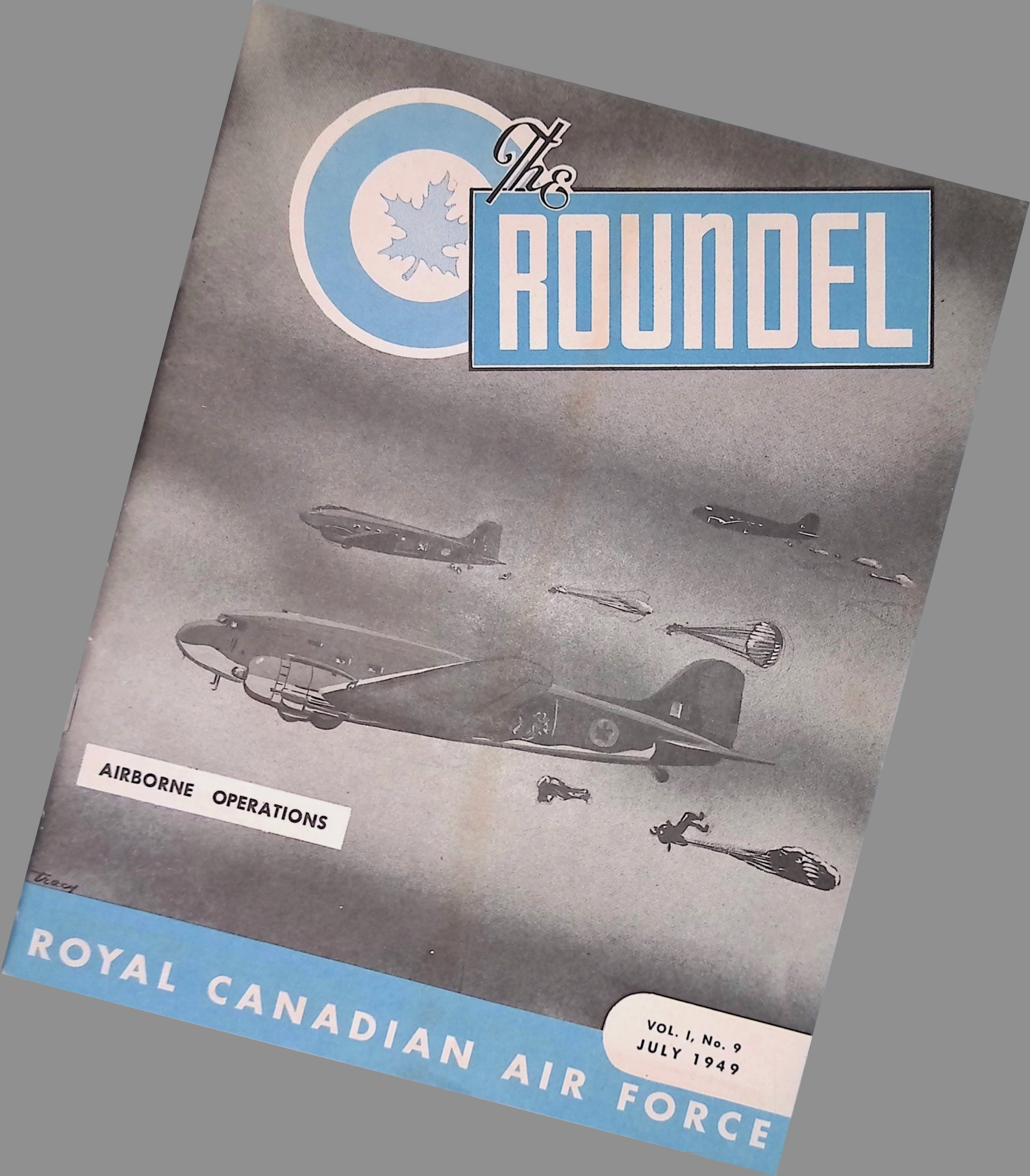
The ROUNDEL



AIRBORNE OPERATIONS

ROYAL CANADIAN AIR FORCE

VOL. I, No. 9
JULY 1949

The ROUNDEL

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VOL. I, No. 9 JULY 1949

CONTENTS

SHATTERPROOF STANDS ALONE

I CLIMBED OUT OF THE DAKOTA on to the Trenton tarmac and ambled off in the general direction of ale. The editorial gait was slow, partly because the day was hot, and partly because I recalled that the Mess bar would not be open for almost half an hour. Having crossed the highway that separates the hangar area from the main Station, I passed through the barrier and turned left along the little-used path leading along the outer edge of the parade ground. . .

"Welcome to Trenton, Sir," said a familiar voice.

I turned my head.

There beneath a tree on the grass border I saw what at first glance appeared to be a heap of old uniforms. Even as I looked, however, it rose to its feet, saluted, and advanced towards me.

"Shatterproof! What on earth are you doing here?"

He felt in his pocket, and after a short but desperate struggle with the lining, produced his pipe. When he had filled and lit it, he said:

"That, sir, is a matter for debate. According to Flight Lieutenant Hornet, our Station Adjutant, I have been taking a course. In point of fact, I have been giving one."

He winked with great solemnity, and his craggy countenance wrinkled alarmingly in what I interpreted as a whimsical smile.

"What course is that, Sergeant?"

"The Service Management Course. It was about time."

Though I shared his view, I didn't say so. Instead, I made a deprecatory noise.

"Come, come, Shatterproof! You needn't be as modest as all that."

His expression chilled.

"Modest? I think we misunderstand each other, sir. I mean, of course, that it was about time for the School of Service Management. It needed a guiding hand. Needless to say, I have done my duty. You may announce to the Air Force that the course is now safe to take. Shatterproof has set his hand to the helm."

"I'll do that. What's the course like?"

A Vampire streaked overhead, trailing its brief scream behind it. When it had passed, Sgt. Shatterproof went on in a lowered tone.

"Would you believe, sir, that I found the misguided young officers in charge of it actually suggesting that we run the Service on more business-like principles?"

I reeled back, stricken.

"No, Shatterproof! No!"

He nodded.

"Your reaction is no more than I expected from an officer of the old school. But have no fear: I have shown them their error. As I explained to the Chief Instructor, they are striking at the very roots of Service tradition. What the boys in the field are crying for, I told him, is not a Service Management Course, but a course in how to manage the Brass."

