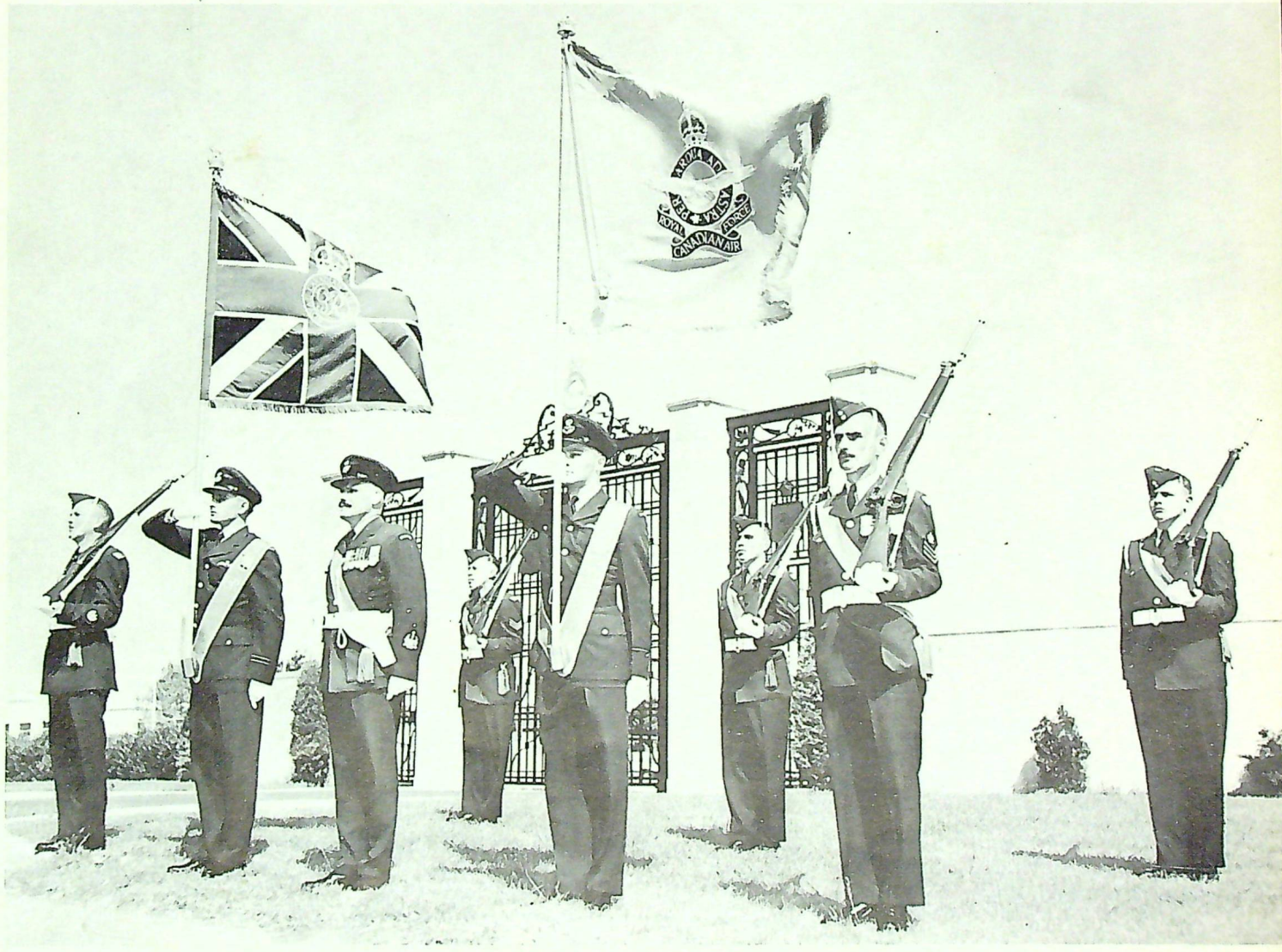


The **CROWNDDEL**

Vol. 10 No. 6
AUGUST 1958



ROYAL CANADIAN AIR FORCE

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THIS MONTH'S COVER



The Royal colour party for the Royal guard of honour which was inspected by Princess Margaret at Comox 16 July: Front row, l. to r.: W.O.2 J.R. Bone, Flt. Lt. K.R. Stacey, W.O.1 E.E. Crisp, F/O D.G. Waechter, Flt. Sgt. G.W. Green. Back row, Sgt. J.M. Scale, Cpl. T.T. Townsend, L.A.C. D.B. O'Neil.

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ON

John Griffin Library

THE

BREAK



As we go to press Her Royal Highness Princess Margaret is touring Canada, winning friends at every stop. The Princess is travelling in the same R.C.A.F. aircraft that transported her sister the Queen and Prince Philip during the airborne portions of their visits in 1953 and 1957.

At the controls of the C-5 is Wing Commander W.K. Carr, D.F.C., commanding officer of No. 412 (Transport) Squadron. Pictured below are he and his crew - who have the honour of carrying Princess Margaret a total distance of more than 3000 miles, from Vancouver, B.C., to Yarmouth, N.S. Pages 2 and 3 carry additional coverage on the R.C.A.F.'s participation in this latest Royal Tour.

Front row (l. to r.) Wing Cdr. W.K. Carr, D.F.C., captain; Flt. Lt. D.T. Thompson, co-pilot; F/O R.T. Brown, navigator; Flt. Lt. J.E. Perron, radio officer. Back row: Flt. Sgt. A.J. Cooper, D.F.C., flight engineer; Flt. Sgt. E.C. Grose, movements controller; Sgt. R.E. Cameron, 2nd flight engineer; Cpl. J.C. Lefebvre, airframe technician; Cpl. P.R. Atkinson, 2nd steward; Sgt. J.O. Mignault, steward; Cpl. L. Toth, electrical technician.



Known today as the V.I.P. transport unit of the airforce, 412 has a distinguished career dating back to the dark days of 1941 in Britain. The first of a two-part history of 412's wartime record, when its *Spitfire* pilots were tabbed as the "fighting falcons", begins on page 4.

* * *

REPORT of the R.C.A.F. Association's National Convention held in Edmonton in June begins on page 16. The assembled delegates represented more than 10,000 paid-up members in 75 Wings.

This nine-year-old organization is making a growing contribution, not only in support of the active force, but in civic affairs. One example: over 40 Air Cadet Squadrons are sponsored by R.C.A.F.A. Wings. For the past six years the Association has organized Battle of Britain Sunday observances in communities across the nation.

Next year the Association undertakes its first book-publishing venture: a history of the R.C.A.F. being compiled by Leslie G. Roberts. Tentatively titled "Winged Argosies", this book's publication is timed to coincide with the Golden Anniversary of Powered Flight in Canada and the 35th birthday celebrations of the R.C.A.F. Incidentally, see page 29 for a further announcement regarding preparation for this big occasion.

* * *

WE'VE been doing a good deal of browknitting and headscratching these past few months in our little red brick lean-to on Victoria Island. As you may have noticed, "The Roundel" has been wallowing along through uncharted seas without even the occasional caustic comment from Sgt. Shatterproof, ret., to let us know how appalled the boys in the field are each month when they see the magazine.

Some of the big commercial slicks spend huge sums of money conducting readership surveys across the country. We don't have the resources to do that sort of thing, naturally, but we do try to keep our ears open for your reaction whenever we visit stations or individuals and we welcome your criticisms, especially if they are constructive.

One new feature we hope will prove popular is a series beginning this month ("Operation Deep Freeze", page 20) where officers and airmen are given the opportunity to describe some service project or incident they (and the editorial committee) feel would be of interest to the majority of readers. Your contributions are invited, preferably not more than 3000 words and accompanied by photographs.

The Editor

Our Salute to



Wing Cdr. W.K. Carr hoists the personal standard of H.R.H. Princess Margaret from the cockpit of the C-5.

FOR THE second time within a year Royalty has visited Canada, and the R.C.A.F. has had a major share in making the tour precise and colourful. H.R.H. Princess Margaret has seen more of Canada during the past month, from the windows of the C-5 and by other modes of transportation, than many natives do in a lifetime.

Literally hundreds of airforce personnel have been intimately involved in this cross-country journey. The C-5 has been accompanied by a *North Star*, captained by Flt. Lt. R.H. Raike, carrying members of the princess's party. Both aircraft have maintained exacting schedules, beginning with

the short hop from Vancouver to Victoria on 12 July and concluding with the final flight from Fredericton to Yarmouth on 9 August.

Three special R.C.A.F. Guards of Honour and four Airforce Bands have played prominent roles in widely separated parts of the country. Training of personnel began months ago and the whole organization involved scores of individuals who did not even get a glimpse of the charming royal visitor.

On 16 July at R.C.A.F. Station Comox Princess Margaret inspected a 100-man Guard of Honour, commanded by Flt. Lt.



Parades and youngsters are inseparable. At R.C.A.F. Station Trenton, where one of the Royal guards of honour trained, 10-year-old Alan Toomey listened in as two members of the colour party discussed the "spit and polish" preparations. The airmen are Flt. Sgt. G.W. Green (left) and W.O.1 E.E. Crisp.

The guard readied at Trenton was inspected by Princess Margaret at R.C.A.F. Station Comox and later took part in B.C. centennial celebrations.

Official host during the B.C. portion of her tour was the province's lieutenant governor, the Hon. Frank Ross, who escorted the princess on her visits to several B.C. cities and towns. They are seen here driving from the airport to Victoria on 12 July.



the Princess

D.C. McIlraith, and the Royal Colour Party pictured on this month's cover. This guard trained at Trenton and was composed entirely of recent recruits from the R.C.A.F. Manning Depot at St. Johns, P.Q. The Tactical Air Command Band from Edmonton, under the baton of Flt. Lt. C.L. Friberg, played the Royal Salute.

A guard which trained at St. Johns had the honour of being reviewed twice by the princess - first in Toronto on 31 July and again in Ottawa on 5 August. The Training Command Band from Downsview, led by Flt. Lt. C.O. Hunt, played at the Toronto ceremony. Guard Commander was Flt.

Lt. G. V. Frostad. In Ottawa the R.C.A.F. Central Band, commanded by Flt. Lt. L.D. Corcoran, played the the Royal Salute, while Flt. Lt. M.V.C. Lalonde led the guard.

The third 100-man guard, made up of personnel from R.C.A.F. Station Greenwood and commanded by Flt. Lt. A.B. Higginson, was positioned at Yarmouth airport for inspection just before the princess's departure for her return to Britain. Playing the Royal Salute here was a band of volunteer musicians from R.C.A.F. Stations Greenwood, Summerside and Chatham, under the baton of Sgt. E.A. Schatte.



Arrival at Pat Bay.

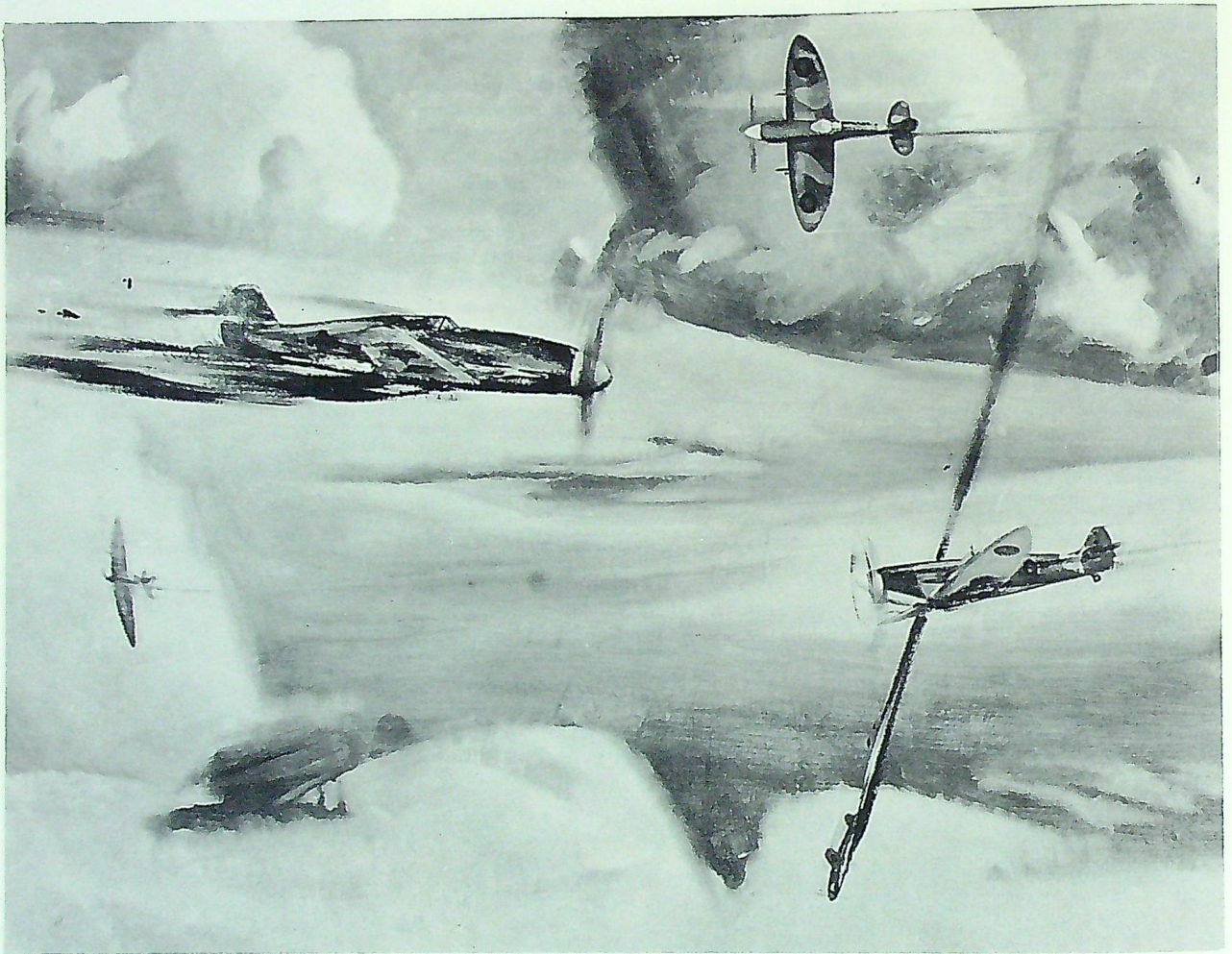
Princess Margaret and Defence Minister G.R. Pearkes enjoy the R.C.A.F. fly-past at Victoria, B.C. (Vancouver Province Photo.)

