton, to ADCHQ, St. Hubert.  
 WO2 F. B. Church — CEPE Det. Namao, to 11 TSU, Montreal.  
 WO2 W. J. Hamilton — 1 SD, Weston, to 2 FWgHQ, France.  
 WO1 S. Heap — TCHQ, Trenton, to RCAF Stn Gimli.  
 WO2 T. A. Keenan — 11 TSU, Montreal, to 10 TSU, Calgary.  
 WO2 J. H. L. Kirby — WSIU, Edmonton, to SIB, Ottawa.  
 WO1 S. Lisoweski — RCAF Stn Winnipeg to RCAF Stn St. Johns.  
 WO2 A. MacAuley — 1 FWgHQ, U.K., to 1 SD, Weston.  
 WO2 H. R. McKee — 6 RD, Trenton, to RCAF Stn Whitehorse.  
 WO2 E. McLachlan — TCHQ, Trenton, to 1 R&CS, Clinton.  
 WO2 C. E. Morin — Radar Stn, Lac St. Denis, to Radar Stn, Mont Apica.  
 WO1 J. R. Probert — 2 TTS, Camp Borden, to RCAF Stn Trenton.  
 WO2 J. R. Robertson, BEM — RCAF Stn Centralia to 2CMU, Calgary.  
 WO1 E. H. Russell — RCAF Stn North Bay to RCAF Stn Chatham.  
 WO2 A. T. Sunderland — RCAF Stn Rockcliffe to ATCHQ, Lachine.

## WARRANT OFFICERS: FEBRUARY

WO2 A. J. P. Charlebois, MBE — 413 (F) Sqn, Germany, to 10 TSU, Calgary.  
 WO2 C. A. J. Gamman — 3FWgHQ, Germany, to ATCHQ, Lachine.  
 WO1 G. Gauvreau — 3 FWgHQ, Germany, to 7 SD, Namao.  
 WO2 H. Inglis — 3 FWgHQ, Germany, to 1 TTS, Aylmer.  
 WO2 L. T. Seguin — 3 FWgHQ, Germany, to 436 (T) Sqn, Dorval.  
 WO2 W. G. Standing — 3 FWgHQ, Germany, to AFHQ.

## KEY TO ABBREVIATIONS

ADCHQ — Air Defence Command Headquarters  
 AFHQ — Air Force Headquarters  
 AMCHQ — Air Materiel Command Headquarters  
 ANS — Air Navigation School  
 AROS — Air Radio Officers' School  
 CEPE — Central Experimental and Proving Establishment  
 CJS — Canadian Joint Staff  
 (F) — Fighter  
 FWgHQ — Fighter Wing Headquarters  
 (M) — Maritime  
 (MR) — Maritime Reconnaissance  
 OTU — Operational Training Unit  
 R&CS — Radar and Communications School  
 RD — Repair Depot  
 SD — Supply Depot  
 SIB — Special Investigation Bureau  
 TAC — Tactical Air Command  
 TCHQ — Training Command Headquarters  
 TSU — Technical Services Unit  
 TTS — Technical Training School  
 WSIU — Western Security Investigation Unit.

# THE ROYAL UNITED SERVICE INSTITUTION

*(Now that so many members of the R.C.A.F. are either stationed in England or spending their leave there, it seems timely to include in "The Roundel" a few words about an organization which for more than a hundred years has exerted a valuable influence upon the thinking of many of the outstanding personalities of the British armed services.—EDITOR.)*

## ITS PURPOSES

**T**HE ROYAL UNITED SERVICE INSTITUTION, in Whitehall, was founded on 25 June 1831, under the patronage of King William IV, and was originally designated "The Naval and Military Library and Museum." In 1839, this was changed to the "United Service Institution," and so it remained until the Royal Charter of Incorporation was granted in 1860, when the present title was bestowed.

The Royal Charter lays down that the purposes of the Institution are "The Promotion and Advancement of Naval and Military Science and Literature," but more recently, with the approval of the Sovereign, the authority of the Privy Council was sought and obtained to interpret these purposes as applying definitely to all three Services.

## THE LIBRARY

The Institution's Library contains the finest collection of military literature, in the broadest sense, in Britain or probably any other country. Books range from the latest publications to many rare old editions long since out of print.

A large percentage of these books constitute a lending library from which members can borrow four volumes at a time. This is conducted on the principle that any works of value to officers for the study of their profession shall be obtained and that sufficient copies shall be available to ensure that there shall not be an unduly long waiting-list.

The use of the lending library is one of the advantages of membership which especially appeals to officers who want to study professional

subjects but who are disinclined to buy expensive books and then have the inconvenience of storing and moving them.

There is a comfortable reading- and writing-room opposite the library.

## THE LECTURE THEATRE

The Lecture Theatre is the recognized forum where subjects of the highest interest to the Services are expounded by the best professional authorities, and where officers can take part in open discussions, irrespective of rank. This they are officially encouraged to do by the Admiralty, War Office, and Air Ministry. The only restrictions are those necessarily imposed by the requirements of security. Members may introduce friends, including ladies, to Lecture Meetings.

## THE JOURNAL

The Journal is published quarterly and sent free to all Members. It is recognized as the leading publication of its kind in this or any other country.

It is the medium whereby lectures and discussions reach Members and Messes all over the world. It also contains articles by officers and others with special knowledge of professional and scientific matters, and of those aspects of international affairs or other subjects which are of particular interest to the Services. There are sections devoted to Correspondence, Service Notes, and Reviews of Books, as well as a list of the latest additions to the Library.

The Journal is specially designed to give officers of each Service a better understanding of the other two, and to enable those who are not in close

touch with new developments or who have been unable to get reliable accounts of important operations and events from any other source, to keep themselves up to date. For the student of war or for the historian it is indispensable.

### THE MUSEUM

The Royal United Service Museum is an integral part of the Institution. It is housed in the historic old Banqueting House of the former Whitehall Palace, the use of which was granted as a mark of her royal pleasure by Queen Victoria.

In the beautiful Hall are to be found personal relics of famous commanders, trophies of great victories, models, uniforms, medals, and mementoes, all combining to make it a veritable temple of irreplaceable treasures.

The Crypt below is devoted mostly to modern exhibits, including a fine collection (which is constantly being added to) of models of warships, armoured fighting-vehicles, aircraft, and weapons. These, in effect, are a demonstration of the material and scientific developments of the Services.

Finally, the centre aisle of the Crypt is lined with a unique series of very fine dioramas, depicting famous episodes of military history, beginning with the landing of Julius Caesar and including many epic battles.

Members can obtain free vouchers for their friends to visit the Museum.

### MEMBERSHIP

Commissioned officers on the active and retired lists of all the armed services of the British Commonwealth, also midshipmen of the Commonwealth's Navies, the R.N.R., R.N.V.R., and

R.N.V.S.R., are eligible for membership without formality.

Retired officers of the Regular and Auxiliary Forces, including the Home Guard, whose names no longer appear in the official lists, are eligible for membership by ballot.

Ladies whose names appear or have appeared in the official lists as serving or having served as officers in any of the three Services are eligible as above.

Naval, military, and air force cadets are eligible on the recommendations of their commanding officers.

### ANNUAL MEMBERSHIP

The full benefits of Membership, including the four quarterly Journals and use of the lending library, are secured by the annual subscription of £1 10s. (\$4.13), payable on January 1st.

### LIFE MEMBERSHIP

- £24 (\$66.00), payable in one sum, or
- £25 4s. (\$69.30), payable in four instalments of six guineas on January 1st of each succeeding year, or
- £25 4s., paid £3 12s. (\$9.90) per annum for seven years under a Deed of Covenant. This enables the Institution to recover Income Tax.