"You feel that might help?"

"Sir," he said, "it is the only answer." And he gazed away into space, as one who plumbs the depths of the infinite and finds them pretty horrible.

"When did you get down here?" I asked at length.

"About ten days ago. WO1 Gallstone called me in one morning and advised me that I was to proceed to Trenton that evening for the Service Management Course—which, in his crudely expressed opinion, I needed more than anyone he knew, ever had known, or was ever likely to know. I said nothing. It would have been a waste of time to tell him that I was not in the least surprised. Sooner or later the School staff was bound to call upon my knowledge."

"You find the course interesting?"

He quaked with a soundless belly-laugh.

"As a study in misapplied energy, sir—yes. However, I have left no stone unturned to direct the staff's enthusiasm into more productive channels. Shatterproof never grudges of his best in the cause of the Service."

He knocked the ashes from his pipe, and refilled it. After a few puffs, he went on:

"Accustomed as I am to making lightning assessments of difficult situations, I perceived immediately that my first task would be to establish the note to which future courses must be attuned. After the OC's opening address, each member of the class was required to stand up, introduce himself by name, and give a brief account of his past Service career. I spoke for an hour."

"Good Lord! What about?"

"My past Service career, naturally—my lifelong attempt to educate the Brass—my work as a WO2 and a Flight Sergeant—my handling of WO1 Gallstone—famous men I have put on charge—my piloting of 'The Roundel'—in fact, everything I have done to keep the Air Force functional. In a word, I gave my listeners an example to follow. They sat with closed eyes, concentrating on my every word. Nor—despite his efforts to conceal it with his hand—did I fail to notice that even the OC kept opening his mouth in astonishment."

"That must have established things pretty well, Sergeant."

He paused to frown at a Mustang slow-rolling above us. Then:

"I think it did," he said. "But it was in the preliminary test that I achieved my first real triumph. This was a test to ascertain how much we already knew about Service Management. I am proud to say that my answers, based as they were upon a quarter of a century of advanced thinking, were so far above the instructors' heads that they freely admitted they could not give me any marks. However, I soon put them at their ease again. 'You will, ' I told them, 'gather more about my methods as the course proceeds. Meanwhile, gentlemen, you have no occasion to feel embarrassed. After all, I ought to know something by this time.' They agreed, very heartily, that I ought."

"But tell me, Shatterproof," I said. "Have you spent your whole time in teaching? Have you got nothing from the course?"

He sighed and shook his head.

"No, Sir. Nothing. As a matter of fact, one of the instructors themselves had to confess to me that I was the only man whom they had been unable to teach a single thing. Even the necessity of avoiding the chemistry of violent reaction was not new to me."

"What the devil's that?"

He surveyed me with pity.

"The chemistry of violent reaction? It is a phrase used in the subject of personnel relationships. Perhaps I can best illustrate it to you by reminding you of the letter I wrote you last month. Do you recall Miss Clasper?"

I thought for a moment.

"Farmer Fetlock's sister-in-law? Yes, of course I do."

"Good. The subject is a delicate one, but, as I ventured to hint, Miss Clasper reacts somewhat violently towards me. As a means of expressing her esteem, she pursues me with pies. Her cooking

—and cooking is, after all, a form of chemistry—is not of a very high calibre. Therefore, as I told you in my letter, I avoid it."

"I see. By the way, when does your course end?"

"It ended about two hours ago. I finished first."

"Congratulations!"

"Thank you, Sir. Yes, I have every reason to feel gratified. The OC called me in at ten o'clock this morning and informed me that he could see no point in my remaining on the course any longer. 'In my fairly wide experience both in the RAF and the RCAF,' he said, 'you, Sergeant Shatterproof, stand alone.' "

"An officer of some discernment, I would say."

He gave a judicial nod. Then, digging deep into his trouser pocket, he drew forth an enormous watch. He studied its dial with care.

"Let me see," he murmured to himself. "Add the one hour and forty-eight minutes slow, plus one hour for daylight saving, and deduct four minutes for the kink in the hand . . . yes!"

He returned it to his pocket.

"It is now," he announced, "exactly twelve o'clock. Our respective bars are open. Good-bye, Sir."

Settling his KR(Air) more firmly beneath his left arm, he saluted, turned on his heel, and marched rapidly away towards his noontide noggin.

"DUEL IN THE SUN"

In our recently established Service contemporary, "Wings Over Greenwood," we read the following account of an aerial engagement which, tho' neither combatant sustained so much as a scratch, might easily have ended disastrously for both:

"During the search, a Lancaster, piloted by Grant Nelson, passed over an eagle's nest. The nest was sighted by Flying Officer Hawkshaw. Just as he had reported his sighting, Flight Lieutenant Nelson was confronted by a large bird coming in for a bow attack. The eagle pulled up barely in time to miss the windscreen of the aircraft.

"The next leg of the search brought the aircraft near the same spot again, and this time King Eagle really had the Lancaster in his sights. He dived straight down and actually passed between number three and four engines, missing the props by a hairbreadth.

"The third leg of the search took the Lanc some distance from the nest, but the eagle could be seen in the distance, still carrying out Fighter patrol above his home."

The Roundel Visits

No. 6 REPAIR DEPOT

By F/O W. M. Lee

If you ever visit No. 6 R.D., do not in any circumstances make the error of referring to RCAF Station Trenton, across the aerodrome, as "the Main Station." Depotmen are inclined to react to the name with about as much enthusiasm as an Irish Republican would manifest towards any reference to Great Britain as "the Mother Country." In 6 R.D. terminology, Trenton is simply "the South Station."

Repair Depots are probably the least known components of the Air Force. The reason for it is obvious: they don't do any of the Service's glamour jobs. Some people, indeed, seem to have the idea that the Depots are merely places to which units send boots and shoes to be heeled and soled. Nothing could be farther from the truth. A Repair Depot probably has more varied interests than any other type of station in the RCAF.