Welcome to Comox was extended by Group Capt. R.F. Miller, station C.O. Standing at right of C-5 ramp: Defence Minister Pearkes and Air Cmdr. A.D. Ross, 5 Air Div. Commander.



THE STORY OF

Spitfires and Messerschmitts battle above Falaise, July 1945.



OIL PAINTING BY FLIGHT LIEUTENANT R. S. HYNDMAN

R.C.A.F. Second World War Artist

NO. 412 SQUADRON

PART ONE

BY FLYING OFFICER L. R. N. ASHLEY

Air Historical Section

ONE OF the longest and most successful histories of a Canadian fighter squadron in the Second World War is that of No. 412, the squadron that proudly bore the badge of the flying falcon. Sixteen D.F.C.s, seven bars to that decoration and four mentions in despatches testified to this unit's outstanding record. Its *Spitfires* accounted for 106 *Luftwaffe* aircraft destroyed, 11 more probably destroyed and 46 damaged in combat.

The story began in the trying days of June, 1941. Two Canadian *Hurricane*-equipped squadrons (401 and 402) and one R.C.A.F. *Spitfire* squadron (411) were then stationed at Digby, Lincolnshire, in 12 Group (R.A.F.). On the last day of that month Canada's third *Spitfire* squadron overseas (403 had been the first Canadian fighter unit formed *ab initio* in Britain) was created at Digby.

Squadron Leader C. W. Trevena became the first officer commanding 412 Squadron. He had joined 120 (Bomber) Squadron in the Auxiliary back in 1936 as an AC2 and had been commissioned soon after receiving his private pilot's license the next year. Leaving the accounting department of the *Regina Leader-Post* to go on active service when the war broke out, he had transferred to fighters soon after arriving in England. By the time he assumed command of the fledgling Falcons he had already made his mark in the Battle of Britain.

Sqn. Ldr. Trevena was followed by a succession of fine OCs in 412. The others were:

S/L J. D. Morrison	12 Nov 41—24 Mar 42,
S/L R. C. Weston	1 Apr 42—28 Jul 42,
S/L C. J. Fee, D.F.C.	28 Jul 42—27 Nov 42,
S/L F. W. Kelly, D.F.C.	27 Nov 42—25 Jun 43,
S/L G. C. Keefer, D.F.C. & Bar	25 Jun 43—12 Apr 44,
S/L J. Sheppard, D.F.C.	12 Apr 44— 2 Aug 44,
S/L D. H. Dover, D.F.C. & Bar	2 Aug 44—28 Jan 45,
S/L M. D. Boyd, D.F.C.	29 Jan 45—30 May 45,
S/L D. J. Dewan	30 May 45—21 Mar 46.

Sqn. Ldr. Morrison was killed in action in an attack on the marshalling yards at Abbeville. Sqn. Ldr. Sheppard, crashlanding behind enemy lines and wounded in both legs, escaped his captors and reached Allied lines nine days later with the loyal assistance of the French underground.

SPITFIRE ACES

Throughout its long and successful tour overseas 412 Squadron flew all the best-known marks of R. J. Mitchell's famous *Spitfire*. The pilots began training with the 2A, and it was with this mark that the unit became operational on 30 August 1941. A couple of months later they adopted the 5B modification and flew this until the 9E replaced it in November 1943. After the end of the war they were equipped with *Spitfire* 16s and later, as occupation forces, with *Spitfire* 14s.

It was with these sturdy aircraft that the aces of the Falcon Squadron wrote their names large in the annals of Canada's fighting airmen. Flight Lieutenant Don Laubman, D.F.C. and Bar, destroyed 14 enemy aircraft and shared two

more. Flt. Lt. W. J. Banks, D.F.C. and Bar, scored 9-3-1 and Flying Officer D. R. C. Jamieson, D.F.C. and Bar, destroyed six German fighters. Other names high in the long list of 412's top scorers were Flying Officer P. M. Charron, Flt. Lt. R. I. A. Smith (who won a D.F.C. and Bar for his gallantry at Malta and on the Continent), Sqn. Ldr. M. D. Boyd, D.F.C., and Flt. Lt. C. W. Fox, D.F.C. and Bar.

In rhubarbs, rodeos and ramrods, in sea sweeps and armed reconnaissance, in dive-bombing and army co-operation, in tedious patrols and fierce dogfights in the skies of France, these men wrote history with bullets and bombs. They won honours in the defence of Britain, over the Channel and the North Sea, over the heart of Hitler's "impregnable" *Festung Europa*. They were there at Dieppe, over the beaches of Normandy, over Arnhem, over the Rhine.

* * *

Once the war in the air had been won, the invasion could be launched. A foothold gained on the Continent, the ground forces began their push across France. The fighter squadrons, which had helped to make that initial landing possible by months of "softening up" the enemy and disrupting communications, then complemented and protected the army's gains with invaluable air support. The Falcon Squadron alone, from "D"-Day to the end of March 1945, bagged 230 mechanized transports, damaged another 574, destroyed 20 locomotives and 27 carriages (while crippling 72 and 75 of each respectively) and put nine tanks out of commission. They cut vital rail lines in 86 places. They harassed

enemy troops, battered supply lines. They rained down more than half a million pounds of high explosives on important targets, blasting communications and hardpressing the foe our armies had successfully met and driven into retreat across France and behind the borders of the Reich.

It was a tale of sustained courage and devotion, but here and there flashes of remarkable personal valour are seen even against the bright background of the collective effort. On 13 October 1941 Sgt. Edward N. Macdonell sprayed an *Me.109* in a patrol from Boulogne to points south of Hadelot, chalking up the squadron's first kill. From then until 30 April 1945—when 412 added the last five victims to its scoreboard before hostilities ceased—the Germans knew the Falcons as a force to reckon with. Highlight of all the outstanding feats was the Squadron's record of 26 and 27 September 1944. The *Luftwaffe* was out those days in unaccustomed strength in the Nijmegen area—and 13 pilots of 412 destroyed 30 enemy aircraft, probably destroyed another, and damaged seven more—an amazing record for two days in the history of a single squadron.

FIRST OPERATIONS

No. 412 received its first two aircraft about a week after its creation on paper. On 7 July 1941 Sgt. L. W. Powell, a peacetime butcher in Edmonton, logged four local flying hours and became the first Falcon to soar. The following day five more *Spitfires* arrived and all available pilots were practising circuits and bumps. The squadron's first flight was rapidly taking shape, albeit one of the spanking new 'planes was badly bent the next morning by a sergeant pilot who overshot the runway and tried to enter an air raid shelter with it.

When the intermittent rain and persistent ground mists of Lincolnshire cancelled flying, the pilots gathered for instruction in the handling of the dinghy and the Tommy gun, aircraft recognition



Sgt. E.N. Macdonell . . . first kill, 13 Oct. 1941.

exercises, or films on intelligence and aerial combat techniques. Those formerly with *Hurricane* squadrons were especially anxious, however, to "get checked out" on the *Spits* and on 30 August Sqn. Ldr. Trevena's unit was signed out as "Operational State 1."

The squadron immediately commenced operational patrols, but it was not until 13 October that the Falcons chalked up their first victory. Wing Commander Jamieson led 266, 411 and 412 Squadrons in a patrol from Boulogne to points south of Hadelot. Flying Red 2, Sgt. Macdonell became detached from the main force on the return journey. As he neared the English coast he observed two *Me.109s* below him and, attacking out of the sun at 20,000 feet, his first burst spattered the cockpit of one of the *Messerschmitts*. Sgt. Macdonell followed it down in a dive, streaking after the smoking German aircraft at nearly 600 miles an hour. He blacked out completely as he pulled out of his screaming dive and regained consciousness to find himself flying straight and level at 400 feet above the water. Jerry was nowhere to be seen, but Wing Cdr. Jamieson passed over the spot a short time later and reported a large oil slick on the sea. This was

regarded as confirmation, 412's guns not yet having been equipped with cine-guns to record their victories, and the Falcons marked up their first score high on the board, leaving room for many more.

On 20 October 1941, 412 made the first of nearly 30 moves that were to carry them all the way from Digby to Utersen, Germany. This one was very short, just a few miles to Digby's satellite field at Wellingore, Lincolnshire. There they operated for the winter with their new *Spitfire* 5Bs.

On 25 October there was great excitement in the squadron over Sgt. O. F. Pickell's return from the Rolls-Royce works at Hucknall. One of the *Spit* 5Bs had been fitted out with a novel negative "G" carburetor and, as well as flying it back for them, Pickell (who had been an engineering student at the University of British Columbia before the war) was able to explain its mysteries to the squadron. The device prevented the engine from cutting out when the control column was jerked sharply forward. The *Spitfires* had previously had some difficulty in manoeuvring, because of this, against the German 'planes whose injection carburetion obviated this difficulty. No 412 was the first squadron in Britain to be fitted with this gift from the "boffins".

FIRST CASUALTIES

In November patrols of the French coast became common. It was on one of these that the squadron suffered the first of its battle casualties. Flt. Lt. C. Bushell (acting as squadron commander), Pilot Officer K. R. E. Denkman and Sgt. Pickell were all lost in action. Pickell's last report was: "Have used up all my ammunition. Am going home. Have got one." He was never heard of again.

On 11 December Pilot Officer John Gillespie Magee, Jr. (author of the much-quoted sonnet *High Flight*) was killed when he collided in cloud with an *Oxford* from

Cranwell. Magee arrived from 53 O.T.U. to join 412 at Digby on 23 September. An American citizen, he was born of missionary parents in Shanghai, educated at Rugby, and brought to the United States in 1939. The next year, at the age of 18, he gave up a scholarship to Yale University to come to Canada and join the R.C.A.F.

Pilot Officer Magee had recently returned from a high-level flying course at Farnborough. There he received the inspiration for his poem and scribbled it on the back of a letter to his mother. Since it ranks in the literature of the Second World War at least as high as did the Canadian Macrae's *In Flanders' Fields* in the First, and since it expresses so well the feelings that must have been felt inarticulately by so many of his companions in the air, it would not be amiss to quote it in the history of his squadron.

More accidents, fortunately not fatal, dogged 412 in the next month. In the middle of January the first powdering of snow heralded the beginning of some difficult flying weather. Two *Spitfires* had to be struck off strength due to heavy landings and in February another shuddered to an abrupt stop in a snowbank.

HOCKEY ACES, TOO

The squadron hockey team was a bright spot in the picture. Led by Flying Officer Howe (with Leading Aircraftman Blas, Corporal Leclair and Aircraftman 1

At Wellingore, Lincs., November 1941, a group of 412's motor transport airmen take a breather.



HIGH FLIGHT

Oh! I have slipped the surly bonds of earth
 And danced the skies on laughter-silvered wings;
 Sunward I've climbed, and joined the tumbling mirth
 Of sun-split clouds — and done a hundred things
 You have not dreamed of — wheeled and soared and swung
 High in the sunlit silence. Hov'ring there
 I've chased the shouting wind along, and flung
 My eager craft through footless halls of air.
 Up, up the long delirious, burning blue,
 I've topped the wind-swept heights with easy grace
 Where never lark, or even eagle flew —
 And, while with silent lifting mind I've trod
 The high untrespassed sanctity of space,
 Put out my hand and touched the face of God.

Clarke in the forward line and Cpl. McQuestion joining Howe on defence) it distinguished itself that winter. After an unbroken string of victories it met its match, however, in 400 Squadron at the championship game in London but proudly retained Group Captain Campbell's trophy for the leading team in 12 Group.

Operational time in February 1942 was the highest to date: 412's 18 *Spitfires* and the *Miles Magister* flew a total of 209 hours on convoy patrols and 301 hours in training. None of the patrols, however, spotted the enemy. The "big action" was still ahead.

In March aircraft tests were conducted (when the filthy weather of the blustering season permitted)

and flying was pretty routine. Sgt. Thompson's escapes from two serious *Spitfire* crashes within the space of four hours, and not the Hun, formed the topic of the day in the mess. On 24 March the squadron saw some action against the enemy in an attack on the marshalling yards at Abbeville, but it cost the Falcons dearly. Sqn. Ldr. Morrison, the OC, was killed in action while leading his squadron and Pilot Officer A. T. A. Young fell prisoner of war in the same engagement and spent three years in the notorious confines of *Stalag Luft III*.

Also at Wellingore, October 1941, 1. to r.: Sgt. Pilots H.C. Charlesworth, L.W. Powell, E.N. Macdonell, O.F. Pickell, A.F.L. Smith.





Sqn. Ldr. R.C. Weston.



The Squadron at Merston, Sussex, October 1942.

On the first of April 412 (now commanded by Sqn. Ldr. R. C. Weston) left 12 Group and moved south to the more active 11 Group zone. They moved to Martlesham Heath, Suffolk, and were joined by 3048 Echelon for servicing. In June subsequent moves took them to North Weald (Essex) and Merston (Sussex). Their apprenticeship was over: they were being "moved up" into some real action. By the time the squadron's first anniversary rolled around in June the Falcons were full-grown.

They marked their new estate on 26 July by recording their most successful encounter with the *Luftwaffe* up to that time. Yellow Section of 412 tangled with *Focke-Wulfs* over the airdrome at Abbeville-Drucat. Flt. Lt. F. E. Green destroyed one and damaged a second, Flying Officer G. C. Davidson scored a probable kill, and Flying Officer K. I. Robb damaged still another. In the same combat Lt. Col. A. P. Clark was lost in action. With Major McNickle and Captain Davis he represented the U.S.A.A.F. with 412 Squadron. On 29 July Flt. Lt. Freddy Green claimed another *FW.190* shot down.

The next month he and Sqn. Ldr. Fee, who had very recently taken over command of 412, became the squadron's first pilots to receive the D.F.C. This illustrated something of the international character of

the squadron, for Frederick Ernest Green (a product of the British Commonwealth Air Training Plan and by now a veteran with three kills to his credit) was a native of Petersburg, Virginia, while Clark John Fee was a product of Calgary, Alberta. Sqn. Ldr. Fee was cited as "a fine pilot and skilful leader . . . by outstanding ability mainly responsible for the high standard of fighting efficiency of the squadron."

In the Dieppe action of 19 August 1942, 412 flew three operational missions. On the second trip out Pilot Officer N. N. Brookhouse was hit by flak, crashed and was listed among the six Canadian pilots lost that day. Flt. Sgt. W. F. Aldcorn was luckier: when he was forced to bail out near Beachy Head he survived a forty-minute dip in the Channel and was rescued by a naval launch. The squadron recorded no victories that day. Total enemy casualties in the Dieppe action were 93 aircraft; Allied aircraft losses were 98 (30 of the pilots being rescued).