Further particulars of Membership, with suitable forms for Bankers' Orders and Deeds of Covenant, can be obtained by application to the Liaison Officer of the Command or to the Secretary, Royal United Service Institution, Whitehall, London, S.W.1., England.

Officers' Messes, as such, are not eligible for membership; but the Journal can be supplied for an annual subscription of £2 (\$5.50).

## MONA LISA SMILES AGAIN

A dwarf standing on the shoulders of a giant may see farther than the giant himself. (*Robert Burton: 1577-1640.*)

# Strictly for the Birds ★ ★ ★

By Wing Commander John Gellner, D.F.C., Chief Administrative Officer, No. 3 Fighter Wing, Germany.

ENGLISHMEN have the reputation of being great walkers. Canadians would rather ride badly than walk well. When I, already in my thirties, became a somewhat doubtful addition to the Canadian community, I brought with me from old Europe the strange urge to stroll through the countryside instead of hurtling through it, bullet-fashion, at a fantastic number of knots. While in Canada, I have seldom been able to find anybody who would join me in that leisurely, old-fashioned way of locomotion.

Once, on a splendid sunny day in February, I stood at Haynes Junction in enraptured contemplation of the icy giants of the Yukon, and exclaimed that, if I only had a companion, I would have a whack at climbing one of those shiny peaks. My remark elicited nothing but surprised stares. "Walking . . . well, I guess that's all right if a fellow hasn't got a car," his hard-rock Canadian friends would say; "but mountain-climbing — that's strictly for the birds!"

This same statement — that mountain-climbing was for the birds — was made also to Flight Lieutenant John Thomas McGee, amiable Irishman and R.C. Chaplain of No. 3 Fighter Wing, when this reverend gentleman revealed to an astounded audience in the Officers' Mess that he intended to accompany me on an expedition to the high mountain massifs of the Austrian Tyrol. Shaken, perhaps, but still undaunted, Father McGee persisted; and having procured, at considerable expense, boots, ice-axe, and crampons, he set out by car with my wife and myself for the distant peaks.

Our goal was Vent, a village that lies, at a height of some 6,200 feet, at the end of the Oetz valley.

Even to get there proved to be something of an adventure. *En route* we had picked up our guide, Johann Walter, of Galtuer in the Paznaun valley. He was a solidly built little fellow of about 45, with a weather-beaten bronzed face and the clear eyes (so often seen in sailors and mountaineers) that come from gazing into vast distances.

We gathered from the map that from Zwieselstein, where the Oetz valley splits into two branches, a narrow road leads to Vent, nine miles farther up the western arm of the valley. What the map did not show was that the so-called road is only wide enough for one car; that the passing-points are few and far between, and that the car ascending the valley must back up to one of them when it meets a descending vehicle; that the road climbs steeply along the western slope of the valley above an ever-deepening precipice of, at its

*Flt. Lt. McGee and Johann.*



deepest, certainly not less than a thousand feet; and lastly, that there is no railing between car and nothingness.

The nightmare drive lasted three quarters of an hour. Finally, however, there was Vent. The accursed road came to an end, and I was able to wipe the cold sweat from my brow. My good humour was not restored when I learned from the innkeeper that the Vent road was closed to private cars, and when the good padre remarked casually that he had seen the prohibiting road-sign at Zwieselstein but had not considered it important enough to draw to my attention. None the less, we had arrived, and the day when the car would have to be driven down that road again was still far off. We shouldered our very heavy packs — that is, we three men did, while the favoured representative of the fair sex merely burdened herself with our two small cameras — and set out for the Hochjoch Hospiz, a mountain chalet some 1,800 feet above Vent. Three and a half weary hours later we had reached it and, having divested ourselves of our burdens, proceeded to attend to the business of the evening: food, and lots and lots of wonderful red Tyrolese wine.

About this Tyrolese wine. The grapes from which it comes grow high up on the sunny slopes of the Adige Valley of the South Tyrol, right beneath the alpine meadows that lie beneath the screes\* leading up to the bizarre rock towers of the Dolomites and the snows of the Adamello. For taste and bouquet it has no peer. So much has it become part and parcel of that beautiful province and of the lives of the jolly mountaineers who inhabit it that it is even mentioned in Tyrol's national anthem. The coat-of-arms of the province has a bright red eagle in its centre, and the song explains why the Tyrolese eagle sports that dashing colour. One of the stanzas gives the most plausible explanation:

“Oh, red Tyrolese eagle,  
Why do you shine so red?  
Because on the Adige's grapes  
I have been reared and bred.”

That's a crude translation and the rhymes are none too good, but it conveys the meaning. Imagine — liquor mentioned in the national anthem! Thank Heaven that, as far as is known, there is no Tyrolese Temperance Union!

\* \* \*

It's half-past-four, and outside the stars twinkle brightly in a clear September sky. Three unshaven and unwashed men huddle in the kitchen of the chalet where the broad-beamed cook prepares breakfast. The coffee tastes bitter, and, at this ungodly hour, it is difficult to swallow eggs, bread, butter, and jam. Then we step out into the night. There is just the faintest glimmer of first light, barely enough to keep us from breaking our legs on the little trail that soon vanishes among the boulders of the end moraine of the great Hintereis glacier. Three quarters of an hour later, with a sigh of relief, we step from the unstable scree on to the solid ice. At first, walking is easy. The broad glacier stream is almost flat; the ice is greyish, rough, hard-frozen, and feels almost like pavement beneath our boots. The day is awakening all around us. The snowy tops of the lesser peaks bordering the glacier are already pink in the rays of the sun, which is still hidden from us. Beneath these brightly-coloured caps, the snowy flanks sparkle in a variety of whites, blues, and steel-greys. Down on the glacier bed, we are walking in a kind of twilight, between shiny walls, beneath a delicately blue sky interwoven with gold.

A poet, face to face with the sights that we saw on that glorious morning, could probably write reams and reams of high-sounding prose. I cannot. I am one of those people who like beautiful things without being able to explain why they find them beautiful. Indeed, while I have acquired the habit of washing and, consequently, like soap of a nationally advertised brand, I have never been able to supplement my meagre pay by composing a mere fifteen words to complete the sentence: “I like X.Y. soap because . . .” The reader must therefore accept the categorical statement that the day was perfect and the sights were superb, and let it go at that.

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\*Slopes covered with small stones that slide down beneath one's feet.



*The Weisskugel.*

We bound ourselves with the rope at a spot far up the glacier, where the slope steepens before it ends in an abrupt wall of snow leading to the Hintereis Joch. The latter is a broad glacier saddle, almost 11,400 feet high, between the Quellspitzen to the south and the mighty Weisskugel to the north. Above the pass, a steep slope leads to the south ridge of the Weisskugel. This face was only flecked with snow, the rest of the incline being ice — bare, dirty-grey, solid ice. Our guide led the way, using the patches of snow wherever possible and scratching steps into the ice when there was no snow. Father McGee was second on the rope, while I brought up the rear. There were a few crevasses, and the padre explored one of them somewhat thoroughly.

Those who have had the privilege of meeting Flight Lieutenant McGee know that he is powerfully built and of majestic gait. The guide, having carefully examined the strength of a snow bridge, had gingerly stepped across the crevasse. The padre, following in the guide's footsteps, found the snow yield under his feet. Some 20 feet behind, I saw my companion disappear in the bowels of the earth. But before he had disappeared altogether from sight, the rope, held tight as a matter of routine, did its duty and the padre scrambled to safety on the upper lip of the crevasse. When, in turn, I crossed it, I looked with awe into the seemingly bottomless bluish depth.