No. 6 R.D., constructed in 1939, sprawls over 262 acres of ground north of Central Air Command Headquarters. Fifty-eight working buildings (the largest number on any RCAF station) house the workshops, engines, aircraft, Link trainers, and the rest of the miscellaneous equipment with which the Depot operates. Its 500 tradesmen represent practically every trade in the Air Force. Stocked in the Depot are spare engines for all Service types of aircraft. Over 200 stored reserve aircraft roost at the Depot or its sub-stations at Dunnville, Mountain View, and Picton. (Fingal, another satellite, is being kept on a care-and-maintenance basis).

Group Capt. S. A. Greene, M.B.E.

Morale at the Depot is extremely high—and not simply because of good food, quarters, and other tangibles. It is more the result of the realization by everyone of just what 6 R.D. means to the RCAF. To quote the Commanding Officer, Group Captain S. A. Greene, M.B.E.

"No *one* person is responsible for the accomplishments of No. 6 Repair Depot. Nor, for that matter, can any *group* of persons claim the credit. The contribution that 6 R.D. is making towards the RCAF's flying programme is the result of the co-operative effort of the 550 Servicemen and civilians who make up the Station's complement."

Aircraft Repair Section

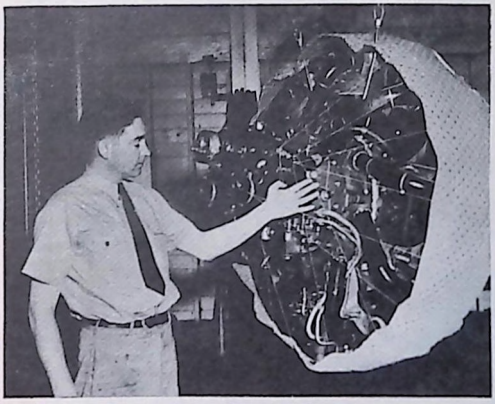
The largest section at 6 R.D. from the standpoint of man-power and buildings is the Airframe Repair Section. Commanded by Sqn. Ldr. J. S. Jordan, ARS is responsible for all servicing and maintenance work on aircraft and equipment.

Much of this section's work deals with the movement of aircraft to and from storage—and that is a much bigger job than you might imagine. For example, consider the case of a unit placing a demand for a Dakota aircraft. The aircraft must be removed from storage at one of the satellite stations, serviced to make it flyable for one trip, flown to the Depot and there thoroughly reconditioned and prepared for operational flying. Sometimes aircraft requiring extensive overhaul are sent out on contract to a commercial firm.

One of the most interesting ARS jobs is the storage procedure for engines. The power plant

is first completely dismantled, inspected for rust and corrosion, and reconditioned. After being reassembled, it is given a test-run for 45 minutes on ordinary gasoline, and then run for 15 minutes on a combination of gas and inhibiting oil. The engine is shut down, placed in an inhibiting bay, and the exterior sprayed with hot inhibiting oil. Then the entire engine is suspended in the air, and a soft pulpy material, known as Kimpak, is wrapped around the edges for protection during storage.

An operator sprays this covering with a very fine webbing, going over and over it until the webbing fills in and forms a layer-like coating over the entire engine. This he sprays with a liquid plastic solution which dries into a spongy waterproof covering (not unlike inner-tube patching) known as a "cocoon." Three coats of the solution, each dyed a different colour to allow simple determination of the completeness of coverage, are applied. A quantity of moisture-absorbing compound, silica gel, is placed inside the cocoon, and a cellophane-fronted envelope of the same compound in dyed form is patched on to the inside of the shell where it can be easily seen through a Vinylite window. This 5 x 1½ inch package indicates to the weekly checker the interior moisture content of the cocoon. If the indicator changes from blue to pink, a new supply of the absorbing powder is inserted.



Sgt. V. L. Mitchell (and Kimpak).

Temperature of the cocooning hangar must be kept at approximately 75 degrees and the humidity around 65 per cent. The hangar is air-conditioned, receiving an entire change of air every 30 seconds as polluted air is sucked into a series of miniature waterfalls along one of the walls. Sgt. V. L. Mitchell, who is in charge of inhibiting and cocooning operations, estimates that a total of more than 2,500 engines have been thus treated by the RCAF during the past two years. Sgt. Mitchell also runs the airframe doping and covering section, which shares the same air-conditioned hangar.

One sub-section of ARS is devoted entirely to safety equipment. F/Sgt. G. H. Fillman is in charge of this group and is responsible for the repair and overhaul of all types of safety equipment used by the Air Force, such as dinghies, carbon dioxide bottles, oxygen masks, and emergency rations. F/Sgt. Fillman assisted the Institute of Aviation Medicine in designing the "dropable" medical kit that caused considerable interest at the Aero-Medical Conference in Toronto last year.

The salvage section, as might be gathered from its name, is concerned with the salvage of crashed aircraft. Upon receiving a report of a crash, the Depot despatches a crash inspector, followed by a salvage crew, to the scene. As soon as the Accident Investigation Branch gives clearance, the wreckage is brought into the Depot, where it is repaired, sent out to a contractor for overhauling, or if beyond repair, stripped like a Thanksgiving Turkey of all parts that may be of use to serviceable aircraft.

Other sub-sections of ARS carry out minor repairs on the instruments, hydraulics, electrical and wireless equipment of aircraft. Another deals entirely with modifying and repacking parachutes. The Sheet Metal shop manufactures actual equipment. One of the jobs being done by the sheet metalmen under F/O J. E. M. Laroche is the fabrication of dual-brake installations for Expeditor aircraft. They are also manufacturing engine demonstration stands, power plant stands, fuel and oil lines for Dakotas, and breather installations for Merlin engines. Says Sgt. R. A.

Flt. Lt. J. T. Hall. D.S.O., D.F.C.

Goss, a member of this section: "We do all of the sheet metal work done by the Depot, and that includes arc and acetylene welding, cadmium plating, sand blasting, lathe work, milling, and heat treatments."

Among the machines in the Sheet Metal hangar are power squaring shears, huge 60-ton hydraulic presses, light and heavy grinders, wiring machines and numerous lathes and punch presses. The WO in charge of the section, WO2 L. F. Wentzloff, states that the shop contains the best and most up-to-date equipment available.

ARS also despatches mobile parties of highly-trained technicians to units east of Winnipeg for specialized work that is beyond the capacity of station maintenance.