RHUBARBS AND RODEOS

On 23 August 412 Squadron moved to R.A.F. Station Tangmere and began to function as part of the Tangmere Wing. The squadron was by now operating in high gear and its operational hours for the month, in excess of 500, were double the total of training hours logged.

The business of the unit soon became rhubarbs in northern France where, flying in pairs, the *Spitfires* harassed communications and strafed rail targets. When the airdrome at Tangmere was rendered unserviceable by the frequent drizzles of the English autumn, the squadron continued operations from Kenley. Light but fairly accurate flak cost them two pilots (Sgt. W. D. Pagan and Sgt. W. H. D. Spence) in these dark November days.

In mid-December the field at Kenley became a soggy and virtually useless expanse and 412, now under Sqn. Ldr. F. W. Kelly, moved about half its ground crew to Friston and based some of its operations there. By now the strafing missions had given way to support of the bombers which were pounding Abbeville and Berck-sur-Mer. On one of these missions Flying Officer W. B. Needham of Wynyard, Saskatchewan, earned the D.F.C. for great gallantry in defence of a *Flying Fortress* which, even though five of the crew had bailed out, was being harried by four *FW.190s*.

In January 1943 bomber escort operations continued over the Cherbourg, Samer, Triqueville, Flushing and Abbeville areas in company with 401, 402 and 416 Squadrons. Sqn. Ldr. Kelly won a D.F.C. for his exploits on these missions and

Wing Cdr. Fee (one of his predecessors as OC of 412) was lost on operations. During the month elements of the squadron based at Friston and Redhill were assembled at Kenley and, on 29 January, the entire unit moved from Surrey to R.A.F. Station Angle, South Wales, and later to Fairwood Common. "Exercise Sparton" then took them to Hurn for some time and subsequently the "travelling circus" flew convoy patrols out of Perranporth, Cornwall, in April.

Operating as part of the Perranporth Wing in May, 412 flew 221 operational sorties, mainly against shipping. In one of these (7 May in the Ile de Batz-Ushant area) Flying Officer L. W. Jones was shot down, but Flt. Sgt. (later Warrant Officer 1st Class), E. J. V. Levesque, though hit in the cannon magazine, managed to coax his craft home on a damaged mainplane. He failed to return from a scrape in June. While strafing rail targets on the Brest peninsula between Morlaix and St. Brieux, exactly a month later, he was knocked down by flak.

ADOPTION

On 13 May a cable arrived from the Parkdale Lions Club of Toronto, offering to "adopt" the squadron. This was the beginning of an association that lasted until 412 was disbanded and brought many "comforts" to the boys overseas during the war.

Also in May Flying Officer L. W. Powell (in an operation with 610 and 65 Squadrons in support of a dozen *Venturas* attacking the airdrome at Morlaix) brought down an *FW.190* and earned himself a D.F.C. He and Sqn. Ldr. Kelly, D.F.C., attended the investiture at Buckingham Palace on 25 June and received their decorations from H.M. the King. Powell was listed as missing a few weeks later when he failed to return from a convoy patrol off the Scilly Islands. Flying Officer H. E. Holbrook was also lost in this action, while Pilot Officer R. W. Thatcher was "fished out of the drink" by the Air/Sea Rescue boys.

RAMRODS

The squadron left the southwest in June and returned to Friston for more action in the "Hell's Corner" of southeast England. In July they flew ramrod and rodeo ops from Redhill and then, with the move of 126 Airfield, repaired to Staplehurst, in Kent, on 7 August. In mid-October this seemingly restless crew began their programme of ramrod operations from Biggin Hill.

In November 1943 the great bomber strikes commenced in earnest against the threatening rocket installations and other significant targets at Calais, Triqueville, Minoceyque, Lille, Venderville and the vast airdromes at Cambrai and Chievres. Number 412 flew close escort to the 72-bomber armadas of *Marauders* or *Mitchells*. They also conducted fighter sweeps of the Hardelot, St. Omer and Bethune sectors. No enemy aircraft were in evidence but flak sent down Flt. Lt. A. C. Coles to share the fate of the *Kriegesgefangenen* partaking of the meagre amenities of *Stalag Luft IV*. Flt. Lt. D. B. Wurtele stretched his luck successfully and limped back in a damaged aircraft to a safe let-down.

December was marked by increasing demands upon 412 to supply cover for bombers pounding French airfields and returning from attacks on the Schipol airport at Amsterdam, but in a hectic month of ramrod operations the squadron suffered no casualties and only its most outstanding fighter (Flt. Lt. G. F. "Buzz" Beurling, D.S.O., D.F.C., D.F.M. and Bar, who served briefly with the Falcons) scored. It was his only "kill" with 412, but the 31st entry in his amazing record.

1943 ROUND UP

During 1943 the Canadian fighter squadrons in the Second Tactical Air Force (401, 403, 411, 412, and 421) flew 11,743 operational sorties in their *Spitfires*, an impressive total of 18,420 hours and 15 minutes. They brought down

97 enemy aircraft, scored 10 "probables" and damaged 59½. Number 412's contribution (in 2,315 operational sorties totalling 3,200 hours of ramrods, rhubarbs, rodeos, air/sea rescues, scrambles and general reconnaissance) was 7-2-6. In addition many locomotives, motor vehicles, goods trains, military formations and airfields were strafed, although the chief operations were interception patrols, fighter sweeps, escorts for bomber withdrawal and convoys, and such tasks as that. On all these missions the Second Tac squadrons lost a total of 54 listed as missing in action. The Falcons regretfully recorded five killed or presumed dead, one wounded and one prisoner of war. Two of their members listed as missing turned up safe in 1943.

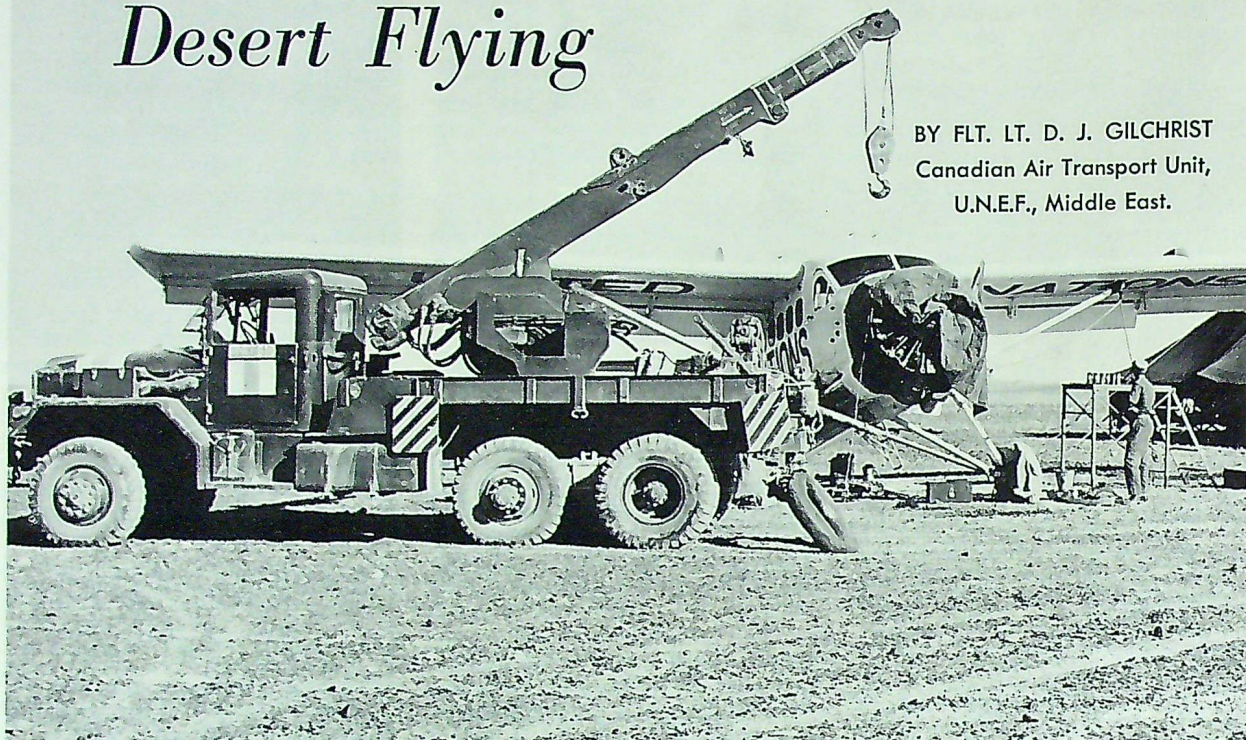
As 1943 drew to a close the war in the air seemed to be taking several turns. On 28 November air photographs of the German research facilities at Peenemunde (and the nearby airfield at Zempin) revealed the existence of the buzz-bombs soon to launch the age of missiles. The day before that another historic event took place: Churchill and Roosevelt met Stalin at Teheran. The way was being prepared for the breaching of the walls of Hitler's fortress, an invasion which air supremacy, won in brave combat against the *Luftwaffe*, was to make possible. Already, in December, the U.S.A.A.F. bombers escorted by R.A.F. *Mustangs* with wing droptanks, were giving evidence that this air supremacy had been achieved, inaugurating daylight bombing raids with long-range fighter escort (on Kiel, Bremen, Hamburg and the Schipol airport in Holland).

The 1,462 aircraft used by the Americans on 13 December—the record for the Allies up to that date—suggested the shape of the offensive to come. But before the dawn of "D"-Day there was a lot of work to be done—and 412 was to have an increasingly significant part in it.

(To be concluded)

Desert Flying

BY FLT. LT. D. J. GILCHRIST
Canadian Air Transport Unit,
U.N.E.F., Middle East.



It is highly unlikely that the small group of R.C.A.F. pilots currently flying patrols in the hot skies over the Sinai Desert ever realized that experience gained in the Canadian north would be standing them in good stead in these far-off surroundings.

Our Air Transport Unit, attached to the United Nations Emergency Force for transport and reconnaissance duties, is stationed on the Mediterranean coast at El Arish, Egypt, approximately seventy-five miles east of Port Said. The quarters and camp area are within two hundred yards of the sea on a long, palm-dotted beach, while the airfield is located eight miles south in the sand dunes of the Sinai Desert.

SMALL AREA

The area in which ATU carries out the majority of its operations is relatively small, bordered on the west by the Suez Canal and Red Sea, on the north by the Mediterranean, on the east by Israel, and on the south by the Gulf of Aqaba. Except for a narrow band of fertile land along the Mediterranean shore, the whole area is desert. The northern Sinai Desert consists of rolling sand dunes with occasional sparse vegetation, and is inhabited by nomadic Arabs. In the South the mountains rise to nine thousand

feet and are bare, weathered rock standing in plains of shifting sand.

From the airfield at El Arish, where the unit has such conveniences as asphalt runways and hangar facilities, the Flight busily despatches aircraft to the gravel strip at Gaza, where a careful buzzing is required to clear the landing area of sheep, camels and donkeys. Some of the flights go on to Tel Aviv or Beirut. The majority of flights southward into the Sinai Desert are made by *Otter* aircraft which are used to

carry fresh rations, mail and replacement personnel to the outposts, and for reconnaissance patrols along the demarcation line.

Desert landing strips, cleared by the Royal Canadian Engineers, vary from 600 to 1200 feet and are surfaced with sand and gravel. All landings at these fields are precautionary, and every foot of the strip is put to use.

The longest sked flight out of El Arish is to Sharm El Skeikh on the mouth of the Gulf of Aqaba. Twice weekly the *Dakotas* haul supplies and personnel to this coral-and-sand strip for the U.N. force which guards the entrance to the disputed Red Sea. West of El Arish, the airfields at Cairo, Port Said, Luxor and Alexandria are not strangers to the pilots of ATU; and occasionally flights to the north go as far as Greece, Italy and Britain.

WEATHER CONTROLS

During the winter months, operations are standard, with most scheduled flights departing at 0900 hrs. and returning during the afternoon. Temperatures are pleasantly cool in the morning, reaching the mid-70s at El Arish and mid-80s on the desert by noon. However, by spring the noon temperature will rise above 120°F and all flights will depart before sunrise and endeavour to return to base before mid-morning. All flights unable to return early must remain on the ground until the cool of evening. During midday the hot desert sun beats down the men, robs engines of their power, and destroys lift. So nothing moves except in absolute emergencies.

The skies over Sinai are usually clear, with a few winter thunderstorms off the Mediterranean. Obstructions to visibility are twofold: during the summer a morning mist sometimes covers the desert; and during the winter the strong westerly wind known locally as the Khamseen, picks up sand from the desert and drives it across the land, lowering visibility to one-half mile or less.

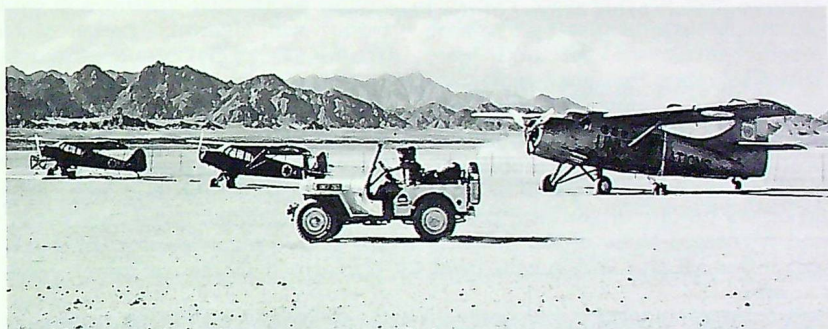
All unit maintenance is carried out in the hangar at El Arish. Inspections are accomplished at normal intervals, with special attention focused on the damage to engines by sand particles, and the scoring of windscreens and control surfaces. The all-white U.N.E.F. paint scheme is a great aid in lowering the inside air temperature of the aircraft on the ground; but even so, all electrical and radio installations must be provided with good ventilators to prevent overheating. Engine filters must be fitted and used on all ground operations. Even the tires of the *Dakotas* come under strict daily inspection because the coral surface of the runway at Sharm El Sheikh can cut a tire as a knife would.

Considering the difficult conditions under which operations and maintenance are performed, aircraft serviceability and performance are very good. The aircraft often

(continued on page 30)



Since this picture was taken at Abu Suweir, No. 115 Communications Flight has been re-designated as an Air Transport Unit and has moved its base to El Arish.



Patrol near Sharm El Sheikh on the Sinai peninsula.