Above the ice face, the broad snow ridge leads upwards at a more sedate angle. It was hot, the snow was deep, and I was very tired. It took an effort to extract the leg from its grave of snow and to plunge it again, a foot or so farther on, back into the wet and yielding mass. The old game of plodding along with head bent, hoping that when one raised it after an indefinite number of steps one would find that prodigious progress toward the goal had been made, proved to be disappointing every time I tried it. There was always the same snow slope, with the same cornices of the ridge to our right, and not a trace of the tall cross which we knew adorned the summit of the Weisskugel. At long last there was the final *arête*, narrow and lofty, and — as a pleasant change — of solid rock. It gave us all a lift which carried us, refreshed, to the top. The climb had taken us six hours from the chalet to the summit cross of the Weisskugel, 12,267 feet above sea level.

The day was perfect: cloudless and cold, but sunny. There would be little purpose in describing the view, which embraced all of the Eastern Alps and most of the Western. To name the hundreds of peaks we saw would be wasting the time of those who have never had the joy of seeing the Alps on a glorious September day. Each of us may have looked at the sights with different eyes. John McGee, on his first alpine climb, saw the mountains perhaps as I myself saw them back in 1925, when I had my first glimpse of them from the East Peak of Belledonne above Grenoble, in Southern France. John is more than twenty years older than I was then, but he has the advantage that, having the soul of a poet, his enthusiasm has not been blunted by age. Johann Walter had just climbed the Weisskugel for the fifth time. These are not the mountains of his home valley, but he knows them fairly well; and then, to the professional guide, the problem is not the mountain but the tourists he must lead to its top. His eyes may have wandered westward, where, behind the massive *tricorn* of the Fluchthorn, lies Galtuer, with his little house, his wife, and two nice children. Johann, on that day, must have looked at the mountains with gratefulness for their mercies. I searched in the maze of peaks for those I had climbed in the happy

years before the war. The gentle giants evoked in me many a bitter-sweet memory: of my jolly mountain companions of fifteen to twenty years ago, almost all have been devoured by the war. It is comforting to see that the mountains have remained unchanged all through the disasters which little humans have brought upon themselves. So, half dreaming, we passed a delightful hour on our peak.

It took us four hours to reach the Hochjoch Hospiz again, and I, for one, was glad to fall on to the bench in the homy wood-panelled sitting-room. We feasted on pea soup and Tyrolese bacon dumplings,\* and we refreshed ourselves copiously with Adige wine. Thus, with leaden feet (from walking, not wine-drinking), burning cheeks (from the sun, not wine-drinking), and singing hearts (from joy, not wine-drinking), ended our first day in the Oetzal Alps.

\* \* \*

I have the greatest admiration for George Mallory, who sealed a life of mountaineering with his death on Everest in 1924, but I consider totally unsatisfactory Mallory's famous answer to the question why he climbed mountains: "Because they are there." For my own part, I simply *like* climbing them. There is nothing eccentric in that. So far, everyone whom I have introduced to the high mountains — and there was more than one sceptic among those I took along — has become an *aficionado* right after his first taste of climbing. It's a wonderful sport, and one which one can enjoy even in middle and old age simply by reducing one's goals.

In Trieste, my own birthplace, there is an old gentleman who became a mountain-climber at the age of six, when (some time back in the seventies of the last century) he began to scale the sandstone hillocks of the nearby Kras. These are big mountains for a little boy, with wild deep gullies and wondrous oases of green among the rocks, where the biggest edelweiss that I have ever seen grow in abundance. The Triestine gentleman graduated to the rock giants of the Julian Alps, and later to the

great ice of the Mont Blanc Group, the Valais and the Bernese Oberland. He reached his peak at the beginning of the century, when he became one of the greatest alpinists of all times. Later, as he grew older, he had to retrace his steps, until now he is back wandering through his native Kras where he started 80 years ago. The old gentleman is till very much alive and he still enjoys picking his edelweiss and looking, on a clear day, from one of the tame summits of the Kras northward and westward to the scenes of the conquests of his youth.

Mountain-climbing is a sport that provides not only physical exercise but infinite stimulation of the mind. It is impossible to describe the beauties of the high mountains — the clarity of the sky, the billowing clouds, the softness and yet the richness of the colours, the quiet majesty of the peaks, the wild tumble of the ice falls, and the stark grandeur of the sombre rock faces. Great also is the sense of achievement after a climb successfully completed. For a goal, one must always select a climb that is well within one's powers but at the same time not too easy. The task should be arduous: a long day's climbing and enough technical difficulties to add spice to the undertaking, but with a reserve of skill and vigour still left for the vagaries of the weather and for the ever-changing conditions of snow, ice, and rock. Every climb should be a test of physical endurance, courage, and determination. Nothing gives more satisfaction than to feel that one has given the best one has in physical and mental strength, and that one has succeeded after a good struggle. That's what mountain-climbing gives one every day, and in a *milieu* of infinite peace and beauty . . .

\* \* \*

Well, well, rhapsodizing again! It's time to descend to earth and to examine the oft-heard objection that mountaineering is terribly dangerous and that, consequently, none but fools and suicidal maniacs climb mountains. In the first place, only very few engage in enterprises of the kind which are described in a well-known alpine satire: "On the left, a stalk of grass, on the right, the excrement of a chamois — these were the only

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\*Don't ask for the recipe — you wouldn't like them in Ottawa, but you'd want nothing else up above 8,000 feet after a good day's climbing.

holds." Even so, almost three hundred people were killed in the Alps in 1953. But what sort of people were they?— Girls who, in the company of enamoured but ignorant swains, go to the mountains in silk shorts, bra, and sandals, and who then freeze to death, lost in the wilderness and cold of an alpine night . . . school-teachers who try to pick strange and oh-so-tempting flowers at the edge of dangerous precipices . . . young Bavarian boys who attempt rock faces far above their ability and experience . . .

True, some good mountaineers get killed every

year, and among them professional guides; but, by and large, a good alpinist has a better chance of dying of old age than a good motorist. One look at the executive committee meeting of an alpine association will prove that. Never — except after Remembrance Day parades — can one see so many weather-beaten and grey-thatched men sitting together as at gatherings of that kind.

Personally, I am looking forward confidently to many more years of happy mountaineering — and to an end by gradual decay.

## THE RIVA DROP-SYSTEM

*Flt. Lt. J. H. Riva.*

A new and improved method of timing the dropping of paratroopers and supplies, developed by Flt. Lt. J. H. Riva with the assistance of Flt. Lt. J. W. Michaud, has now been adopted by the U.S.A.F. as well as our own Service.

A computer, specially designed for the purpose, enables the navigator of an aircraft to determine exactly when to ring the jump-bell. Formerly, the dropping-area was marked by Army personnel from a ground position, or from an advance aircraft. Succeeding aircraft then released their loads when over this ground marker.

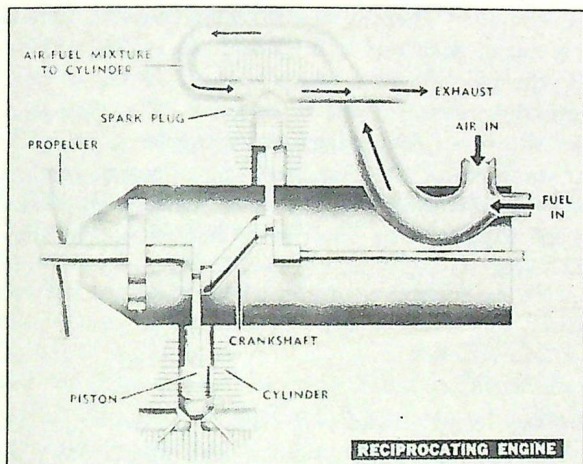
Flt. Lt. Riva began work on the computer in 1950 while serving at the Canadian Joint Air Training Centre at Rivers, Man. It can be used for any parachute load in any set of conditions. Simple to operate, it has the added advantage of contributing to the surprise element of an attack by eliminating the necessity for pathfinder teams. Its use means that the Air Force commander in a joint operation now assumes full responsibility for the accurate delivery and dropping of troops on a selected position.