Technical Signals Section

RCAF policy is to have most of its telecommunication work done by civilian companies, so that in an emergency Canada will have private firms with equipment and trained personnel ready to expand into high-geared production of our electronic needs. This does not, however, eliminate the necessity for the Air Force to have trained technicians and modern equipment to do the work urgently needed by the Service, and to maintain a Service nucleus of capable tradesmen. Hence the Technical Signals Section.

One of the biggest undertakings of TSS is the completion of VHF (Very High Frequency) mobile vans for Ground Controlled Approach Systems (GCA). WO1 J. W. Newbigging, TSS production controller, has a large percentage of his technicians working on these complicated WHF trucks. As Auxiliary Squadrons do not possess the technical equipment to make their own WHF repairs, all reconditioning is done by the R.D.

In one room of the TSS hangar is a crystal laboratory that is saving the Air Force (and incidentally the taxpayers) thousands of dollars. When the war ended, the RCAF had on hand large quantities of electronic crystals ground to the frequency of the bands then in use. After the war all frequencies were reviewed, and the Air Force was allotted new channels for which the stock of crystals was useless. Instead of throwing them away and purchasing new ones, the Air Force sent F/Sgt. J. H. Bailey, one of 6 R.D.'s top electronic tradesmen, to Marconi Ltd. in Montreal where he was trained in the conversion of crystals. F/Sgt. Bailey returned to TSS, recommended the purchase of equipment, and set to work converting the large store of crystals to the RCAF's new frequencies. That work is still going on, although F/Sgt. Bailey has left the laboratory and turned the job over to a young civilian, Mr. D. Wales.

WO1 J. R. Gray.

TSS was the hush-hush section of 6 R.D. during the war. It turned out some of the most important radar and communications projects used by the Allies, and work is still being done on some of these devices—although they are no longer on the secret list. The section is equipped to handle every type of radar and communications apparatus owned by the Air Force, including Loran, Shoran, H2S, submarine detectors, and all radio installations. TSS has a corps of technicians who are experts in their field. Sgt. G. A. Johnson, NCO in charge of the Radar Shop, is one of the RCAF's kingpins on the navigation device, H2S.

TSS also designs and fabricates prototype electronic equipment and modifies developments made by commercial firms to suit Air Force needs.

Perched on top of the TSS hangar is a glass-enclosed room known as the "Penthouse." Radar equipment that has been repaired or manufactured is taken up to the "Penthouse" via a lift and put through a series of calibration tests, using known sites on the countryside to determine its operating perfection. In this way, the skilled technicians of TSS know that every piece of radar equipment shipped out of the station bearing the new "R6D" (sic) symbol is in perfect running order.

Instrument Repair Section

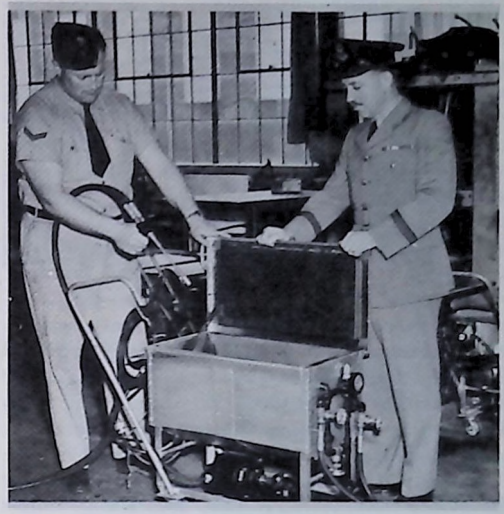
The Instrument Repair Section is expanding its working space to about three times that now occupied. A new 6000-square foot instrument room, air-conditioned and with fluorescent lighting, is being hurried to completion, and Flt. Lt. J. L. Murphy, officer commanding the section, will soon be able to set up shop with the modern equipment that the IRS brought down from Moncton when it left its Maritime base last year.

IRS does all the camera and watch repairs for the Air Force, and all 16 mm. projectors are overhauled here. The big job of the section comes every fall, however, when the Photo Survey Squadrons based at Rockcliffe turn in their aerial cameras to be inspected, reconditioned, and tested for the next season's operations.

"Aerial cameras are not our only headache," says LAC R. P. Smith, who served with the RAF in Burma, "Speed Graphics, Kodaks, and machine-gun cameras also take up plenty of our time."

Engine Repair Section

The two chief men of the Engine Repair Section have remarkably parallel careers. Flt. Lt. J. A. C. Ducharme and F/Sgt. J. J. McMaster joined the Service together in 1930, both in the aeronautical engineering branch, and both have served in ERS for the past three years.



Flt. Lt. J. A. C. Ducharme and Cpl. R. J. Day.

The big job on the ERS calendar is the preservation of aircraft engines left over from the war. The engines are stripped, examined for rust and corrosion, thoroughly reconditioned, and given a test run before being sent to ARS for cocooning and storage. Engines requiring a major overhaul are sent out to private companies. ERS has an engine test house in which four engines of different types can be test-operated at the same time under simulated aerial conditions.

When modifications are required on engines, the Repair Depot either fabricates them itself or orders the job done by a commercial firm. Often ERS technicians develop improvements on regulation equipment. A "starter-inhibitor" mobile

cart for use on jet engines was completely designed and manufactured at ERS. The Air Force found that none of the commercial products quite filled its needs, so the ERS men put their years of experience to work and came up with the "starter-inhibitor." It will soon be in use at all Air Force units.

Another ERS brain-child is the "co-axial atomizer nozzle." Flt. Lt. Ducharme's men found that the single nozzle unit worked satisfactorily in spraying live steam and inhibitor oil—as long as nothing prevented the forward movement of the spray. But to get the liquid into confined quarters, such as the inside of a filler cap on fuel and oil tanks, the one-directional spray was inadequate. So he designed a new atomizer that is very small in size and has four carefully designed nozzles set at different angles, giving a fine oil spray similar to a fog nozzle used in fire-fighting equipment. The co-axial atomizer nozzle gives four times more spray than the single nozzle and breaks down oil into a more minute component. Flt. Lt. Ducharme gives a lot of the credit for the success of his development to LAC C. E. Hibbett, who took Flt. Lt. Ducharme's blue print and converted it into a successful working model.