L.A.C. P.P. Bodnarchuk (left) and Flt. Sgt. M.K. Mitchell watch a native fisherman repair his nets beside the Mediterranean.



Canadian Armament Research and Development Establishment



Correspondents being briefed in the Electronics Wing.

BY FLIGHT LIEUTENANT A. T. PATON,

Editor, "The Roundel"

TUCKED away amongst the rolling Laurentian foothills 17 miles north-west of Quebec City lies the Canadian Armament Research and Development Establishment, a place where the Defence Research Board ordinarily does not welcome the inquisitive visitor. Several weeks ago, however, I joined a party of over 30 newspaper, radio and television reporters on one of the rare press tours of CARDE arranged by D.R.B. and witnessed some of the projects which the young scientists there feel will influence the armaments used by our armed forces for many years to come.

It was at once a reassuring and rather frightening experience. Reassuring because, although Canada's research budget is small compared to those of larger countries, this visit revealed in progress a sound programme of applied research in the field of defence against ballistic missiles. Frightening, because it proved just how far behind the layman can fall today in comprehending the scientific advances which have been made in the past few years in the realm of space travel.

SERVICE PROJECTS

Naturally, much of the work being done at CARDE is classified and cannot be revealed in an article of this nature. However, enough was shown and explained by Brigadier D. A. G. Waldock, chief superintendent, and his staff to convince that here a very significant contribution is being made to the western world's quest for knowledge in such subjects as aerodynamics, ballistics, electronics, physics, chemistry, explosives and mechanical engineering. A similar sized establishment in either the U.S.A. or U.K. would

normally devote its effort to only one or part of one of these fields.

CARDE exists primarily to advise the three armed services in connection with weapons and weapons systems, to carry out investigations and research in the armament field, to develop new and improve existing weapons. Created in 1945 and operated by the Army until 1947, it has been D.R.B.'s largest research station for the past 11 years, employing approximately 1000 people, of whom 130 are professional scientists and engineers. Each service provides a

senior project officer to co-ordinate specific projects assigned to the establishment.

A 70-man detachment of the R.C.A.F.'s Central Experimental and Proving Establishment is based at nearby Ancienne Lorette Airport, to provide flight trials for the aerial experimentation. Wing Commander E. A. Smith, detachment commander, double-banks as R.C.A.F. project officer at CARDE. Squadron Leader W. A. Speck has five *CF-100s* and one *Expeditor* in his flight, and is currently involved with several highly interesting but secret projects which will eventually pay off for the boys in the field, even though that time may be several years hence.

For instance, the recent announcement that production of the *Sparrow II*, first Canadian-built operational air-to-air guided missile, had commenced for the R.C.A.F. was preceded by intensive studies by the CARDE organization many months ago. With its small but very powerful rocket motor, and its guidance system, the *Sparrow*



has a combination of speed, maneuverability and accuracy which ranks it a match for any present manned operational aeroplane.

ANTI-I.C.B.M. PROGRAMME

"The primary problem we are concerned with today is defence against the ballistic missile," Brigadier Waldock stated. "Research into this subject is being conducted under three main headings — aerophysics, infra-red and propulsion—and our efforts are coordinated closely with those of our allies in these fields".

"Although our facilities may seem dwarfed compared with those employed for the major U.S. missile projects, the relative modesty of the Canadian effort is no criterion of the contribution possible. Scientific break-throughs which have affected armament development most significantly have sometimes resulted directly from the imaginative effort of an individual," the chief superintendent explained,

adding with typical understatement, "our staff includes scientists with specific experience and ability in the areas concerned."

In order to develop a practical defence against the I.C.B.M., i.e. an anti-missile missile, it is prerequisite to learn as much as possible about hypersonic flight (speeds above Mach 5) in a rarefied atmosphere. Because man-made satellites are now orbiting through outer space by no means signifies that all phenomena associated with flight at such speeds and at such altitudes are known and understood.

AEROPHYSICS

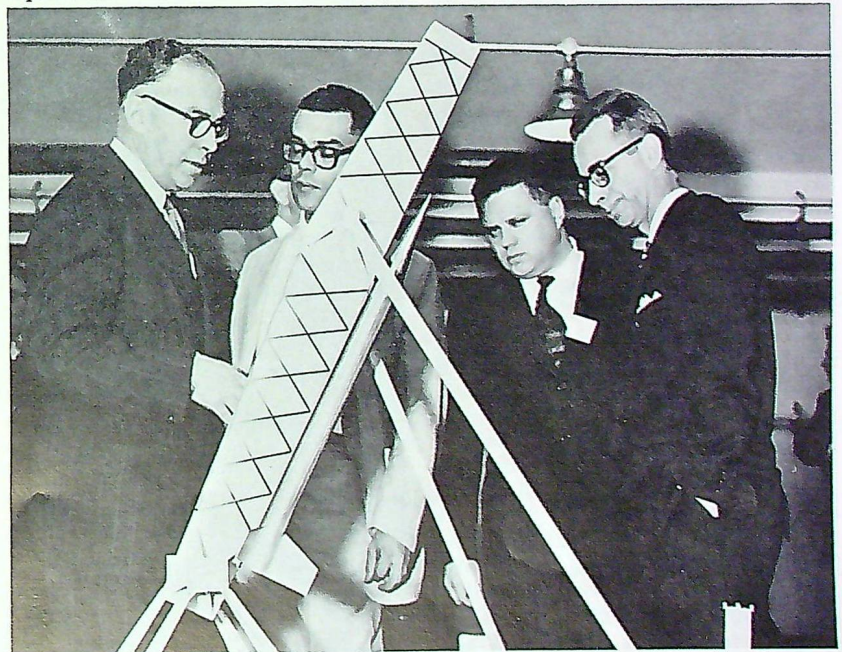
These mysteries are numerous and varied in nature. For example, how is a missile orbiting at hypersonic speed through the upper atmosphere affected by the ionized layers beyond our earthly atmosphere? Do electronic phenomena occur which may be employed to detect an approaching missile? To grapple with these problems, CARDE Aerophysics Section is

exploring a number of techniques whereby hypersonic speeds can be achieved under laboratory conditions.

Two basic methods are used to test model aircraft and missiles under flight conditions. One is the wind tunnel, a well-known standard tool of the aircraft designer. Here the model is supported in the centre of the tunnel and air is forced past it. The model is not free in the true sense of an aircraft in flight, so although valuable information is obtained, wind tunnel procedures fail to provide all the data desired.

CARDE is a pioneer of the second method, which has proved its value many times: the launching of free-flight models from a gun into the aeroballistics range. This range is merely a concrete tunnel 780 feet long and 20 feet square, containing various forms of instrumentation for measuring speed, trajectory and attitude. During the past five years, 25 different types of models have been fired into the range from the smooth-bored launching gun mounted on a concrete pad outside the tunnel.

Chief Superintendent Brigadier D. A. G. Waldock (left) and his deputy, Dr. L. J. L'Heureux (right), explain model of research rocket to reporters.



A model leaves the muzzle in a sabot, which flies apart and strikes the armour plate surrounding the slit at the entrance to the range, while the model itself continues in free flight at speeds up to Mach 5 through the tunnel, coming to a sudden and shattering stop in a sand butt at the far end.

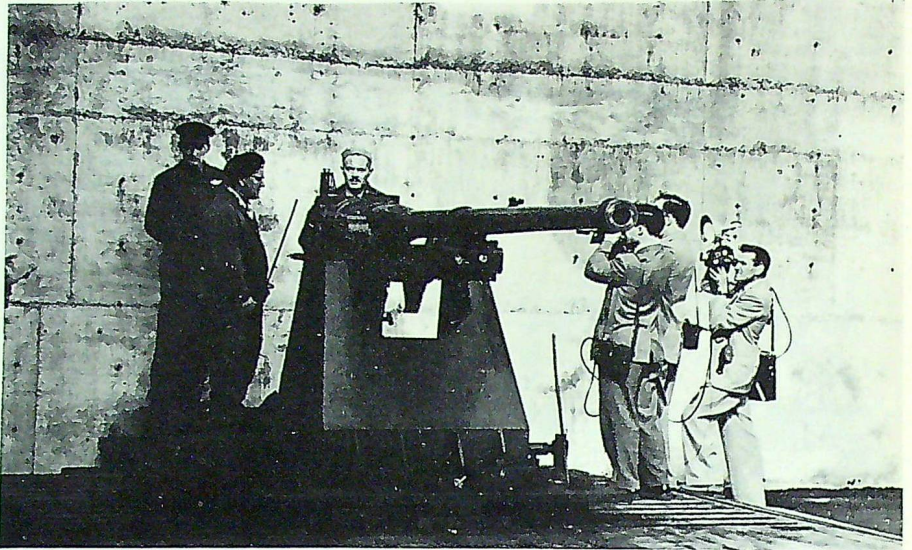
While, by these methods, the flight characteristics of objects travelling four or five times the speed of sound may be accurately observed, this is far too slow for today's research scientist, endeavouring to cope with the unknowns of space travel in the regions of 18 to 20,000 miles per hour. Hence, the hypersonic range has been created with a gas-powered gun to launch a projectile into the rarefied atmospheric conditions it simulates. The velocity achieved is such that if the projectile were fired into the normal atmosphere, aerodynamic friction would cause it to melt instantly.

INFRA-RED

Equally as important as characteristics of flight in the development of a defensive anti-missile missile is the question of determining the best methods of detecting the attacking missile. On this phase of the programme CARDE is concentrating its research into the possibilities of using infra-red techniques for detection purposes.

The band of electromagnetic radiation known as infra-red lies between the lowest frequencies of visible light and the highest frequencies of radio communication, and has been employed for years in various devices to assist in improving night visibility. Just how this energy can be harnessed to the specific task at hand is the object of several ingenious experiments currently underway.

One which was explained during our visit consists of a series of balloon ascents into the upper atmosphere to obtain data on infra-red radiation and propagation. Designed to carry an instrument-loaded gondola weighing more than 300 pounds to heights of 100,000 feet, each balloon is ap-

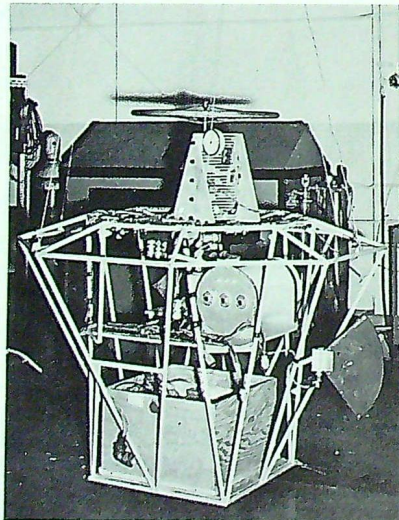


Launching gun outside aeroballistics range fires hypothetical I.C.B.M. . .

proximately 125 feet in diameter when fully inflated with 850,000 cubic feet of helium.

The instruments test the performance of electronic components, optical equipment and radiation standards in the changing temperature and pressure environment, and data are transmitted continuously during ascent by means of the most advanced telemetering techniques. The balloon is tracked

Balloon gondola assembly prior to infra-red observation flight.



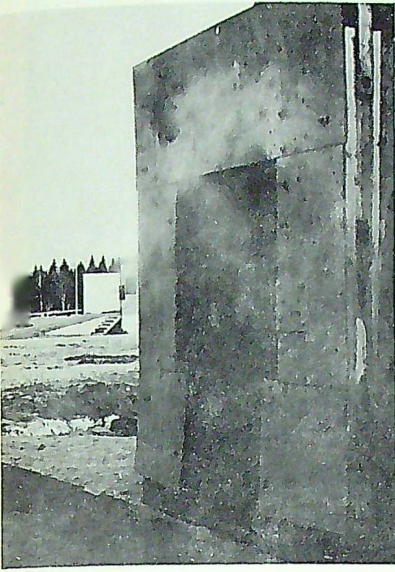
by R.C.A.F. radar at all times and an airforce helicopter is used to recover the instrument gondola after it parachutes to earth.

PROPULSION

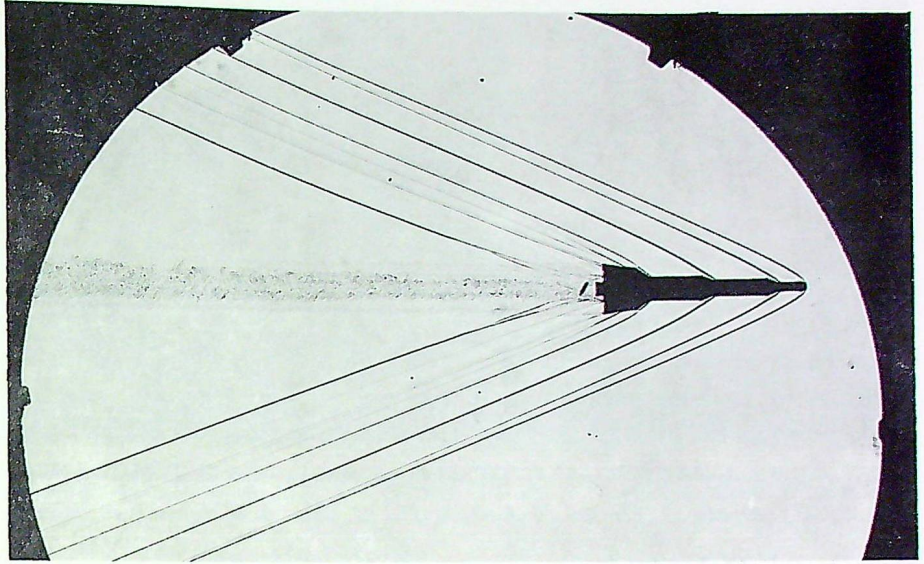
A basic requirement for any anti-missile missile is that it must have a much higher rate of acceleration than the incoming missile it is to attack, even though the missile itself will probably have the greater velocity.

Research into the propellant field, therefore, is the third main phase of the current programme at CARDE, and is concentrated on the large, solid propellant grains. The establishment's twofold objective is to acquire a working knowledge of known techniques and, at the same time, to develop a new and improved propellant suitable for rockets of any size. The CARDE plant, while on a pilot scale only, is one of the most advanced in North America, and plans are laid to test fire rockets using its products from launching sites at the Fort Churchill test centre next year.

Immediate readiness is the keynote in any defence against ballistic missiles. This weighs heavily in favour of solid propellants, which



which enters range through this opening, leaving shattered sabot behind . . .



and hurtles at speed Mach 3 down the 780-foot long concrete tunnel.

can sit on launchers for long periods of time, rather than liquid fuels which must be poured into tanks just prior to the launching of the anti-I.C.B.M.