# from PISTON to RAM-JET

(With the permission of the Curtiss-Wright Corporation, we are publishing here a series of highly informative diagrams of modern aircraft engines, ranging from the familiar piston engine to the still-experimental ram-jet. The series has also appeared in "The New York Times".—EDITOR.)

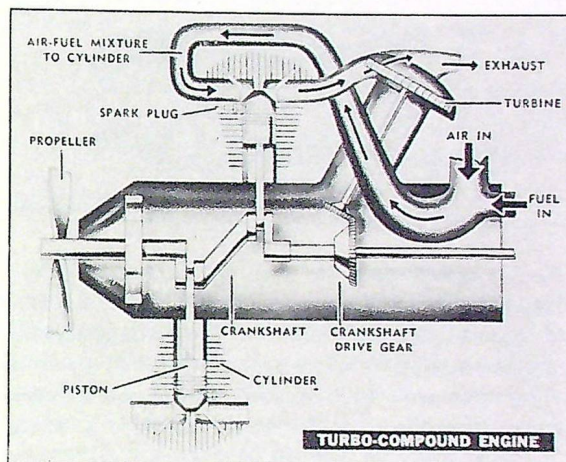
The reciprocating (or piston) engine, the same type as that which powers the automobile, drives the propeller (or airscrew), thus pulling the 'plane forward fast enough to create sufficient lift over and under the wings to keep it aloft. The



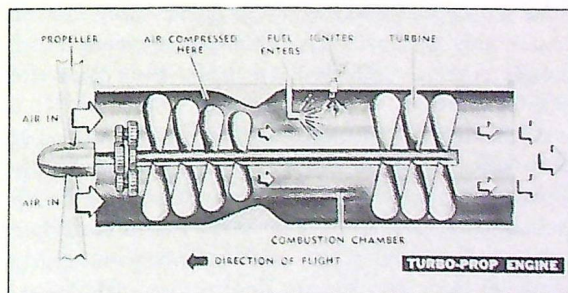
gas-air mixture explodes in one cylinder after another, driving pistons which rotate the crankshaft and, thus, the propeller.

The turbo-compound engine adds an exhaust-driven turbine to the piston engine. The exhaust gases are diverted to spin the turbine; and a drive-shaft from the turbine carries this extra power to the piston-engine-driven crankshaft and, thus, to the propeller, adding as much as 20 per cent to the engine's power. The C-119, which is being used for transport flying in the R.C.A.F., has turbo-compound engines.

The turbo-prop engine uses a propeller to drive the aeroplane, but the power to spin the

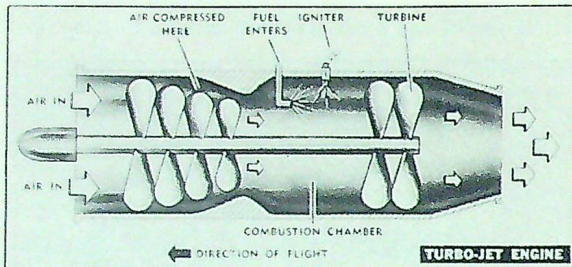


propeller comes, not from a piston engine, but from a turbine. It consists of two sets of turbine blades. The forward set compresses the air that enters at the front. The back blades, driven by the expanding gases from the continuous combustion of the air-fuel mixture, turn the drive-shaft which spins the forward compressor and the propeller. Continuous combustion gives smoother power

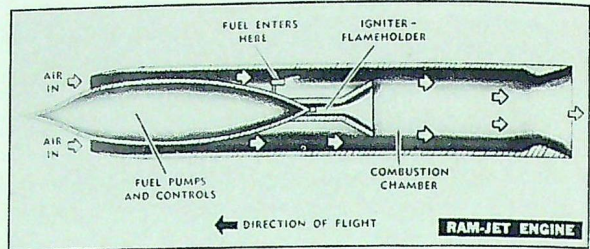


than does the piston engine, but the propeller still contributes noise and some vibration. The R.C.A.F. has no aircraft using this type of power plant.

With the turbo-jet engine, the forward thrust that drives the aeroplane comes entirely from the force of expanded gases. There is no propeller. Escaping to the rear, the gases give an "equal and opposite reaction," pushing the 'plane ahead. This



pure jet compresses air with the forward blades, mixes this air with fuel, and burns it in a smooth and continuous combustion. The exhaust gases drive the rear turbine, whose only job is to spin the compressor which makes high-pressure combustion possible. The forward thrust is exerted



against the inside of the engine, not against the outside atmosphere. The turbo-jet is used in all our jet fighters and also in the Comet.

The ram-jet, still in its experimental stages, is used primarily for guided missiles. It has no device to compress air for its combustion, and therefore must be launched by rockets or from a 'plane. Its initial high speed then rams air into the chamber, thereby compressing the air. Then it is mixed with fuel and ignited. As in the turbo-jet, the reaction from the rearward action of the expanding gases drives it forward. The ram-jet, like the other jets, requires atmospheric oxygen for combustion. Still another type of engine in the experimental stage, the rocket, carries its own liquid oxygen. The ram-jet is not in use in the R.C.A.F.

## BROTHER SAILPLANE

Gliding men often detect thermals, or uprising currents, while in the air by tossing scraps of paper from the cockpit and watching whether they rise or fall. But the expert has other, perhaps surer, methods. He keeps an eye on the birds, especially those masters of soaring — the gulls. They can be clear white labels to the invisible thermals, or to the air current deflected upwards, say, from the flank of a hill.

To any glider pilot the sight of a bird circling is an infallible sign of lift, of which he immediately takes advantage by joining the bird. In South Africa, Mr. Philip Wills (the world's gliding champion) found that the vultures evidently returned the compliment, for as his glider rose,

circling, in a thermal —

"almost invariably, after a very short time, a large brownish-white bird would appear, flying rapidly towards the glider. When it entered the thermal it also would start to circle, with wings motionless. Shortly afterwards other similar shapes would appear, and soon the Kite (his glider) would be just one of a large flock of silently circling birds. Frequently one or other bird would come to within a few feet of me, so close that I could see his steady unwinking eye. I observed how, in the air, the long scraggy neck of these birds is retracted into the body, leaving a perfectly streamlined shape. There could be no question of it: I was accepted by the vultures as just an unexpectedly large brother."

(*The Times Weekly Review*: U.K.)

# The Decline of the West?

## R.M.C. Cadets Discuss the Democracies

(Reprinted by courtesy of "The Marker," Royal Military College, Kingston.)