ERS aids the AFHQ Accident Investigation Branch in determining whether aircraft accidents are caused by engine failures. After a crash, the aircraft engine is rushed to the R.D. where the best mechanics from ERS, in co-operation with AIB investigators, carefully dismantle the engine piece by piece. "It's a tedious job," says F/Sgt. McMaster, "but the sense of accomplishment when you succeed in tracking down the defective part makes it worth while."

General Engineering Section

The work of the General Engineering Section falls into five general categories: Armament, Machine Shop, Electrical Work, Propeller Shop, and the Link Trainer section.

The armament section is currently preparing 1500 rifles for long term storage. The fire-arms are inspected, reconditioned, and every part is covered with inhibiting oil prior to storage. Sqn. Ldr. J. J. Taché, officer commanding GES, states that the rifles will remain in perfect firing condition even if left inhibited for 10 years. Another large project of the armament shop is the manufacture of 20 mm. cannon demonstration stands. These will be used on RCAF units flying Vampires, where they will serve the double purpose of testing the jet-planes' guns and of training young tradesmen in the various aspects of 20 mm. armament.

The electrical section under Mr. L. W. Daniel, former RCAF Warrant Officer, does all 6 R.D.'s major electrical engineering. Among the many jobs done by this section are the testing and repairing of aircraft starters, ignition harnesses, condensers, generators, coils and magnetos.

The pride-and-joy of Daniel's section is a Depot-designed and manufactured testing board for any type of electrical equipment up to 50 Amperes and 6, 12, or 24 Volts.

The Depot is headquarters for Link trainer maintenance in the RCAF. Stored here are rows and rows of serviceable Links ready to replace worn-out units on any station in Canada. F/Sgt. J. H. Lafay has a corps of Link experts whom he sends out to Stations to make repairs and install modifications. At present the mobile party is

LAC W. Blacoe (left) and WO2 W. H. Cassidy.

touring Canada installing a cross-pointer indicator which simulates Ground Controlled Approach operation. During the past nine months, the mobile party has run up over 3,000 hours away from its home base—so that Cpl. K. E. N. Christenson, who has been in the L.T. section for seven years, is beginning to wonder if he'll ever get a girl to marry him as long as he remains on this job. Although known as the Link Trainer Section, the "Lafaymen" also recondition celestial trainers.

The GES machine shop manufactures bits and pieces for aircraft, marine vessels and motor transport vehicles. WO2 W. H. Cassidy has his 12 machinists concentrating on the production of co-axial plugs for radio transmitting trucks. One of WO2 Cassidy's men, LAC F. H. Ewing, won the DFC and flew two tours of operations during the war.

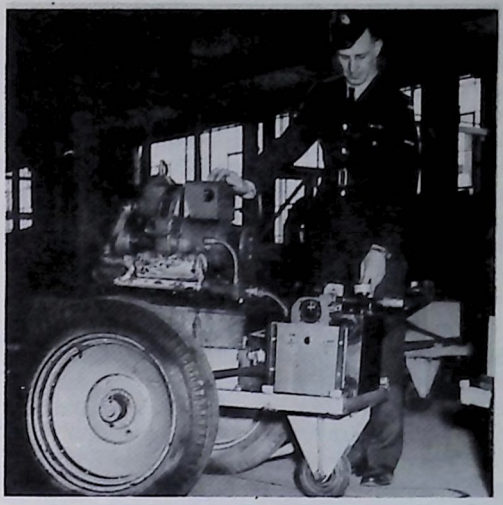
The main reason for the existence of GES is the fact that commercial firms are not geared up to produce all of the myriad parts required by the Air Force. If a private company had to prepare itself for the production of each small part required by the RCAF in its every day operation, the cost to the Government would be fantastic. That's where GES steps in. Sqn. Ldr. Taché's section has the equipment and the know-how to turn out these small orders while allowing the commercial factories to take care of the large demands.

Mobile Equipment Repair Section

The Mobile Equipment Repair Section is the newest addition to the 6 R.D. family. Up until a few months ago, the Army had been responsible for the maintenance of mobile equipment vehicles for the three Services. Now that the RCAF has regained responsibility for its own ME, the Repair Depots have another big maintenance job on their hands, and MERS is the result. The Depot hopes soon to be able to give units a serviceable vehicle in return for an unserviceable one, just as it does in the case of aircraft.

Acceptance and Ferry Flight

For a flight that does all the aircraft ferrying in Eastern Canada, AFF has a surprisingly small staff of pilots. Commanded by Flt. Lt. G. W. Bennett, DFC., the seven flyers who make up the flight each put in an average of 60 flying hours per month, ferrying to the Depot or to the contractor aircraft that may have been in storage for years. All are veteran pilots checked out on numerous types of aircraft. Flt. Lt. E. J. Sourisseau, for instance, has over 3000 hours to his credit on practically every type of aircraft flown by the RCAF since 1939. After an aircraft has been reconditioned, AFF test-flies it to determine its serviceability.



LAC C. E. Hibbett and starter-inhibitor.

In charge of the AFF servicing crews is Sgt. A. J. Milne. Sgt. Milne and his men must have a working knowledge of the mechanics of every type of aircraft used by the Air Force, from the Vampire to the stately old Canso.

Works and Buildings

No. 6 Repair Depot is a child of the British Commonwealth Air Training Plan. When it was constructed early in the war, the planners expected that it would be required for no longer than five years, and so it was built of purely temporary material. Now the Air Force is forced to convert the Depot into a permanent station. This summer,

Flt. Lt. J. H. McDonald, the W&B officer, will re-lay the foundations under practically every building.

Forty-five families are now living on the station in quarters converted from "H" barracks by W&B. Each unit, steam-heated throughout, has a living room, kitchen, bathroom, and one or two bedrooms. The Depot is also responsible for the construction of permanent married quarters, with Station Trenton taking care of maintenance.

Station Supply Section

The Station Supply Officer, Sqn. Ldr. E. G. Mahoney, is responsible directly to the Commanding Officer rather than the Chief Technical Officer, under a revised organization introduced by Group Captain Greene. The section is divided into three major sub-sections: the Stock Control section, where the movement of all technical and non-technical supplies is controlled; the Major Equipment section, which controls engines, aircraft, mobile equipment and link trainers; and the Repairable Supply section, where small bits and pieces are stored. The SSO operates the 6 R.D. satellites at Picton, Mountain View, and Dunnville

Group Capt. S. A. Greene and WO2 R. P. Williams.