CONCLUSION

While the applied research programme for the anti-missile missile has been described here at some length, it is by no means the only field in which CARDE's scientists are currently engaged. Conventional armament and weapons systems evaluations constitute the other major projects in its continuing technical programme.

Here, for instance, was designed the Canadian Pack Howitzer, a weapon now in service with the Indian Army. Here, too, was invented and developed the Heller Infantry Anti-Tank Weapon, a solid propellant-fired rocket recognized as the best of its type in the world.

Modifications and improvements to existing weapons provide a continuous work load, some of them involving major implications. The discovery by a CARDE scientist of a simple means of reducing gun wear has been acclaimed as one of the most striking advances in artil-

lery design during the past half century.

For the past three years CARDE has played an increasingly important role in weapons systems evaluations, much of the work necessitating continuous use of the establishment's analogue and digital computer facilities.

The development of weapons

such as the I.C.B.M. requires enormous expenditures of money and technical manpower. The creation of defences against these new weapons may dictate even greater disbursements. CARDE's main function is to ensure that Canada gets the most for its money in this regard.



The Straight and Narrow Commuter

SERGEANT and Mrs. U. H. Blowgun are an extremely devoted couple. Every day, sharp at 1700 hrs., Mrs. B. drives up to the main gate at R.C.A.F. Station Podunk and the two take off for their little bungalow in the country, happy as turtledoves. Some day soon, the good sergeant hopes to be able to afford two cars, so he will have one to drive to and from work by himself.

Last Friday Sgt. Blowgun knocked off at 1600 hrs., resisted the temptation to stop at the mess, and decided to walk home. His wife left to pick him up at the usual time and met him on the road. As it was an extremely hot afternoon, the perambulating commuter was most grateful for the lift and they arrived back at their modest abode 10 minutes ahead of their usual time.

The question is: For how long did Sgt. Blowgun walk?

(Flying Officer W. G. Duncan, of No. 87 Sqn., R.C.A.C., Welland, Ont., submitted this poser as a fitting successor to several mathematical questions he has created for readers of "The Roundel" over the years. His solution appears on page 32.—Editor.)



1958-59 R.C.A.F.A. NATIONAL EXECUTIVE: Front row (l. to r.): S. T. Malach, M. A. MacDonald, J. D. Williamson, A/V/M G. E. Brookes, A/M W. A. Curtis, A. C. Gould, E. F. Rowand, S. M. Sznuk. Rear row: G. A. Ault, S. Fulton, G. E. Ellis, J. Ambler, J. Penfold, H. A. Ogden, D. W. Cain, L. N. Baldock, M. Moffatt, P. F. Connell, H. Roberts.

Provincial Delegations



ALBERTA: Front row (l. to r.): G. Potter, G. Gradwell, M. Moffatt, G. Esdale. Second row: G. Findlay, S. C. Jones, R. T. Bond. Missing: R. Townsend.



SASKATCHEWAN: Front row (l. to r.): J. Ambler, S. Malach, M. K. Smith, P. Koch. Second row: J. W. Brown, S. D. Hyde, G. Bodard, J. E. Wilson, P. Spilak.

R.C.A.F. ASSOCIATION EIGHTH

BY FLYING OFFICER W. B. TOTMAN

Staff Officer Public Relations, Tactical Air Command

AT THE Eighth Annual National Convention of the R.C.A.F. Association, held in Edmonton 5, 6 and 7 June, approximately 200 delegates attended business sessions, panel discussions, elections of officers, the memorial service, presentations and social events.

There were many highlights. The Andrew C. Mynarski, V.C., memorial trophy was presented to the R.C.A.F. Air Marshal Wilfred A. Curtis, of Toronto, was elected National President. Resolutions of international and national importance were adopted. Excellent speeches on 'The Changing Concept of War', 'Peaceful Uses of Atomic Energy', and 'The Supersonic Era in Canada', stimulated much thought and conversation among the delegates.

Everything considered, the Eighth National Convention was deemed successful.

ELECTION OF OFFICERS

The 1958-59 National Executive Council was decided by secret ballot during the 6 June afternoon business session.

Grand President	- - - -	A/V/M G. E. Brookes, Toronto (re-elected)
National President	- - - -	A/M W. A. Curtis, Toronto
Vice-President	- - - -	L. N. Baldock, Windsor (re-elected)
Second Vice-President	- - - -	G. R. Ellis, Ville St. Laurent, P.Q.
Third Vice-President	- - - -	H. A. Ogden, Port Arthur (re-elected)
Fourth Vice-President	- - - -	S. M. Sznuk, Ottawa (re-elected)
Chairman	- - - -	S. T. Malach, Regina (re-elected)
Vice-Chairman	- - - -	D. W. Cain, Kingston (re-elected)
Legal Advisor	- - - -	G. A. Ault, Q.C., Ottawa (re-elected)
W. D. Rep. (National)	- - - -	M. A. MacDonald, Halifax
W. D. Rep. (Central)	- - - -	J. D. Williams, North Bay
W. D. Rep. (Eastern)	- - - -	A. C. Gould, Saint John, N.B. (re-elected)
W. D. Rep. (Western)	- - - -	E. F. Rowand, Edmonton
Immediate Past President	- - - -	A/V/M F. G. Wait, Ottawa



Wings of the Royal Canadian Air Force Association, attending the Eighth National Convention in Edmonton, paraded to the Cenotaph to hold a memorial service and lay wreaths.

ANNUAL NATIONAL CONVENTION

PRESIDENT'S REPORT

Air Vice Marshal F. G. Wait, R.C.A.F. Association President for the past two years, was unable to attend the Eighth National Convention because of illness. However, his report on the highlights of the 1957-58 fiscal year was distributed to all delegates.

The report stated that membership had increased considerably. In fact, 2000 new members were enrolled during the year, thus doubling the increase recorded during the previous year. Reference was made to the earlier announcement that under the sponsorship of the R.C.A.F. Association, a history of the Royal Canadian Air Force, currently being written by Mr. Leslie Roberts, would be published by Clarke, Irwin and Company.

The delegates resolved that the 1959 convention would be held in Montreal from 14 to 17 May and that the 1960 convention would be in Toronto.

MEMORIAL SERVICE

Led by the Tactical Air Command and followed by R.C.A.C. 570 Squadron of the Indian Residential School, the delegates marched to the Edmonton Cenotaph, 5 June, to honour their fallen comrades.

Three CF-100s from R.C.A.F. Station Cold Lake saluted overhead as wreaths were placed by Air Commodore J. G. Stephenson on behalf of the R.C.A.F., Leonard N. Baldock for the R.C.A.F. Association and Geoffrey M. Gradwell for 700 Edmonton Wing.

The parade then moved down Jasper Ave., where the Hon. Dr. J. J. Bowlen, Alberta's Lieutenant Governor, took the salute.

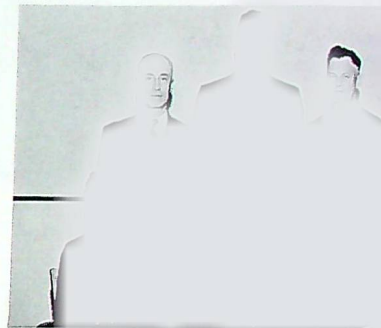
RESOLUTIONS

Over 20 resolutions were adopted by the delegates in session during the convention. They included recommendations:

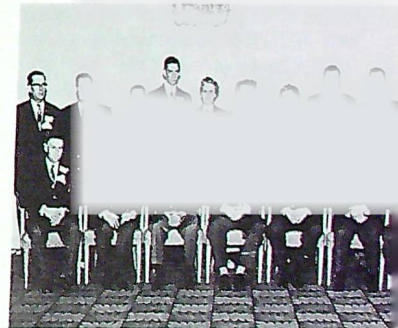
1. To encourage retiring R.C.A.F. personnel to enter the teaching profession.

2. To establish Group air cadet libraries.

3. To develop aviation educational summer courses, at selected universities, for high school teachers and air cadet instructors. A committee of three will be formed to complete programme details with the R.C.A.F. and the Canadian Kiwanis Club. The basic point of the proposal is that today all North Americans are, to an ever increasing degree, dependent upon



NORTH WEST ONTARIO AND MANITOBA: Front row (l. to r.): K. MacLeod, E. Carlyle, E. Frederickson. Second row: H. Bell, W. P. Lehto, T. Dunn.



QUEBEC: Front row (l. to r.): J. R. Meade, F. G. Michalak, R. A. Rout, S. Fulton, B. Garrick, W. O. Nobes, G. Ellis. Second row (l. to r.): H. J. Monahan, P. J. Haberin, R. Ayotte, A. DeBreyne, M. L. Pineo, E. Henderson, A. Black, W. J. Kelly, G. G. Harrison, J. B. Ritchie.



ONTARIO: Front row (l. to r.): B. B. Collings, C. J. Corkan, D. J. A. Kennedy, A. C. Matheson, J. H. Rushleau, W. Berry, L. Cressman, S. Elnaugh, W. J. Tobey, G. McDougall. Second row: J. K. Larden, L. N. Baldock, H. Beck, J. D. Williamson, T. H. Murphy, S. M. Sznuk, J. Penfold, D. N. Budd, D. W. Cain, J. Knight, A. W. McDonald. Third row: W. H. Caverley, R. A. Smith, P. Donnachie, K. Rebalski, J. Behan, D. Underhill, J. Lazenby, W. Hineman, G. Kessler, A. Richards, F. M. Wood, C. Webb, T. K. Whitney. Fourth row: M. K. Rutley, E. W. Fischer, J. Newell, S. Olewniczak, L. Schedlin, R. Argue, E. Savin, E. Cross, R. Huleatt, J. Godzewki.



MARITIMES: Front row (l. to r.): J. F. Lenihan, E. L. Wilson, P. F. Connell. Second row: D. A. Lecky, A. Daigle, R. Campbell, A. C. Gould, H. Roberts, M. A. MacDonald, F. H. Trever, R. A. Watson, K. Theede. Third row: J. E. Richards, R. Phaneuf, W. S. Chandler, A. MacLellan, L. North, R. Glendinning, W. A. MacKay, T. Fraser, V. Dawe, J. Murphy, D. F. Welsford. Fourth row: H. R. Crandall, F. Connolly, E. A. Green, G. MacDougall.

'Air Age' knowledge for national survival, and for personal and ordinary business. The need for high school teachers to have a reassuring knowledge of aviation in all its forms, is therefore essential.

4. To request the Federal Government to amend the definition of 'veteran' in several stated acts and regulations to include all who volunteered, and served, in the Canadian Armed Forces in World War I, World War II and the Korean conflict, and were honourably discharged. This would provide equal rights to more benefits or preferences for more ex-service members.

5. To request that the R.C.A.F. defray the cost of board and lodging of air cadets training under Flying Training Scholarships.

6. To establish a press and public relations branch for the R.C.A.F.A.

7. To co-operate fully with the Nation's Civil Defence programme.

8. To commence international activities and to contribute to the World Veterans' Federation.

9. To officially recognize Women's Auxiliaries and R.C.A.C. girls.

CONVENTION SPEAKERS

The convention in Edmonton featured an outstanding group of luncheon and dinner speakers. Included were Air Marshal Hugh L. Campbell, chief of the air staff; Dr. David A. Keys, technical advisor to the President of Atomic Energy of Canada Ltd.; Hon. Gordon Taylor, Alberta Minister of Highways and Air Vice Marshal John L. Plant, President and General Manager of Avro Aircraft Limited.

Air Marshal Campbell, in dealing with inter-continental ballistic missiles, said, "I believe that manned aircraft, armed with nuclear bombs and nuclear glide bombs, will

remain a component of the threat for many years to come".

In explanation he said, "I do not think that surface-to-air missiles and manned interceptors have yet reached the point where they should be considered competitive. They will become complementary. Each has its unique properties. The surface-to-air missile has quick reaction and a high rate of fire. The manned interceptor has long range and flexibility through the discrimination and judgement exercised by the crew".

Air Marshal Campbell further stated that no small nation can maintain all the elements of an effective deterrent against aggression on its own and this was the reason for N.A.T.O. and other such arrangements.

The Hon. Gordon Taylor urged the construction of a "heavy duty" Trans Canada Highway capable of carrying the heaviest military vehicles and the heaviest trucks now



Widow and crewmates of Pilot Officer A. C. Mynarski, V.C.: (l. to r.) Flying Officer G. P. Brophy, rear gunner; A. R. Body, navigator; J. W. Friday, bomb aimer; A. de Breyne, pilot; W. J. Kelly, wireless operator; Mrs. Mynarski.



Mrs. Ann Mynarski presents trophy in memory of her son to Air Marshal H. L. Campbell, chief of the air staff.

in use commercially. He indicated that the present highway, in the process of completion, was not being built to such specifications. He also congratulated the Association on its work with Air Cadets and stressed the importance of the positive approach in dealing with the problems of youth.

Dr. David A. Keys was featured as speaker at the annual dinner and held the delegates enthralled with his treatment of his very difficult subject. He outlined the progress which had been made in applying atomic energy to peaceful uses and stated that Canada has under design an atomic power plant which eventually will produce electricity more cheaply than plants powered by oil, gas or coal.

He further stated that power is only one aspect of Canada's atomic energy programme. The other is the production of radio-isotopes which have proven invaluable in both industry and agriculture. The isotopes are put to such varied uses as testing the strength in oil pipelines, measuring the amount of fertilizer used by crops and regulating the thickness of paper being produced in pulp mills. Isotopes have also found many medical uses and Canada's Cobalt therapeutic units used as a weapon against cancer have been sent to hospitals in many countries.

John L. Plant, a retired Air Vice

Marshal and presently President and General Manager of Avro Aircraft Limited, stated in dealing with the Avro Arrow produced by his plant that "the third flight, which commenced at 10:30 on 3 April, signalled the dawn of Canada's supersonic era. On that day, flying a flight plan exactly as prescribed by the design engineers, Zurakowski exceeded the speed of sound, not in a dive, not in level flight, but while climbing and at a height of more than 40,000 feet". The Zurakowski referred to is Jan Zurakowski, test pilot with Avro Aircraft.

MYNARSKI MEMORIAL PRESENTATION

"In memory of Pilot Officer Andrew C. Mynarski, V.C., whose gallantry in the air and sacrifice will long remain an inspiration", the Mynarski trophy was presented to Air Marshal Hugh L. Campbell, chief of the air staff, by Mrs. Ann Mynarski, mother of the late Andrew Mynarski. Mrs. Mynarski represented the former members of the Polish Air Force who are presently members of 310 Wilno Wing, 430 Warsaw Wing and 431 Krakow Wing of the Association.