*(The decline and possible fall of the Western World — culturally, sociologically, and in terms of power — has been a favourite subject for speculation ever since the full implications of the Industrial Era, both good and bad, dawned in the minds of thinking men. Marx, Spengler, Toynbee, Arthur Bryant — these and many others have, in various ways and from various angles, approached the subject either with optimism or with misgiving. The two brief articles which follow are of interest in that they reflect the considered views of two young Canadians of today, both of whom are being trained in a tri-Service college noted for its rigid military tradition. Irrespective of his own personal views, the reader may perhaps feel, as we do, that there is still some hope for a society in which young men can, without fear, openly debate upon a subject that has too often served the ends of rabble-rousers on both sides of the Iron Curtain. Cadet N. K. Sherman presents the affirmative answer, and cadet R. G. Day the negative, to the proposition that "the struggle for liberty in the Western Nations is being lost at home."—EDITOR.)*

### Affirmative

OUR DEMOCRACY was born in slavery, and will die in license. The democracies are reaching, or have reached, the highest point in their trajectory; braking forces are setting up a negative acceleration which, if unchecked, will be their downfall. I wish to make it clear that we of the affirmative have no intention of adopting a short-sighted view of the struggle for liberty. In times past, it was external forces which endangered liberty in an obvious way, and hence one could become overheated about the Peterloo massacre or the plight of the enslaved negro. But today the forces threatening freedom are within us — within the citizens of England, Canada, and the U.S. The legal system is functioning with apparent justice; Parliament and Congress look hale and healthy — and that is the danger! We see no lynchings, no secret police, no controlled elections; we see nothing to inflame us to resist the imperceptible loss of liberty.

But if we look beneath the surface, look at our neighbour, delve into our own minds, we must see the spectre of approaching doom. When we behold a great cliff topple into the sea, we realize that this

sudden transformation from a solid pinnacle to submerged rubble was the result of slow, irresistible erosion. And when we see the waves biting deep into a second cliff, we can say with great assurance, "this, too, must fall."

Through the eyes of history we have seen the fall of the Grecian and Roman empires which, eroded from within by the pursuit of pleasure and the loss of ideals, at last succumbed to the invader. And the same forces which took away the limited freedoms of Greece and Rome are at work in the Western nations today.

It is not merely an idle statement to say that materialism is predominant today. Any thinking man must realize this. Suppose, for example, that in the midst of embittered negotiations between a labour union and some industrial management, an arbitrator arose and said, "Gentlemen, the desire of each of us is to please God. Our present greed for material gain endangers the nation's economy. Let us settle our differences by means of Christian charity. Let us allow our consciences, not our pocketbooks, to be our guides." The embarrassed silence which would follow would describe eloquently how materialistic ideals have taken hold in our times.

Materialism has brought with it three threats to liberty: loss of idealism, hesitancy to make sacrifices for ideals, and loss of individuality. Let us first consider idealism. It has always been known that, all other things being equal, the man or nation inflamed with zeal will triumph over a rival who experiences no inner drive. Look at our trade unions. Time after time we see Communists gain virtual control over supposedly democratic men, and use them as the unwitting tools of the Kremlin. Weed out the Communists from positions of authority, and immediately others rise from the ranks. The reason is that the Communist has the courage of his convictions and the will to achieve his ideals, while we democrats, unconcerned with abstracts, sit engrossed with television sets and big cars. I am not being merely theoretical. This exact situation has arisen in union after union — the A.F. of L., the C.I.O., the C.S.U., to name but a few.

Allied with the loss of idealism is the hesitancy among us to make sacrifices in support of ideals. When ideals cease to be a vital force in one's life, one hesitates to inconvenience oneself for their sake. Since many modern people are in doubt as to the value of democratic ideals, they dislike risking the material things, which they treasure, in defense of these ideals. In short, many people wonder whether there is anything worth fighting for in liberal democracy. If, again, the reader thinks I am merely theorizing, I point to Czechoslovakia as a practical example. Before the Russian *coup d'état*, Czechoslovakia had a liberal democratic government patterned along Western lines. But her people could not stir themselves to act on behalf of liberty, so that today she stands as a terrible warning of what lies ahead for us. For the same situation is present in the West today. We see crippling major strikes which occur in complete disregard of damage to the national economy. We see, too, lagging defence production. What does it matter if we lack fighter 'planes and radar units? We want refrigerators and baby carriages. What does it matter that in both the U.S. and Canada the production of jet interceptors is so far behind schedule that we do not have anything even approaching the minimum number of 'planes needed to defend this continent?

The third result of modernism is the loss of individuality, which has been slowly growing since the Industrial Revolution. The fundamental concept of democracy is that the individual is all-important; once this concept is lost, democracy disappears. In this age of technology, more and more the worker is losing his identity and becoming a featureless cog in a great production machine. Because he must specialize in our specialized civilization, he becomes dependent upon the intricate maze of transportation, buyers, sellers, for his very life and food. If one part of this machine breaks down, the worker is at the mercy of the system. Thus, he seeks security, blindly and fearfully. On the threat of strikes which would cut him off from sustenance, he can be transformed into a puppet — and this is avowedly the method of the Communist, which has been observed in the many work stoppages of the past few years. Inevitably from the modern mania for security must arise the benevolent government — the welfare state. Such a system as the Labour Party in England instituted, must of necessity act to the detriment of the individual. We all know that the child who is tied to his mother's apron strings, who is not taught to fend for himself, lacks initiative. He is incapable of independent action, a prey to any strong personality. Now a man can be free in the letter of the law, and yet be unable to realize this freedom because his will is subordinated to that of another. This is where our mania for security is leading us — to the point where, in return for a measure of security, we sell liberty by stifling our ability to think independently of the government.

In conclusion, I should like to sum up the arguments in favour of the affirmative which my colleague and I have presented. We admit that there have always been abuses in democracy, since it is a human institution; but we have proven that liberty is being lost through the apathy and ignorance of democrats themselves. We have pointed to the educational system, to trade unions, to the public indifference, to the argument of history, in support of our stand. We have shown that materialism, with its concomitant loss of idealism, hesitancy to make sacrifices, and loss of individuality, is rob-

bing us of liberty. We conclude, as surely our honourable opponents will also conclude, that the proposition must stand.

### Negative

THE AFFIRMATIVE has based its contention on the grounds that the struggle for liberty is being lost at home through the threat of materialism. By this materialism, which they contend is running rampant in our civilization, we are losing our sense of ideals, we refuse to make sacrifices for these ideals, and we are losing our individuality. We of the negative will show that these three affirmative contentions are false and therefore the struggle for liberty is not being lost at home.

The concept of liberty is an ideal upon which we of the Western Democracies base our society. However, it is not true to say that this concept is solely ideological. Liberty is a delicate balance between an ideal and a reality. It becomes a reality when the ideal is put into practice as it is in our western civilization. The term "liberty" is abstract, but the freedom we enjoy under this terminology is not abstract or theoretical in any way. We may hesitate to concern ourselves with theoretical discussions on liberty, but we do not hesitate to concern ourselves with the benefits or any threat to the benefits derived from our practice of liberty. We are today just as concerned with our freedom as we have been at any time in the past.

The affirmative contends that we have lost our desire to protect our freedom through a refusal to fight for, or to sacrifice for, our ideals. However, in less than a half a century we have fought twice to protect our way of life from the threat of dictatorship. Does this seem to be the way in which a decadent or unconcerned society would behave itself? The affirmative has given us the example of lagging defence production as an illustration of our disinterest in protecting our freedom, and from this concluded that we are losing or falling back in our struggle for liberty. However, does not the very fact that we realize this shortcoming and at present are doing everything in our power to correct our defence lag illustrate that our civilization is not unaware of its danger? That we are at present

bridging this gap is conclusive evidence that the struggle for liberty is not being lost at home through hesitancy and failure to realize our responsibility. Today, more than before, we of the Western Nations realize our responsibility as the protectors of freedom-loving nations; we realize that other peoples look to us as the champions of democracy, and in this rôle we are not shirking our assignment. Through the Marshall Plan we are aiding the peoples of Europe, and through the United Nations we are fighting aggression in Korea. Do these actions indicate a people uninterested in freedom?