One task of the Supply Section is the disposal of obsolete aircraft through War Assets Corporation. Sitting at one end of the field, like wounded birds, two of the best known planes of the Air Force, the Rockcliffe Ice Wagon and the Prime Minister's VIP aircraft, are awaiting disposal action.

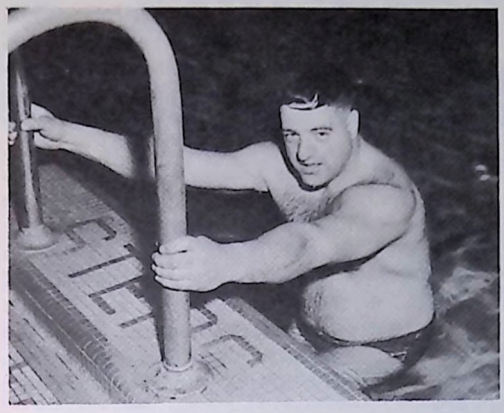
Station Headquarters

The CTO, Wing Commander H. W. Saunders, controls the flow of work in and out of the Depot through a Projects and Planning section under Sqn. Ldr. F. H. Bowler. P&PS records the project, allots it to the appropriate section or sections for work, and ensures that it is completed by the appropriate target date. Sqn. Ldr. Bowler's right-hand man is WO2 R. P. Williams—tall, explosive, and with 18 years' service. The boys down the hall are getting a big kick out of watching him try to curb his language now that a noticeable red-haired steno has been added to the P&PS staff. Wing Cdr. Saunders is particularly enthusiastic about the 22 university students who work at the Depot for summer employment. The students, mostly war-time flyers, don overalls and pitch in with the groundcrews. Wing Cdr. Saunders considers them keen, ambitious young men who should make excellent Air Force officers when they have graduated.

6 R.D. Off Duty

The R.D. is a very sport-minded institution. Stationed there is Sgt. J. P. Varaleau, an Olympic weight-lifter, and Sgt. A. Cotter, a long-distance swimmer who will represent the RCAF in the Canadian National Exhibition swim this fall. Sgt. Cotter's big ambition is to swim the English Channel, which he intends to do as soon as arrangements can be made.

In the General Engineering Section are two other crack athletes. LAC H. D. Land is a challenge to the golfers in the Trenton area with his low-70 cards, while LAC D. L. Law, formerly



Sgt. A. Cotter.

with the RAF, cleans up on the running events in Repair Depot sport meets. LAC Law prefers seven and ten mile races, but as only shorter distances are offered around Trenton he has to be content with those. Recently he was clocked at 4:29 for the mile, which is pretty fair speed for a spare-time trackman. His present ambition is to wear RCAF colours in the Exhibition 10-mile race, with the Boston Marathon as another possibility.

Last winter, 6 R.D.'s hockey team climaxed a successful campaign by playing a two-game series with Rockcliffe, whose team consisted largely of puckchasers from the RCAF Flyers.

In past years the Depot has combined its baseball talent with Station Trenton, but this season a team of its own is being fielded in a strong district league.

The Depot is equipped for other sports too, having four open-air tennis courts, indoor badminton and basketball courts, ping-pong tables, punching bags, and a floor hockey rink in the large gymnasium.

On the Station is a camp theatre to which the men take their families to see first-run features at a reasonable charge. A modern library, two hobby shops, a model aircraft club and a barber shop are other features of the station.

Visitors to the Depot are sometimes startled to see droves of children streaming down the walks swinging books or smiling out of bus windows. Situated almost in the centre of the station is the Lloyd Breadner Public School, named after the former Air Officer Commanding-in-Chief of the RCAF overseas. For families living off the Depot, Air Force buses pick the children up at their doors, deliver them to school, and return them afterwards.

Approaching the Depot from the air, you see an entire village of colourfully painted homes surrounding a wooded park area. These permanent married quarters, known as Middleton Park, are shared by units in the Trenton area on a per capita basis. Nineteen 6 R.D. families qualify for homes in the project. Other Depotmen occupy temporary and emergency quarters on the Station itself. One such family is that of LAC J. P. Demers, his wife, and three small daughters. To supplement the family budget, LAC Demers, like other family men among his friends, cultivates a vegetable garden in a plot set aside on the Depot for this special purpose.

Four Thumbnail Sketches

One of the most popular men at the Depot is, naturally enough, the head cook in the Airmen's Mess, WO2 Burley. WO2 Burley has been whip-

WO2 A. Burley.

Sgt. J. P. Varaleau.

ping up the meals at 6 R.D. for seven years, and claims that the only complaint he has received during that period was the contention by an airman that his raisin pie contained too many raisins.

The best-liked man on the Station is, however, the CO himself, Group Captain Greene. The stories about him are legion—and oddly enough, they are all true. For fourteen years he wrestled both as an amateur and as a professional; he has been a champion bicycle racer, set a record for delayed parachute jumping during the early days of flying, and hopped from an aircraft into a speedboat while both were in operation; and his two missing fingers were lost during an attempt to put out an engine fire on an aircraft in flight. Among his numerous other distinctions may be included those of having survived four plane crashes and of having appeared in a motion picture with James Cagney and Dennis Morgan.

Group Captain Greene joined the RCAF shortly after its first birthday in 1927. He served as an airman until 1940, when he was commissioned in the aeronautical engineering branch. Overseas with the first Canadian fighter squadron early in the war, he returned to Canada as Chief Technical Officer at No. 2 SFTS, Uplands. It was while at Uplands that he organized and inaugurated the Central Maintenance scheme that was subsequently adopted throughout the Air Force.

The Station Adjutant, Flt. Lt. J. T. Hall, D.S.O., D.F.C., is the possessor of an acidulous sense of humour as well as a distinguished war record both with the RAF and the RCAF. He was formerly OC the Test Flight at 10 R.D. in Calgary, and he therefore has a good knowledge of how a Repair Depot functions. At one time, he used to mystify people around the Depot by referring to himself as the "Cadjo"—his own designation of his then combined rôle of Adjutant and Chief Administration Officer.