On hand for the memorable occasion were his crewmates: Flying Officer G. P. Brophy, R.C.A.F. Station St. Margaret, N.B., the

rear gunner Mynarski attempted to free and who miraculously survived the aircraft crash; A. R. Body, Vancouver, navigator; J. W. Friday, Port Arthur, bomb aimer; A. de Breyne, St. Lambert, P.Q., pilot; and W. J. Kelly, Winnipeg, wireless operator.

Mrs. Mary Mynarski, widow of the V.C. winner, repeated in English the Polish presentation speech of her mother-in-law.

Air Marshal Campbell, in accepting the trophy, announced it would be awarded annually to the R.C.A.F. Station which maintained the best recreational programme for married quarters in the R.C.A.F. He said that the trophy would be a tangible reminder of the heroism of Pilot Officer Mynarski and would stimulate interest in the important field of morale among married personnel.

Prior to the presentation, Group Captain S. M. Sznuk (retired), former head of the Polish Military and Air Mission to Canada and now President of the Council of Polish Wings of the R.C.A.F.A., stated, "His unlimited sacrifice is a symbol of Poland's sacrifice and as such is dear to our hearts".



OPERATION DEEP FREEZE

*There's a land where the mountains are nameless,
And the rivers all run God knows where;
There are lives that are erring and aimless,
And deaths that just hang by a hair;
There are hardships that nobody reckons;
There are valleys unpeopled and still;
There's a land—Oh, it beckons and beckons,
And I want to go back—and I will.*

*(“The Spell of the Yukon.”)**

WHO, especially if he has ever spent any time in the Yukon, does not feel his pulse quicken to these stirring lines? So intimately associated with the feverish days of the Klondyke gold rush and the “Trail of '98”, this fascinating land has been immortalized by writers and poets such as Robert Service, Jack London and Rex Beach. Today, it is entering a new era of expansion which very likely will dwarf those romantic times of 60 years ago in terms of development and wealth.

After 17 years as a construction engineering officer in the R.C.A.F., I regard as my most rewarding experience—in terms of personal satisfaction, at least—a project in 1947 which I now refer to as “Operation Deep Freeze”. While this operation took place in the Yukon, the country from a construction engineer's point of view bore little resemblance to the spell-binding land of the poet's imagination. My description of it included such words as bleak, arid, desolate, grey, forbidding, sterile. It might be a poet's dream, but it was an engineer's nightmare.

NO EASY TASK

“Operation Deep Freeze” involved the construction of a small R.C.A.F. station, complete with permanent type buildings and services. A job of considerable proportions even in an easily accessible part of Canada, the completion of this project within the 11-month deadline presented a real challenge, considering all the logistic and climatic obstacles involved. Location of the site hundreds of miles

*From “Songs of a Sourdough”, by Robert W. Service; Wm. Briggs, publisher, Toronto, 1909.

BY SQUADRON LEADER L. J. NEVIN

*Staff Officer Construction Engineering,
Air Transport Command*

from the source of materials and manpower, in an area of permafrost noted for long cold winters and short daylight working hours, were just some of the more obvious problems to be contended with.

At the outset, as project engineer, my first duties were to make a study of logistics (the Alaska Highway route was chosen for transportation of materials) and conduct a detailed survey of the site to assist the Construction Engineering staff at A.M.C.H.Q. in designing the building and services. Final specifications called for concrete footing and foundations, structural steel framing and an outside covering of prefabricated, insulated aluminum panels—designed to form a thermal barrier withstanding a temperature range from minus 60°F to plus 120°F.

The civilian tradesmen and labourers, recruited in places as far

apart as Edmonton and Vancouver, all had one thing in common: they were a tough hard-bitten crew, but they *produced*. Production under the circumstances demanded qualities of exceptional fortitude and perseverance. (In a hard rock mine at 6000 feet below the surface it has been calculated that a miner's efficiency is down to 30%; if the same yardstick were used to assess a man's productivity in the open, when the mercury is 60 below zero, the loss of his efficiency undoubtedly would be greater.)

FAR FROM HOME

Take the case of a hypothetical construction labourer. He is away from home and civilization for a lengthy period. His knowledge of the bush or the Far North is less than rudimentary. His clothes were purchased mail-order and he has endeavoured to duplicate the outfit he would wear for a week-end of camping, hunting, or fishing down in Ontario. The food is adequate but lacks variety; fresh vegetables and fruits are non-existent and milk is of the powdered kind. The construction quarters lack many of the amenities of civilization. Insufficient heat in the quarters may have obliged him to sleep in his underwear, over which is at least one pair of pyjamas. In the grey dawn he hates to leave his bunk or sleeping bag—he may wonder when somebody will invent a sleeping bag that will double as working clothes. It is certain he does not remove his sleeping attire, he just adds more layers of clothes and when he finally staggers to the job he resembles an onion or a deep-sea diver. Hampered by this outfit, his movements are slow and clumsy and his efficiency drops.

Commonplace things like driving a nail in wood at 50 below is impossible; the wood is harder than the nail. Chopping frozen wood may result in the steel axe blade shattering without marking the wood. Manipulating small tools like wrenches or screw drivers while wearing even properly designed gloves or mitts, is like lacing one's shoes while wearing boxing gloves.

(Bear in mind that if one handles frozen objects with his bare hands they will stick and freeze to the exposed flesh.) It is unwise to exert oneself to the extent that the breathing becomes rapid, as the lungs may become frozen from gulping in the extra volume of frigid air. In the Arctic, adequate clothing and the awareness of the hazard from the extreme cold may be a matter of life and death.

Everyday construction jobs, like obtaining sand or aggregate from a pit, become major undertakings. At 50 below zero most types of soil or materials are hard as concrete and it is almost impossible to make an impression on them with hand tools such as shovels or pick-axes. The ground or material has to be thawed with steam or burning wood, burning oil or gas, drilled and blasted, or chiseled out by compressed air-driven jack-hammers. Obtaining and transporting water for domestic use or mixing concrete is an operation in itself; it requires special tanks and extraordinary precautions to prevent it from turning into solid ice.

MID-WINTER JOB

It was freeze-up time before the final location of the buildings and utilities was determined. The main building would be 120 feet by 70

Squadron Leader L. J. Nevin.



feet, and to set the footings on solid rock it was necessary to dig with jack-hammers through five feet of frozen overburden.

It was apparent that the sub-zero temperatures normal to the region were, to say the least, unsuitable for placing concrete, as it should be mixed, placed and cured at a minimum temperature of 60°F. We then anticipated by some years what is claimed to be a recent innovation—that is, constructing a canvas shelter or tent over the entire foundation area. We acquired sufficient oil-burning stoves and space heaters to maintain a temperature of plus 50°F and illuminated the interior by electricity from an auxiliary power unit.

The aggregate for the concrete was heated in the open by a Salamander; the water for the "mix" was also heated to the desired temperature. The form work and pouring of concrete proceeded smoothly. At 28 days after placing, the compressive strength of the concrete was 3,000 pounds per square inch. It could be considered a tribute to the designers in Ottawa, to the factory that fabricated them, and the cartage agents who transported them that the structural steel members fitted perfectly, as did the prefabricated aluminum panels. When the buildings were constructed we were not short any steel or panels, and there were no leftovers.

The buildings, all of permanent type construction, were finished within the deadline and passed the final inspection with flying colours. Locating and constructing the necessary roads presented no problems other than those usually encountered in hilly country where there is combination of permafrost extending from the surface, swamp, muskeg and rock outcrop. Constructing the electrical distribution system included erecting masts and poles. As the ground in the building area was mostly granite outcrop, it was necessary to resort to drilling and blasting to set the poles.

WATER WORRIES

The provision of a continuous and adequate water supply for both domestic and firefighting purposes was the next important problem. In a permafrost region where swamps, lakes and rivers are a prominent feature of the landscape and the terrain apparently abounds with water, a year round supply may be a very difficult problem. The rivers and lakes may freeze to the bottom, while springs and shallow wells usually go dry during the winter. Obtaining water by deep wells from a dependable source presents a mechanical difficulty of drilling through the entire thickness of permafrost.

In relation to a possible adequate source of water, the building site was originally chosen for its proximity to a lake three-quarters of a mile away and at an elevation of 90 feet below it. The water was tested for potability and proved satisfactory. Soundings proved the lake to be quite shallow, even though it covered an area of 60 acres.

A.M.C.H.Q. forwarded a design for the water intake, pumphouse, water main and a 100,000 gallon water reservoir. The intake was located in the deepest part of the lake 500 feet from the edge nearest the pumphouse. Installation of this intake and the 500 feet of pipe

presented a construction problem as there was one foot of ice on the lake, then water, next a layer of fine mud and under this the ground was permanently frozen. This frozen ground would require excavating to a depth of 12 feet. The problem was solved by dumping and bulldozing sufficient fill to construct a peninsula down the centre of the lake from pumphouse to the intake. It was relatively simple to excavate along the centre of this peninsula as we were working on dry solid ground.

I GO OUT ON A LIMB

The original design specified that the water main from pumphouse to reservoir was to be on the surface of the ground and enclosed in an insulated steam-heated conduit. In addition, it would entail constructing and maintaining a small steam generating plant. Considering the cost of the insulated conduit and the expense of providing and maintaining heat, I wondered if a less expensive design were possible.

I remembered Snag. There in the winter of 1947 the thermometer registered 81°F below zero, with the result that the water and sanitary services froze up. An airman, who evidently had not read text books on the subject, hooked up a series of 2½-inch canvas fire hose from the pump-

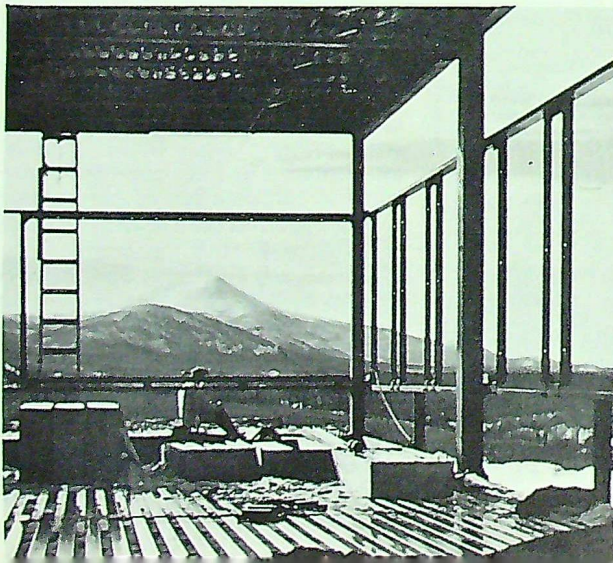
house to the buildings, ran the hose on the bare frozen ground and kept the water flowing. My present theory was to dispense with artificial insulation by burying the main to a depth of six feet; have the main on a continuous slope without any dips; next pump the reservoir full; then drain the line into the lake. The water storage tank was of such a capacity that it would only be necessary to pump water into it every sixth day.

I outlined the proposal to one of my superiors and, thanks to his judgement, A.M.C.H.Q. gave me the "green light" to construct the water services to my own design.

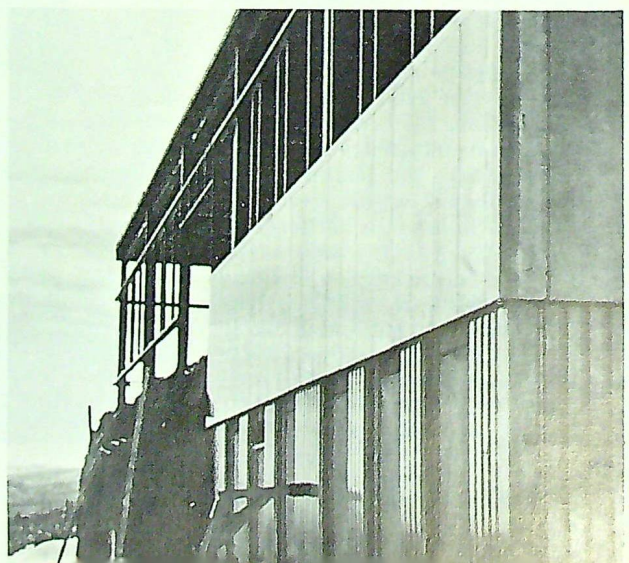
The mercury was down to minus 40°F and we had almost completed laying the uninsulated main in the frozen trench when others connected with the project not only became skeptical about the feasibility of the uninsulated water main, but expressed themselves as certain that it would freeze up. It was only natural that I should start doubting the successful outcome, and, looking for reassurance, I confided my problem to an engineer/physicist. He offered to study the problem and ten days later sent me a five-page treatise on the subject.

The essence of his study was that indubitably the line would freeze

Main building takes shape against backdrop of the Pelly Mountains.



Prefabricated, insulated aluminum panels on structural steel framing . . .





Graduation at Le College Militaire Royal de Saint-Jean

The colour party leads the march past at College Militaire Royal's 1958 graduation parade at St. Johns, P.Q. Guest of honour at the ceremonies was Defence Minister G. R. Pearkes, seen here chatting with

C.M.R. Commandant, Group Captain J. G. Archambault, and trophy-winning cadets S. E. McGowan, G. Lahaie and J. A. Roy.

up solid. To put it mildly I was horrified, not only at botching the job, but at the possibility of causing embarrassment to my superior whom I had practically importuned into allowing me to depart from the original somewhat prodigal but proven design, and substitute what now appeared, even to me, as a feather-brained scheme.

SUCCESS !

Grasping at a straw, I took consolation at the thought that if the reservoir were initially filled and the line froze up while emptying itself, we would have a couple of days to thaw the line before the station would suffer a water shortage. Therefore, to permit the use of an electric thawing machine and before backfilling the main, we welded lengths of copper rod on it at intervals of 50 feet. These rods protruded to surface and in the

event of a freeze-up could be used to thaw the line by successive sections.

There did not seem any course left but to start the pump operating, and watch inexorable natural laws decide the outcome. The reservoir was filled without a hitch; we stopped the pump, opened the by-pass valve and drained the line back into the lake. We repeated the operation 36 hours afterwards and still no freezing of the system

occurred. In the ten years since elapsed, the water service has been functioning perfectly.

The entire project was carried to a successful conclusion. That's it—in cold, impersonal, official language; but who shall list or sum up the price in human endeavour and endurance? Armchair explorers glowingly speak of the challenge of bucking the frozen wastes; they should try driving an open, unheated jeep at 60° below!