The third contention of the affirmative — that Canadians and Americans are losing their individuality — is an interesting subject for debate in itself; however, it is a contention with which I must disagree. Of necessity, in a society so complex as is ours today, there must be specialization in many fields since no one person or group of persons can hope to grasp the intricacies of all the fields which make up modern society. Merely because a man specializes in one field cannot lead to the conclusion that he is losing his individuality. He still retains the ability to think for himself; he can choose his forms of recreation and read the books he desires. He can develop his own opinions and, if he so desires, can extend his specialization to other fields. The specialist is not compelled or forced into a certain field; rather he chooses the field in which he is most interested. Such a selection does not constrict his individuality but instead enlarges it.

In a similar manner we may discard the affirmative proposition that specialized scientific education is destroying our basic concepts of liberty. We of the negative disagree with such a proposal for two reasons. First, the development and advances made in such fields as transportation, communications, and industry, require equal advances in technology. Therefore, education in the sciences is a necessity. None the less, because of this great requirement for scientific training it does not necessarily follow that we are ignoring the liberal arts. Rather the necessary increase of emphasis on the practical sciences has made us more

aware of their existence. Second, it is true that scientific education is expanding, but it is fallacious to say that because of this expansion the liberal arts are being ignored. In concluding this argument it must be realized that we are no longer living in the seventeenth or eighteenth centuries where the sciences were regarded as superstitions or witchcraft. This is the twentieth century, an age of machines and inventions, where scientific training is a vital requirement in order to keep our complicated society functioning in the way we expect.

In summary, the negative rests its case on the fact that the affirmative arguments are erroneous. We do not feel that our society is decadent, that

our citizens do not care, or that we are indifferent to our freedoms. On the contrary, we contend that we are most alert to the dangers which confront our way of life and that we are making progress in protecting our liberty. Of necessity we are specialized, of necessity we are scientific, but this does not mean we are losing our ideals or our individuality. We of the negative have shown that our opponents have based their proposition on false arguments, that, in fact, the opposite is true; and therefore the only logical conclusion, and surely the correct one, is that the Western Nations are not losing their struggle for liberty at home.

## Spreading the "Gen"

Which is the best way to spread information among a small community? The grape vine? The old-boy network? Canteen chat?

Here, at Summerside, we valiantly spread the gen by means of a sound-truck. May I illustrate . . .

You are at work and very much engrossed with the matter in hand. Suddenly, from outside, comes a loud sound. The sound battles with the vagaries of the wind. It beats against your closed windows.

**"Waw raw rah rom bar by . . . 'teen hundred hours raw rah . . . don't forget . . . gree grah raw!"**

You get up from your chair and open a window. The wind from the Gulf enters gleefully and scatters your papers over the floor with impish abandon.

You lean out and you see the rear of a truck. On top of the truck are two loud speakers. The truck is moving down the road. It stops about twenty yards away and the sound opens up again.

**"WAW RAW RAH ROM BAR BY . . . 'TEEN HUNDRED HOURS RAW RAH . . . DON'T FORGET . . . GREE GRAH RAW!"**

You are missing something, and it might be important. You ask a colleague what it is all about. He doesn't know.

You ask someone else. He doesn't know either. He is not interested. His entire interest is centred exclusively on the new W.D.

You hurry to the door to peer out. The truck is now a considerable distance away, and its message comes to you in waves like a bad radio reception.

**"Waw raw rah rom bar by . . . 'teen hundred hours raw rah . . . don't forget . . . gree grah raw!"**

You have an urge to run after the truck, like a child running after the Pied Piper of Hamelin. But you don't. You just stand and watch it in anger and frustration. And, as it gets further and further away, you hear occasional faint "wah-rar-rahs" as they are wafted to you by the inconstant breeze.

You give up.

Later, when you return to your Married Quarters, your better half says — "That sound truck came round while I was having a bath. Couldn't hear because of the taps running and the child yelling. What was it? Important?"

You reply that you don't know either, and you go to the bathroom to take a shower. You turn on the taps . . .

No water! It has been cut off!

You know now.

*(Le Baladeur in "The Albatross": R.C.A.F.)*

# ROYAL CANADIAN AIR FORCE

# Association



(This section is prepared by National Headquarters of the R.C.A.F. Association, not necessarily reflect the official opinions of the R.C.A.F.)

## RECEPTION IN OTTAWA

On the evening of 21 January, in the R.C.A.F. Officers' Mess, Ottawa, Air Vice-Marshal G. E. Brookes, C.B., O.B.E., was host at an informal reception for 17 members of parliament who served in the Air Force in either of the World Wars. Heading this group was the Hon. Lester B. Pearson, Minister for External Affairs.

*Ottawa Reception. Front row (l. to r.): W. Benidickson, Hon. L. B. Pearson, Air Vice-Marshal G. E. Brookes, Hon. Brooke Claxton, Air Marshal C. R. Slemmon, Hon. Hugues Lapointe, E. R. Hopkins. Back row (l. to r.): Angus MacLean, Rodney Adamson, René Jutras, D. R. Mitchener, H. P. Mong, R. F. Hanna, Paul Hellyer, Dr. F. G. Robertson, A. B. Weselak, Colin Bennett, Walter Dinsdale, A. H. Hollingworth.*

In addition to the members who were airmen, the National President was honored to have as guests the Hon. Brooke Claxton, Minister for National Defence, and the Hon. Hugues Lapointe, Minister for Veterans' Affairs.

Receiving the guests with Air Vice-Marshal G. E. Brookes was the Chief of the Air Staff, Air Marshal C. R. Slemmon, C.B., C.B.E. A large number of other senior Air Force officers and members of the R.C.A.F.A. in entertained the visitors.

As is to be expected when a group of old timers get together, reminiscence ran high and doubtless ran riot too! The occasion was





*No. 427 Wing. Standing (l. to r.): Capt. Hans Mol, Holland; Sgt. Jean Jacques Donnot, France; George Brown, R.C.A.F.A.; Capt. Kees Van Slingelandt, Holland. Seated (l. to r.) Doug Wilson, No. 427's president; 3rd. Lt. Ali Malkdere, Turkey; Sgt. Jean Ginestet, France; Pilot Officer Richard Cavill, Australia, with the R.A.F. ("London Free Press" photograph.)*

in the history of the Association, and was pronounced by every guest to have been one of the most enjoyable informal functions that they had attended.

### WING NEWS

Wings of the Association, near stations where N.A.T.O. training is being carried out, enjoyed providing hospitality and entertainment for the trainees who were away from home at Christmas time.

**London.** You don't have to speak the language — as members of No. 427 Wing found out when they entertained airmen from five countries at their clubrooms. Dancing, singing, darts, and refreshments are international pastimes; so little conversation was necessary.

All visitors were full of praise for the hospitality of Londoners. Most of them had expected a lonely Christmas on the station, but the invitations showered in and they had few free moments.

**Moose Jaw.** Through the efforts of J. Thurgood, of No. 601 Wing, arrangements were made for the Christmas entertainment of N.A.T.O. trainees at Moose Jaw. Our report states that more invitations were received than could be accepted.

**Saskatoon.** President Marion Graham reports that a Christmas party given by No. 602 Wing for aircrew trainees at R.C.A.F. Station Saskatoon was well attended, and also that citizens of Saskatoon opened their homes on Christmas Day to the N.A.T.O. boys.

It is regretted that reports from other centres, where similar work was done, have not come in yet.

**Toronto.** Early in the New Year, the members of the executive of No. 408 Wing visited the Home for Incurable Children. The occasion was in the form of a delayed Christmas Party. The children were treated to plenty of hot dogs, ice-cream, etc., and presents were distributed to every child.