WO1 J. R. Gray is Station Warrant Officer—and, according to Flt. Lt. Hall, a "top-notch one." He has a phenomenal memory, knowing practically everyone at 6 R.D. by their first names. He refers to himself as the "perpetual SWO," as he has filled that position for almost as long as he can remember. Even while in Italy with No. 417 "City of Windsor" squadron during the war, he occupied his inevitable SWO's chair.

Because of the extent of the Depot's operations, Group Captain Greene spends little time in his office, making an almost continuous round of inspections and meetings. To allow him to keep in touch with office routine, his car has been rigged for telephone communication with the Adjutant. As he remarks: "You can't run a Station of this size sitting on your backside in a swivel chair."

Conclusion

This brief glance at No. 6 R.D. may be fitly concluded with Group Captain Greene's own summing up of the function of his own Station—and also of its twin, No. 10 R.D. in Calgary. "The place for an Air Force," he says, "is in the air, and it is our job to see that RCAF aircraft stay there . . . I think we are doing just that."

AIRBORNE OPERATIONS

by CAPTAIN T. J. O'BRENNAN, Joint Air School

Historical Background

TACTICAL ENVELOPMENT from the air has been a dream of military men since the first conception of organized mayhem. How the Gaelic chieftain watching the swift plunge of the hawk or the stab of lightning on the eve of battle must have yearned to emulate them! Hundreds of years, however, were to pass before Montgolfier launched the first successful balloon and began man's conquest of the air; and it was not until almost two more centuries had elapsed that the possibility of airborne infantry and military parachuting was put to a conclusive test.

Although, by 1930, the principal armies of the world had successfully transported small units by air and employed small parachute forces in field exercises, the Red Army was the first to carry out such manoeuvres on a big scale. In the Russian Exercises of 1936 a parachute formation was dropped consisting of about 5000 men. These operations gave evidence that fighting groups could be successfully dropped in enemy territory, where they could perform such specific missions as sabotage, reconnaissance, the seizing and holding of key terrain, etc.

The above developments were practically ignored by Britain and the United States until World War II necessitated a scramble by both countries to produce an airborne force. Their preparations were given added impetus by the dramatic invasion of Holland in May 1940. The Germans here used parachute troops to capture and secure key bridges to facilitate the movement of their armour —thus illustrating the support which can be given to normal ground forces by the use of airborne troops.

In May 1941 the Germans struck at Crete and for the first time employed airborne forces en masse in a combined sea, land and air assault. Although the operation was certainly not a model airborne attack, it effectively demonstrated the ability of gliders to effect tactical landings and to bring in heavy weapons and vehicles to permit sustained action.

Thus we may say that airborne assault was originated by the Russians and developed to a state of operational effectiveness by the Germans. This new instrument of warfare was then refined by the British and American forces to a state of undreamed-of power. By June 1944, the Americans had trained and equipped five airborne divisions, the British two. These formations took part in sixteen different operations in Italy, North Africa, Sicily, Normandy, Southern France, Holland, Germany, New Guinea, the Philippine Islands and Japan. When Germany capitulated in May 1945, plans had been developed to employ an airborne army deep in enemy territory.

Advantages and Disadvantages

The operations of the last war made it clear that a nation must be capable of conducting large-scale airborne operations. It is essential, therefore, that all army and air force commanders and potential commanders be familiar with the characteristics and employment (as well as the capabilities and limitations) of airborne forces, and that a common doctrine should govern the use of such troops and of transport air forces.

Primarily, airborne troops differ from infantry forces only in that they travel to the area of operations by air, and carry a reduced scale of heavy weapons and motor transport. The airborne force strikes with unparalleled speed and surprise. The mobility afforded by air transportation gives them wide latitude in the selection of objectives. The enemy, losing the initiative, becomes demoralized, his communications are disrupted and confusion reigns along his supply lines. The very existence of an airborne force, trained and ready

to operate, is an omnipresent threat to the enemy. It forces him to deploy large numbers of troops in defence of vital areas which are within range of airborne attack, and forces his commanders into dispersal of reserves.

We must not, however, become so dazzled by the potentiality of the airborne assault that we overlook the limitations to which it is subject.

The chief limitation, of course, is the quantity of aircraft available. In a one-corps operation in which the airborne division goes in first to seize the area while the remainder of the force is air-transported to hastily prepared airstrips, the air-lift requirement is as follows:

Unit	*Initial Weight (tons)*	*Daily Resupply*
Corps (including airborne division)	31,400	3,000
Construction Engineers	5,330	135
Airfield Personnel	660	60
Runway Surface	2,400	
Supply Services	11,000	1,596
	50,790	4,791

Assuming that each transport aircraft carries 5 tons, the initial airlift would require 10,158 sorties, with a daily resupply requirement of 959 sorties.

Then again, our airborne trooper is transported in a relatively slow and unarmed aircraft which, though not readily manoeuverable, is none the less subject to all the normal enemy reactions to air operations. Freedom from enemy air action when marshalling to emplane, when in flight, and when deplaning in the airhead, must be ensured. In other words, air superiority is a fundamental prerequisite of airborne operations.

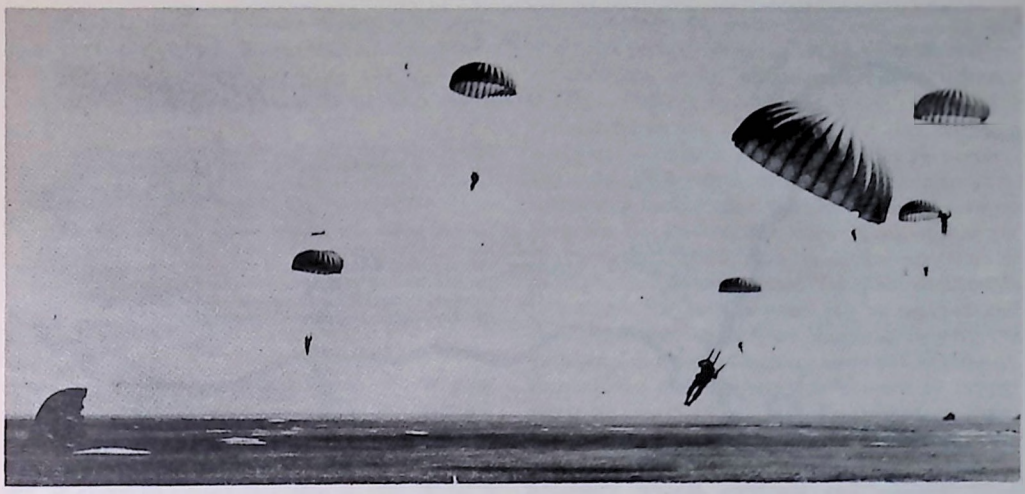
Weather is another major factor to be considered. It can ground the assault aircraft and disrupt the resupply and build-up of the force. Weather affects the aircraft, the parachutist in landing, and the glider at all times. Statistics show that in North-West Europe the likelihood of encountering seventy-two consecutive hours of good flying weather during the winter months is twenty to one against. Plans must therefore always allow for vagaries of the weather, particularly if the airborne operation is being staged in support of other operations which may be jeopardized by a sudden cancellation of the air plan.