Dead - But Don't Lie Down

An intriguing assertion caused heads to shake among aeromedical experts at the 1958 meeting of the Aero Medical Association. It was a statement by Dr. James B. Edson, U.S. Army Assistant Director of Research and Development, who recently wrote in "The Bulletin of the Atomic Scientists" that space medicine experts were working on a synthetic substance that could be injected into the bloodstream, making eating, drinking, and breathing unnecessary.

The Suggestion Box

Air Marshal Hugh Campbell, Chief of the Air Staff, has written letters of thanks to the undermentioned, for original suggestions which have been officially adopted by the R.C.A.F.



Flt. Lt. J. B. Reeves, of Air Materiel Command Headquarters, designed a new refuelling nozzle screen. (Cash award.)



W.O. 2 R. D. Wright, of Air Materiel Command Headquarters, suggested the salvaging and repacking of explosive links used for canopy ejection on *Canuck* aircraft. (Cash award.)

Sgt. R. R. D'Entremont, of R.C.A.F. Station Beaverbank, developed a method of rapidly testing the azimuth servo drive amplifier on the AN-280/CPS-6B search and height finder. (Cash award.)



Flying Officer A. P. Coleman, of Air Force Headquarters, suggested a revision to R.C.A.F. Form A124, Pay Control Register.



L.A.C. F. W. Vincent, of R.C.A.F. Station North Bay, designed a fibre-end cap to be fitted to .50 calibre machine gun cleaning rod.

Cpls. A. E. Wilson and R. G. K. Mott, both of 4 Fighter Wing, invented an instrument for rapid testing the delay timer in the fire control system of *Sabre* aircraft. The test set, known as the "Wil-Mo" (derived from the two inventors' names), is now in production. (Cash award.)



The Airwoman's Debt to the Figurine

A RECENT suggestion to introduce the sack style of dress for airwomen was quickly squelched following the circulation of a figurine depicting the service woman of 1941.

To provide readers with a background on this controversy, "The Roundel" assigned a reporter to make an exhaustive survey of airwomen's uniforms. After months of study, during which airwomen were required to sit in office chairs for weeks at a stretch and provide

first-hand impressions on the wearability of dress, it was concluded that not a new style, but immediate implementation of the 5BX exercise plan, was needed throughout the R.C.A.F.

Details of the findings are, of course, restricted at this time. However, it may be safely stated that no sweeping changes in airwomen's dress are expected in the near future. This seems to be borne out by the fact that a great deal of study has been given to uniforms in recent years with due consideration of the squat, tall and well rounded figures.

From the survey it was learned that the winning of the Irish Sweepstakes by an airwoman was the reason for the big pockets of the 1941 uniform. This also accounted for the wearing of the purse strap over the left shoulder so that apprentice thieves might be discouraged from snatching handbags.

It soon became apparent that not all airwomen are so blessed with money. In addition, the survey showed that the "well-heeled" were burying their money in places other than their pockets. It followed that patch pockets were no longer required and that a more feminine appeal could be attained from a less adorned jacket.

Having made one drastic change in the uniform, others were bound to follow. The old "icebag" style of cap was next to fall. With a cry of approval from beauty salons across the nation, a new, smaller and neater airwoman's hat was introduced. Airwomen were given a chance to display their hair-do's in more flattering fashion. In feminine jargon this change was referred to as the "crowning glory".

Then, by progressive steps, belts were discarded and skirts lengthened. Gone forever, we hope, is the old sergeant-major appearance so amply displayed by the figurine on the left. Here to stay, for the

foreseeable future at least, is the smartly tailored ensemble pictured on the right.

Fashion designers were forced to agree with "The Roundel's" final conclusion. It was simply this: The proposed sack style of dress for airwomen, being a reasonable facimile of the 1941 figurine's uniform (fortunately discarded at the end of the war), proves that the R.C.A.F. was years ahead in sacking the sack.



Comox's Flying Sky Pilot

BY FLIGHT LIEUTENANT T. H. COLLINS

Staff Officer Public Relations, 5 Air Division Hdqts.

THE turbine whined and the kerosene fired up with a roar as the jet quivered at its chocks on the flight line at R.C.A.F. Station Comox. Under instruction, but at the controls of the T-33, a slim, 43-year-old flight lieutenant, wearing pilot's wings and a double row of ribbons on his tunic, grinned happily as the instructor eased the trainer to the end of the runway.

The voice of the control tower operator crackled in his earphones: "You are cleared for take-off, padre—and good luck."

WARTIME BOMBER PILOT

The only chaplain in the Air Force wearing pilot's wings and the Distinguished Flying Cross was back in the air again—not at the controls of a bomb-laden *Lancaster*, but flying at 30,000 feet over the quiet countryside of Vancouver Island.

Flight Lieutenant J. K. Goldie is a protestant padre, with an understanding of Air Force personnel and their families that is a result of personal experience seldom granted other ministers of the cloth. His life has been an amazing career of circumstances and grim determination to overcome all obstacles on his path to success.

With the cheerful grin so well-known to his congregation, he said flying a jet was a "pleasure" but admitted that he was a "little rusty" at the controls.

MANNING DAZE

In the fall of 1940 clothing salesman Goldie joined the R.C.A.F. and became part of the stream of young men who formed the nucleus of the British Commonwealth Air Training Plan. But before these men ever saw an aircraft, they were slated to run the gauntlet of frustrating delays and endless parades that seemed to be the major role of the manning depots.

AC2 Goldie wound up with a broom in his hands, busy moving the dust from corner to corner of the depot floor. At this point his



previous experience as a clothing salesman nearly cost him his flying career in the Air Force.

While sweeping near a clothing parade of new recruits he noticed the clothing corporal, in a sad state of confusion, was issuing uniforms with minor consideration to the man's size or shape. Finally, he started suggesting more suitable sizes and the sergeant in charge overheard his remarks.

Overjoyed to find someone who knew something about the job, the sergeant urged Goldie to remain at the depot as a clothing specialist.

"He even promised me my corporal's stripes in a year," the padre recalled with a grin.

At last he became a pilot trainee at Regina and Yorkton and,

with about 110 hours to his credit, headed overseas in 1941 with his course of 58 brand new pilots.

"To the best of my knowledge there are only nine of us left now," he said.

The air battles were at their peak in Britain and Hitler's fighters were switching from daylight to night raids. Five Canadians, including Goldie, were chosen to attend a special fighter instructor's course with the Royal Air Force. But the training stations in Great Britain were also suffering heavy losses from enemy attacks, and bad weather was taking its toll in crashes. The entire squadron was moved back to Canada to continue training as a unit.

"Only eight months overseas and I wound up back in Saskatchewan," he reminisced. "I immediately put my name on the list to return overseas and after instructing with the R.A.F. in Calgary, Yorkton and Swift Current, I finally made it in 1943."

OVERSEAS AGAIN

By this time the tide of war had turned and the allies were now on the offensive. Fighter pilots were no longer at a premium and the emphasis was being placed on the heavy bomber. Flt. Lt. Goldie was transferred north to Yorkshire with the R.C.A.F.'s Six Group as a heavy bomber pilot in 428 (Ghost) Squadron.

With his crew he trained in this new role as a bomber pilot and soon mastered the four-engined *Lancaster*. His first trip with a full bomb load, the padre recalled, was not as well organized as it should have been.

"We were not even supposed to have been on the raid and, as a result, didn't attend the briefing. They caught us at the last minute on the way to town and told us we would have to attend a short briefing and stand by for an all out effort," he said. "We were late taking off and the weather was bad, but we caught up with the bomber stream over France. The rear guns were unserviceable but we thought we could get away with it."

Five trips later he was awarded the Distinguished Flying Cross. The citation read:

"Flt. Lt. Goldie was pilot of an aircraft detailed to attack Ludwigshaven in December, 1944. It was his first sortie as captain. During the outward flight it was discovered that only one of the guns in the rear turret was serviceable. Nevertheless, Flt. Lt. Goldie continued to the target and pressed home a successful attack."

The citation continued:

"On another occasion, en route to Duisburg, part of the oxygen supply failed. Flt. Lt. Goldie promptly instructed the wireless operator to effect repairs. The latter's oxygen supply also failed and this crew member lost consciousness. With great coolness and presence of mind, Flt. Lt. Goldie descended to a very low altitude in order to enable his comrades to recover and then repair the defective system. He afterwards continued to the target and executed a good attack. Flt. Lt. Goldie displayed exceptional coolness and devotion to duty on both occasions."

He successfully completed 18 operational trips before the war in Europe ended and the bomber crews turned their eyes to Japan in the Far East, and to Canada for further training to end that conflict.

AIRLIFT TO CANADA

Heavy bombers were urgently required in Canada and it was decided to fly them home rather than have them crated and shipped by sea.

"I had been promoted to squad-

Flies This Summer

North American Aviation's A3J twin-jet weapon-system "Vigilante", to be based aboard U.S.N. carriers, was christened recently. The supersonic aircraft is designed to deliver a wide variety of ordnance, including nuclear weapons, to sea or land targets in any weather. Top speed: classified. Power: two General Electric J79-2 engines, each developing 15,000 pounds thrust. First flight: summer of 1958. Crew: pilot and bombardier-navigator.

ron leader by this time and also made a flight commander," Padre Goldie said, "and we were given the job of flying the first 15 aircraft back to Canada."

The route was via the Azores to Halifax where a large group of dignitaries and press were waiting to greet the returning heroes. On arrival in Halifax, Sqn. Ldr. Goldie was given special permission to fly low over the city as a salute to their arrival.

"I really wound it up over the bay and came in over the city—not too low—about 75 feet," he recalled with a grin. "They had never seen a *Lancaster* there before and wanted a close look at one for the newsreels."

CIVVY STREET

Padre Goldie accepted his discharge from the R.C.A.F. in 1945 and "just to get my feet on the ground" obtained a job in a lumber yard. Shortly thereafter, to see if he was still a good salesman, he decided to try selling soap.

"Believe me, that soap selling is a tough business but I did quite well," the former squadron leader said. "They told me I was a natural born salesman."

But by this time civilian Goldie, aged 30, knew what he wanted

to do and, under the Department of Veterans' Affairs rehabilitation plan, returned to school.

"After those years of war and all its horrors, I finally knew where I was heading and decided to join the ministry," he said.

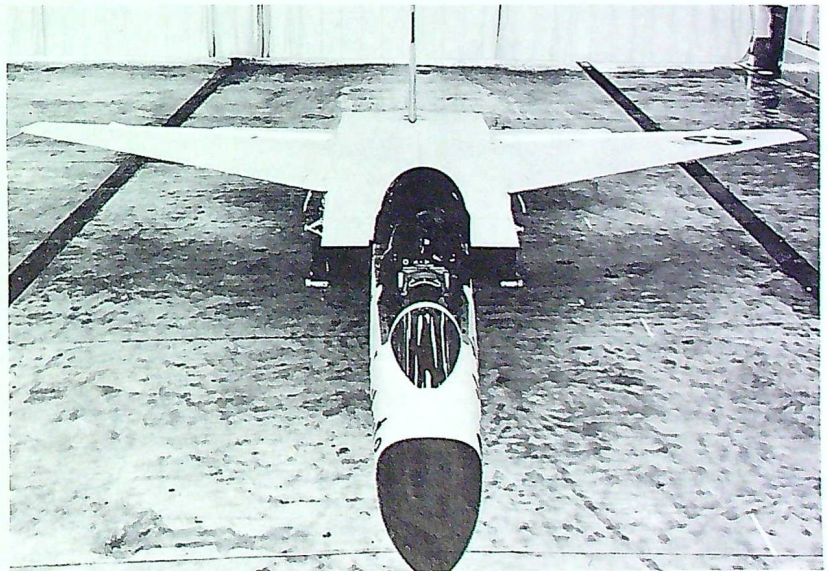
With a wife and two children, it was an uphill fight all the way. For a man who left high school more than 10 years previously and had been actively engaged in the greatest conflict the world had ever known, it was difficult to settle down to a college routine.

"I sold my car, took a part-time job as a janitor in a church, and sold brushes on the side," he said. "It was pretty rough going."

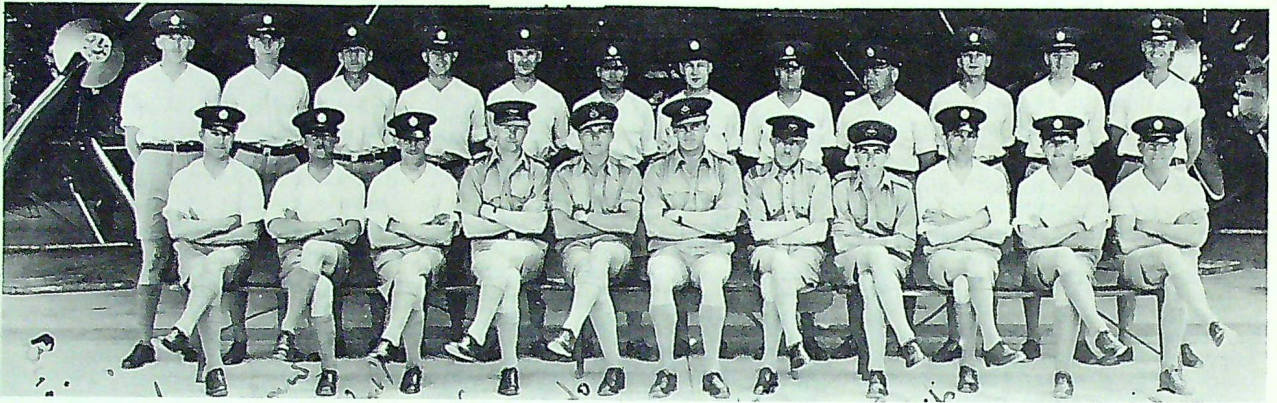
But student Goldie won through and was granted his Diploma in Theology at the University of Manitoba.

As an ordained minister his first parish was the Grey Street United Church in Winnipeg; his second is the Royal Canadian Air Force, to which he returned in 1953. Flt. Lt. Padre Goldie is not an active jet pilot, but he speaks the language of the aircrew, understands their problems and their feelings.

There is no shortage of male voices on Sunday in the choir of his little church at R.C.A.F. Station Comox.