*G. Cattiny (left), of No. 306 (Maple Leaf) Wing, accepts gift of 38 long-playing records from Mr. S. D. Roberts, of Compo Co. Ltd. Records are destined for the new radio broadcasting station at No. 30 Air Materiel Base (R.C.A.F.), England.*



Those attending were deeply impressed by the cheerfulness of the children, and Wing members plan to do more hospital visiting through 1954.

### OPERATION RECRUITING

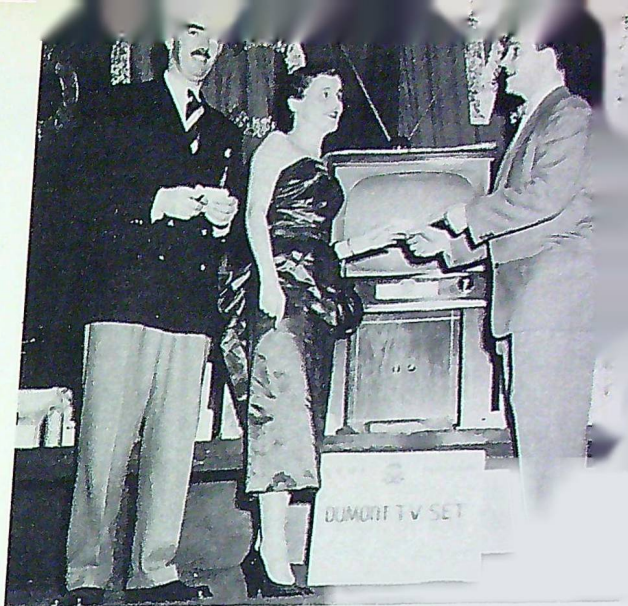
Seven Wings of the Association made 28 contacts with prospective applicants for enlistment in the R.C.A.F. These contacts resulted in seven enrolments.

### A WING IN THE UNITED STATES?

The following advertisement appeared recently in the New York papers:

"A group of U.S. citizens who served with the R.C.A.F. part (or all) of the time during World War II are attempting to start a N.Y.C. Wing of the R.C.A.F. Association. If successful, it will be the first U.S. Wing of the organization. We would like to hear from any men or women in the N.Y.C.-Brooklyn area who might be interested in joining the contemplated Wing. They can write to me (J. L. Scherer) at: Room 1901, 67 W. 44th St., New York 36, N.Y. We plan to hold regular monthly meetings, arrange for guest speakers, motion pictures, and hold social get-togethers."

We extend our congratulations and best wishes to Mr. Scherer for his efforts.



*Paul Allan, of Radio Station CJAD, checks the winning ticket held by Miss Marie Gaudet, who received a T.V. set at the Xmas Dance of No. 305 (City of Montreal) Wing.*

*National President visits Sherbrooke. Seated (l. to r.): F. Edwards, President of No. 303 Wing; Air Vice-Marshal G. E. Brookes; Flying Officer C. O. Hunt, director of Training Command Band. Standing (l. to r.): J. Gray, Secretary, R.C.A.F.A.; Sqn. Ldr. F. W. McCrea, C.O. of Sherbrooke Radar Unit; Sqn. Ldr. F. G. Lord, C.O. of Air Cadet (Rotary) Squadron.*



## NO. 900 (ARdua) WING

27 February, 1954.

The General Secretary,  
R.C.A.F. Headquarters.

Dear Sir:

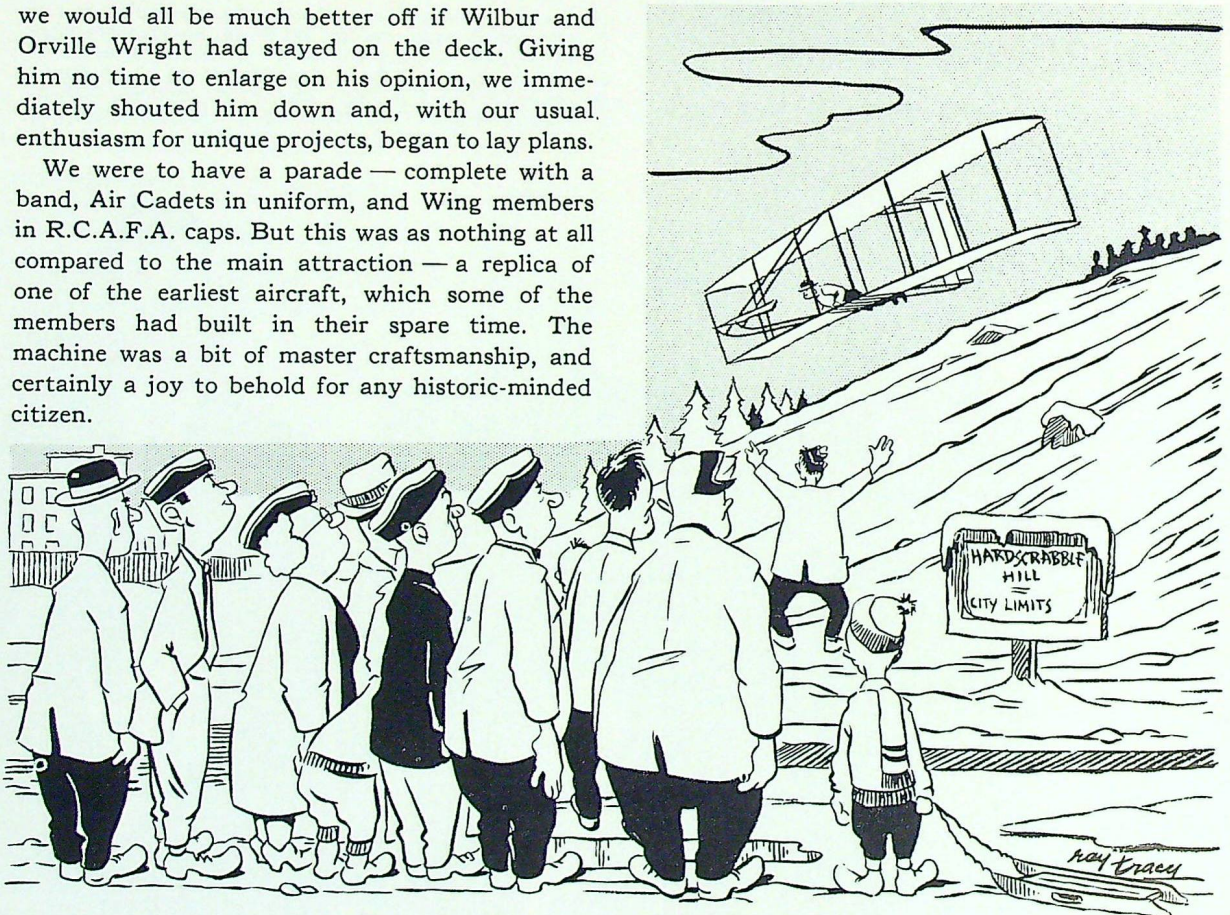
You may have heard rumours about one of our recent activities; so, to keep the record straight, we felt it would be a good thing for you to have on file a few of the facts about a little programme we laid on to commemorate the 50th anniversary of powered flight.

The decision to hold some sort of celebration was practically unanimous, with every member of No. 900 (Ardua) Wing — save one — voting in favour. The dissenter got to his feet and said that we would all be much better off if Wilbur and Orville Wright had stayed on the deck. Giving him no time to enlarge on his opinion, we immediately shouted him down and, with our usual enthusiasm for unique projects, began to lay plans.

We were to have a parade — complete with a band, Air Cadets in uniform, and Wing members in R.C.A.F.A. caps. But this was as nothing at all compared to the main attraction — a replica of one of the earliest aircraft, which some of the members had built in their spare time. The machine was a bit of master craftsmanship, and certainly a joy to behold for any historic-minded citizen.