Pin-Points in the Past



Thanks to P.V. Fletcher (W.O.1 ret.), personnel of the "Siskin" Fighter Flight at R.C.A.F. Station Trenton in the summer of 1934 are hereby presented for inspection. Front row (left to right): Cpl. P.V. Fletcher; Sgt. R. Laidlaw (Sqn. Ldr., ret.); Sgt. R. Marshall (Flt. Lt., ret.); F/O R.G. Briese (Wing Cdr., dec.); F/O D.M. Edwards (Group Capt.); F/O W.A. Jones (Group Capt., dec.); Flt. Lt. E.G. Fullerton (Group Capt., ret.); F/O D.S. Blaine (Air Cdre.); Sgt. D. Ceifets (W.O.1, ret.); O.R. Alty (Sqn. Ldr., ret.); G. Smith (W.O.1, ret.) Second Row (l. to r.): Aircraftmen J.R. Burdes (W.O.1, ret.); A.W. Mitchell (Sqn. Ldr., ret.); E. Barry (W.O.1, ret.) E.A. Smith (Wing Cdr.); C.G. Smith (Sqn. Ldr.); F.D. Gibbs (F/O); W.A. Peters (Sqn. Ldr.); W.A. Winder (F/O, ret.); J. Gould (W.O.1, ret.); F.L. Benson (Flt. Lt., ret.); A.N. Roth (Wing Cdr.); J.S. Jordan (Wing Cdr.).



This nostalgic picture comes from Sqn. Ldr. R. H. Pook, a member of the Camp Borden Fliers box lacrosse team of 1932. Stripped for action are, front row (left to right): Corporal E. Sawyer (Flt. Sgt., retired), Aircraftman R. Kerr (Wing Cdr.), A.C. T. A. Drake (Flt. Sgt., ret.), Cpl. E. A. Lalonde (Sgt., ret.); centre row (l. to r.): A.C. D. E. Powers (W.O.2, ret.), A.C. R. F. Hebert (Sqn. Ldr., deceased), Cpl. S. O. Partridge (Sqn. Ldr., A.F.C.), Flt. Lt. L. R. Charron, Manager-coach (dec.), Flt. Sgt. A. C. Duggan (Flt. Lt., ret.), A.C. A. T. Mason (Wing Cdr., M.B.E.), A.C. E. A. Smith (Wing Cdr.); back row (l. to r.): A.C. L. J. Ryan (Flt. Lt., ret.), Flt. Sgt. L. H. Perry (W.O.1, ret.), A.C. E. Burns (Sqn. Ldr., ret.), A.C. R. H. Pook (Sqn. Ldr.), A.C. T. A. Spruston (Group Capt., M.B.E.), A.C. S. G. Cable (W.O.1), Cpl. C. D. McLean (Wing Cdr., ret.), A.C. R. J. Ounsted (L.A.C., ret.), Flt. Sgt. D. R. Gilchrist (W.O.1, dec.), Staff Sgt. M. H. Mills (Flt. Lt., ret.).

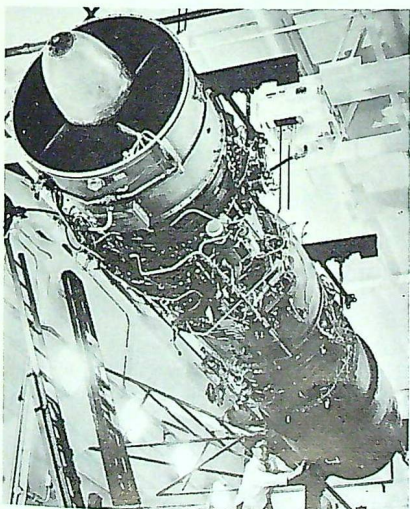


Grostenquinites' Reunion at Rockcliffe

Last month's Letters to the Editor column included a short report on the reunion of 2 Fighter Wing personnel at R.C.A.F. Station Rockcliffe. The picture above shows some of the 400 merrymakers who came from far and wide to reminisce about their happy tours in France.

The Iroquois

This is the first released photograph of the Iroquois turbojet engine, being developed by Orenda Engines Ltd. of Malton, Ont. Now being flight tested in a modified B-47, the Iroquois has a thrust-weight ratio of over five to one and is rated at more than 20,000 lbs. of thrust.



GOLDEN ANNIVERSARY CO-ORDINATOR

The National Co-ordinating Council for the Golden Anniversary of Flight in Canada has appointed Wing Commander Harold Pearce, M.B.E., C.D., F.R.P.S., retired, as national co-ordinator of the observances being planned for next year. His office is located in Room 801, 77 Metcalfe St., Ottawa, Ont.

Wing Cdr. Pearce recently retired from the R.C.A.F. after 31 years of varied service experience. He served with photographic operations, army co-operation and flying boat squadrons prior to the Second World War. During the war he commanded the R.C.A.F. Photographic Establishment, later conducted a wide research programme into photo reconnaissance equipment and was responsible for the development of special aircraft and equipment for aeronautical charting of the Arctic. (His is the unusual honour of having an Arctic Lake - Pearce Lake in the Keewatin area - named for him by the Geographic Board on Place Names.) His last post before



retirement was as Chief Technical Services Officer at R.C.A.F. Station Comox.

A collection of water colours of R.C.A.F. aircraft painted by Wing Cdr. Pearce now forms part of the historical collection of the Canadian National War Museum.

Desert Flying

(continued from page 11)

overheat after takeoff. In the southern mountains, particularly, climbing is a constant battle between mixture, forward airspeed and cylinder head temperature. Often, after climbing to a high altitude to reach a lower outside air temperature, the pilots encounter a layer of air even warmer than at ground level.

The highly efficient *Otters* are in use daily. It is doubtful if any other aircraft could operate as successfully from the short desert landing fields with such a heavy payload.

GOOD RECORD

During the first year of its desert operation, 115 Comm. Flt., now ATU, flew 2,785 hours. In that time only two accidents occurred. Part of their success is attributed to the fact that the aircrew are experienced personnel drawn from transport squadrons and rescue flights familiar with northern bush flying. Certain Arctic flying techniques have been put to good use in the Sinai Desert. The operation of aircraft from unprepared, short fields duplicates northern flying, and pilot navigation is similar because of the lack of radio aids and well defined land-marks. There are few roads or camel routes, no rivers, and the



Contrasting "ships of the desert" meet at the U.N.E.F. airfield, El Arish, Egypt. Pilot of the R.C.A.F. Dakota is Flying Officer R. N. Patton; pilot of camel is anonymous.

mountains lack any distinguishing features.

Recently, at a unit mess dinner, Lieutenant General E. L. M. Burns, Commander-in-Chief of U.N.E.F., toasted the Air Transport Unit and remarked that the men of the desert outposts felt much at ease knowing that if any accident occurs, the white aircraft of ATU (known on the Sinai as "Sunshine Airlines") will bring immediate relief, and speed any sick or injured personnel to the hospital.



Airborne TV

Canada's first helicopter-borne television show was sent across the C.B.C. French network recently when "Sur Place", a half hour of informative family entertainment, took a flight around St. Hubert in an H-34 Sikorsky of 108 Comm. Flt.

Two cameras covered the flight - one on board and one on the ground - as the chopper was put through its paces by Flt. Lt. B. Wright. Pickup from the airborne camera was beamed back to a microwave transmitter on the airfield and sent on to the C.B.C. ten miles away in Montreal. Throughout the various manoeuvres of the helicopter, sound and picture strength remained strong.



Aquatic Airman

One airman who has licked the high cost of boating is Sergeant R. Ward, who now sports one of the classiest "cruisers" in the Halifax area. Sgt. Ward is seen here applying the finishing touches to *Pegasus III*, which took six months of spare-time effort to complete in the hobby shop at R.C.A.F. Goresbrook. This is his fifth home-made craft.

W/C SHOWLER AWARDED McKEE TROPHY FOR ARCTIC SURVEY

FOR his general contribution to the successful and accurate mapping of the Arctic while commanding No. 408 (Photo) Squadron, Wing Commander J. G. Showler has been awarded the Trans-Canada (McKee) Trophy for 1957.

The award of the trophy to Wing Cdr. Showler brings to eight the number of R.C.A.F. officers who, while serving in the regular force, have merited the award since its inception in 1927.

During 1957 408 Squadron completed an Arctic survey begun nine years previously. This operation was executed under extreme weather conditions and after months of precise planning to ensure that every piece of equipment was repositioned by sea or aircraft.

The Short Range Aid to Navigation (SHORAN) device was used to conduct the survey. Developed during the Second World War as a navigational aid for pin-pointing blind bombing, the device was

adapted for aerial survey in 1949 following two years of experimentation.

Essentially an electronic distance measuring device, SHORAN consists of both airborne and ground equipment. Through its use, points of unknown position can be established accurately. From 1948 to 1956 a lattice-work of known positions was built up and during 1957 the extreme northern Arctic islands were surveyed.

More than 100,000 pounds of equipment and over 250 personnel were airlifted to Thule and Resolute Bay during the 1957 SHORAN programme. *Dakotas* and *Lancasters* flew over 1700 hours during the operation and completely self-sustaining stations, each weighing 8000 pounds, were airlifted to preselected sites. Many of these sites were chosen by Wing Cdr. Showler by on-the-spot checking.

This completed the geodetic survey of the whole of Canada. Wing Cdr. Showler's vast northern experience, personal drive and enthusiasm, along with the ability to assess the capabilities of his men and equipment, were largely instrumental in the success of the 1957 Arctic programme.

In becoming the 30th recipient of the Trans-Canada Trophy, Wing Cdr. Showler joins a select group of pioneer flyers beginning with the inaugural winner, H. A. Oaks. Mr. Oaks, a pioneer bush pilot and founder of Western Canada Airways, won the award in 1927 for early flying endeavours which helped greatly in opening up the north country by air.

The trophy is presented each year for meritorious services in the advancement of Canadian aviation. Emphasis is placed on performance throughout the year rather than on a single brilliant exploit and special

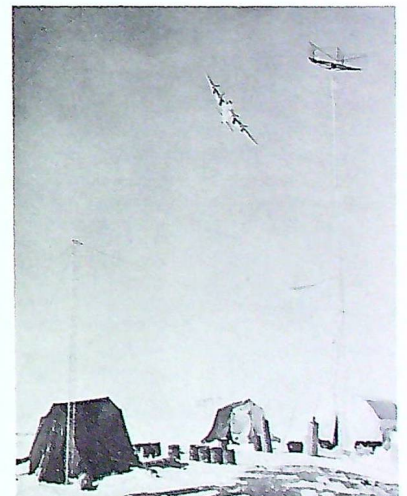


The Winner

consideration is given to the application of aircraft and aviation equipment to new and useful purposes.

Squadron Leader J. H. Tudhope in 1930 was the first officer, while serving with the R.C.A.F., to win the award. Other R.C.A.F. winners were: Flt. Lt. E. G. Fullerton—1934; Group Captain Z. L. Leigh—1946; Flying Officer R. B. West—1948; Squadron Leader K. R. Greenaway—1952; Wing Cdr. J. S. Wright—1954 and Sq. Ldr. R. T. Heaslip—1956.

The Job



The Trophy



DUNNVILLE'S 13TH REUNION

Dear Sir:

The 13th annual reunion of former airmen and officers of No. 6 S.F.T.S., R.C.A.F. Stn. Dunnville, will be held at the Dunnville Golf and Country Club on Saturday, 20 September 1958. All former air force members, all ranks and both sexes, who were ever permanently or temporarily stationed at No. 6 are most cordially invited to attend. Any member not presently on the mailing list, or who knows of any person not on the list please send the names and addresses to the undersigned for full details.

This, we believe, is the only war time training station that has held an annual reunion since the end of the war, and we are pleased that the attendance is increasing each year.

Herewith a picture of president Dr. W. C. B. Mills presenting an award to A. E. Dick of London, Ont., at last year's banquet. I am at the right.

Frank Scholfield, Sec.-Treas.,
Box 814, Dunnville, Ont.



CHANGE OF ADDRESS

It is most important that Association members notify National Headquarters of all changes of address. Issues of "The Roundel" which are missed by failure to notify us cannot always be provided at a later date.

Association members are asked to send a card immediately upon moving, stating both their old and new address, to: Secretary, R.C.A.F. Association, 424 Metcalfe St., Ottawa, Ont.

CANADIAN SCOUTS IN EUROPE

Dear Sir:

Within 1 Air Division the Boy Scout movement has been quite active over the past few years. Enrolment totals nearly 700 boys and there are over 70 leaders.

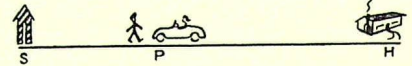
One of the biggest problems has been leadership training. Recently, authority was obtained from Boy Scouts Association Headquarters to hold our first officially accredited preliminary training course for Wolf Cub Leaders at 2 (F) Wing. The course was held on 25 and 26 Apr. 58 under the direction of Cpl. Gordon Pickard. Some of the organizational problems were handled by Flight Sergeant M. E. Kahle, Chairman of the Scout Group Committee at Grostenquin.

Here is a photograph showing the Course Leader, his assistants and the course members. All are either R.C.A.F. personnel or dependents.

Wing Commander G. L. Pincock,
District Commissioner,
H.Q. 1 Air Div. R.C.A.F.



The Blowguns arrived home 10 minutes ahead of their normal time. Therefore, $2 \times SP = 10$ minutes, and $SP = 5$ minutes. As Mrs. B. ordinarily arrived at S at 1700 hrs., she must have been at P at 1655 hrs. Thus, the sergeant was walking for 55 minutes.



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

Words Pay No Debts

Honesty is the best policy and it saves embarrassment, as the following true anecdote of a Western Canadian unit reveals:

A pay-day party that carried over late in the evening from the airmen's canteen to the airmen's barracks, attracted the attention of the Air Force Police.

The following morning, the S.W.O. informed the errant group they were being detailed for repair work on the sports field. One enterprising airman suggested he

be exempted from this chore, claiming he had worked to midnight and had gone to the party after coming off shift only to ask the celebrants to keep quiet.

The S.W.O. promised to check his story. On return to his section, the airman was informed by his section W.O. that he was in the clear. "Don't worry," smiled the benevolent superior, "I told the S.W.O. I had given you permission to leave the station at nine o'clock last night."

THE R.C.A.F. BENEVOLENT FUND

The Royal Canadian Air Force Benevolent Fund was established in order to assist serving and former members of the R.C.A.F. and their dependents in time of financial distress.

SERVING PERSONNEL can obtain full information from their units' Orderly Rooms.
FORMER MEMBERS can obtain it from:

- The local Benevolent Fund Committee.*
- Any Wing of the R.C.A.F. Association.
- Any District Office of D.V.A.
- Royal Canadian Air Force Benevolent Fund (Inc.), 424 Metcalfe St., Ottawa, Ont.

*This address is obtainable from any of the other three sources.

Edmond Cloutier

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