It was felt that, rather than have the 'plane simply put on display somewhere, a spectacular appearance would add greatly to the show. So, we decided to take it to the top of Hardscrabble Hill, where it could be released to roll down into Main Street, with one of the builders lying flat on the wing much like Mr. Wright did during his flight. In the meantime, the parade was to form up out of sight behind the brow of the hill, and come charging into view as soon as the 'plane rolled to the bottom.

Well, sir, it was quite an occasion. About 90 per cent of the townspeople turned out to watch. It was a grand day, with a stiff breeze blowing straight up the hill — which, by the way, we were a bit



afraid of, as we thought it might impede the progress of our aeroplane.

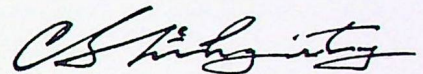
However, we gave her a good shove and she started to roll, with the paid-up member who was acting as pilot (wearing a bowler hat to add a bit more old-time flavour) hanging on for dear life, as it is quite a steep hill. He was doing a remarkably good job of keeping to the middle of the street, even though she had started to pick up a fair amount of speed, when, about half way down, lo and behold! she gave a lurch and suddenly became airborne.

What cheering from the assembled hordes! The spectators thought it was all part of the show, but we of the Wing could only imagine the feelings of the pilot. However, he was able to hang on and proceeded to give one of the greatest demonstrations of gliding that I have ever seen. He went zooming all over the place, like a sea-gull soaring.

He apparently had a bit of control, but not enough to bring her down. Twice he had the wheels just about to touch when he was snapped up by another gust and away he went again. Finally, just as one of the members suggested getting his gun to bring him down, he pranged in the fountain in the square, which was, fortunately, underneath him when the machine got caught in a down-draught.

The pilot was wet but not injured. The 'plane was damaged, but not beyond repair. The pilot says he hopes he's not around when the 100th anniversary is observed.

Yours, with Air Power,



(Corresponding Secretary, No. 900 (Ardua) Wing.

#### NOTICE TO ALL WING MEMBERS

May we remind all Wing Members that their renewal dues are payable by 1st April. To ensure continued receipt of "The Roundel", please pay your 1954 dues promptly.

#### MODERATION

Moderation is the silken string running through the pearl chain of all virtues. (Joseph Hall: 1574-1656.)

# Letters to the Editor ★ ★ ★

## CONTROL REVERSAL

Dear Sir:

In his article, "Aircraft and the Sound Barrier," published in your November 1953 issue, Mr. W. R. Hilton states:

"By the way, contrary to the recent film, no reversal of control is found on wings or control surfaces at supersonic speeds, provided they are sufficiently rigid and thin. However, if the control surface can bend the rear wingspar, it may cause a reversal of control."

Now, in "The Readers' Digest" for January 1954 was an article (condensed from "The New York Times" and written by Bliss K. Thorne, who rode in a Starfire as observer) from which I quote the following:

"The controls reverse themselves at that speed; if a pilot pushes the stick to the left to stop a spinning to the right, the 'plane instead turns farther to the right. The Starfire started winding clockwise, its wings flapping. Major James halted the right-hand spiral by pushing the stick farther to the right. Just as abruptly as the buffeting began, it stopped. The shaking stopped and we sailed along smoothly . . . but still hurling straight down.

"Then the pilot reduced the jet engine's power to bring it back to the subsonic side of the barrier. There was no buffeting this time, but the pilot did have to reverse the controls again to steer the ship".

Would you please explain the seeming difference of opinion between the two articles? Surely "bending of the rear wingspar" could not be the case with the Starfire?

Edward Phillips (R.C.A.F.A.)

(We have submitted Mr. Phillips' letter to officers in our technical branch, who advise us that, since the R.C.A.F. has carried out no tests on the Starfire, they are not in a position to give an authoritative explanation of the discrepancy between the two articles.—EDITOR.)

## CORRESPONDENT SOUGHT

Dear Sir:

I have the honour to be a Regular Service member of the R.A.F. and am at the moment waiting to go overseas. I always read "The Roundel" whenever I get hold of a copy. Most of the time it is on circulation round the offices.

I always had great admiration for the Canadian people. During the last war, in Malta, when my island home was being showered by bombs, I made the acquaintance of several R.C.A.F. pilots who were serving in squadrons stationed on the island. I wish to thank them for what they did for me and the rest of Malta's people. Early next May a monument is being unveiled by Her Majesty in honour of the airmen who lost their lives in the Mediterranean during 1940-45.

I have been in England and serving in the R.A.F. since 1950, and am intending to settle in Canada as soon as my overseas tour of duty is ended. Meanwhile, I would very much like to get to know someone in Canada before I leave England for

the Middle East. I am 22 years of age — and, if I may hint, would prefer a female correspondent.

L.A.C. J. Vassallo (4051760),  
Station Headquarters, R.A.F.  
Shawbury, Salop.,  
England.

## P.M.Q.s ARE FREE?

Dear Sir:

With reference to the December 1953 issue of "The Roundel," your answer to question 19 of "What's the Score?" is in error.

For married quarters, home-loving members of the R.C.A.F. are required to pay nothing. A serving member is not entitled to subsistence allowance, is not entitled to full marriage allowance, but *is* entitled to ration allowance if occupying public married quarters. Therefore a serving member occupying public married quarters is not required to pay his subsistence allowance and \$10.00 of his marriage allowance less his ration allowance, because, having no entitlement to these particular allowances, he does not receive them.

Sqn. Ldr. C. E. F. Underwood,  
R.M.C.

(Sqn. Ldr. Underwood's letter, forwarded to one of the pundits in Accounts, has elicited the following reply: "In theory, Sqn. Ldr. Underwood is right, but from the layman's viewpoint, I feel he is wrong. It must surely be admitted that, as soon as some lucky chap is allotted P.M.Q.s, his first question — even before he considers such matters as size, etc. — is 'What's it going to cost me?' Assuming that he was receiving subsistence allowance and full marriage allowance before his occupancy of P.M.Q.s, one cannot argue that his take-home pay would not be less once he is ensconced in his public nest. Most people consider a smaller-than-usual pay cheque to be the result of a 'cost' somewhere along the line." — Being definitely in the lay category ourselves, we agree with our pundit.—EDITOR.)

## Answers to "What's the Score?"

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

Listen a hundred times, ponder a thousand times, speak once. (Turkish proverb.)

## A NOTE FROM R.C.A.F. STAFF COLLEGE

The inclusion of a paper on Air Power in the Flight Lieutenants' qualifying examination, and the emphasis on Air Power in the Staff College entrance examination, has started many officers reading and thinking about air warfare and air strategy.

Not only are officers learning more about the operational rôles of their own Service and the history of military aviation, but they are also discovering solid facts to use in argument with their brother officers of the Army and Navy, some of whom seem to have studied every campaign from Waterloo and Trafalgar to Korea.

The literature of Air Power is not large, but serious articles on the subject are being published every month. Those who want to keep up to date with the latest thinking and also to pick up material which may be helpful in future examinations, should get into the habit of reading such articles in their leisure time.

With these keen types in mind, the Staff College has recommended a number of magazines to which Officers' Messes might well subscribe. Among the best are the "Journal of the Royal United Service Institution" and "Air Power" (formerly the "R.A.F. Quarterly") from Britain, and the "Air University Quarterly Review" from the United States. "Flight," "The Aeroplane," "Aeronautics," and "R.A.F. Flying Review," are British magazines which often contain good articles; useful American magazines are "Flying" and "Aviation Week"; and in Canada we have "Aircraft" and "Canadian Aviation."

*The*  
**ROUNDDEL**