Modern transport aircraft permit the carriage of all but the largest weapons and vehicles. In the initial stages of an airborne operation, however, it will seldom be possible to deliver heavy equipment to troops on the ground. Airborne troops must accept a reduced tactical speed of movement in the ground attack and must rely on their own light supporting weapons and *élan* in the initial assault. To thicken the organically weak fire power of the airborne formations, the fullest possible use of naval gunfire, of the artillery of adjacent formations, and of offensive support aircraft must be pre-planned.

The most critical phase of an airborne operation is the landing of the assault echelon and its subsequent reorganization. Airborne forces are extremely vulnerable to attack by armour and to attack by any type of force during landing and rallying. Until the force is assembled into proper tactical units it lacks co-ordination and control. Every possible aid—terrain features, flares, smoke signals, electronic and other location devices—must be used to ensure a speedy assembly.

The Airborne Force

The modern airborne force consists of air assault units specially trained to land by parachute and glider in the assault rôle, and of air-transported units of any Service, organized and equipped for tactical air movement. Air assault formations and transport air forces are essentially theatre-of-operations troops: they are constantly at the disposal of the theatre commander. Plans for their employment must be initiated by theatre headquarters, the only headquarters in the theatre



having the authority to direct the co-ordinated action of all sea, land and air forces. Air assault units, being trained and equipped to accomplish specific tasks, should not be employed on operations which can be performed just as expeditiously and economically by other forces.

Every army and corps headquarters must be capable of commanding an appropriate number of air assault and air-transported divisions (or a combination of both types) in the assault, build-up, or exploitation phase of an airborne operation. The theatre commander may, at any time, provide an army or corps with air assault divisions and direct that it devote itself primarily to preparation and training for airborne operations. An army so directed should usually be given a warning order at least forty-five days prior to an operation. A corps should have a minimum of twenty-five days' warning.

In a one-corps airborne operation, the corps will normally operate under theatre headquarters or army group control until the airhead has been reached by standard ground formations. It will then revert to command of the army effecting the link-up. If two or more corps are employed, the airborne operation will be controlled by the airborne army or airborne task force charged with the operation.

The basic air assault unit is the airborne division. Its primary rôle is to make parachute and glider assaults. The airborne division consists of a headquarters, three parachute brigades, and supporting arms and services—a total of approximately seventeen thousand men. This division is capable of landing in unprepared areas and immediately and effectively engaging the enemy. The initial lack of heavy weapons in the airhead must be compensated for by comprehensive training, effective use of surprise, use of enemy equipment, and the application of offensive support aircraft. The division requires at least seven days to prepare for an operation and can normally be expected to fight as a tactical unit without relief or resupply for about forty-eight hours.

Every Service man in the modern theatre of operations is thus available at short notice to participate in one of the phases of an airborne operation. Improvements in aircraft and in the design of weapons and vehicles have made movement by air the concern of all Services. The air has taken its place with road, rail and sea as an approach in the battlefield.

Airborne troops are generally employed in close co-ordination with naval, ground, and air forces. Their general missions are to seize and hold important objectives, exploit initial airborne assaults,

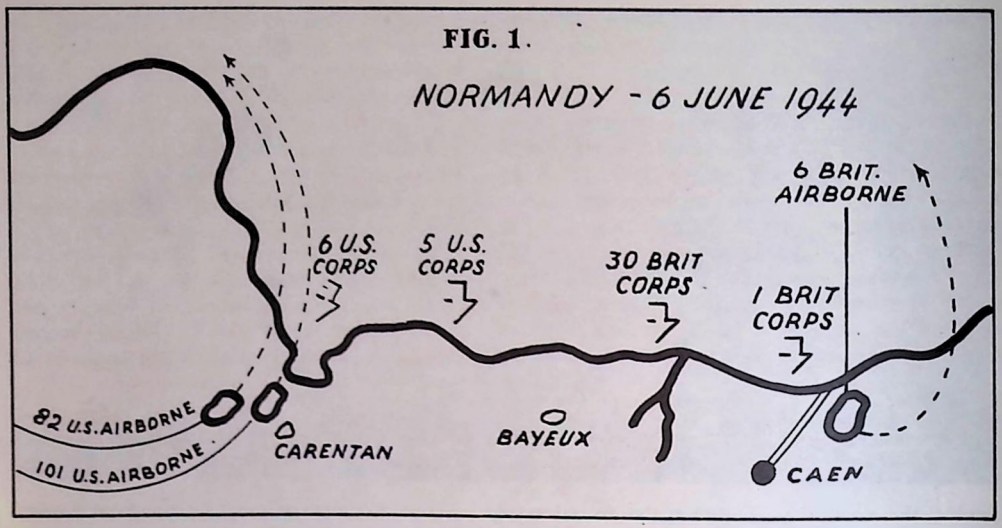


FIG. 1.

and to occupy areas and reinforce units beyond the immediate reach of other ground forces. Tasks suitable for airborne attack fall into two main categories:

1. Operations in close support of an existing ground battle.
2. Deep penetration operations to seize an airhead for further exploitation by additional forces.

Most airborne operations of World War II fell into the first category. This type of operation is staged entirely by air assault formations, and a quick link-up with the ground force is essential. Airborne troops are used to seize dominant terrain features and thus speed up the overall offensive, to protect exposed flanks of attacking ground formations, or rapidly to reinforce threatened portions of our line. Operations of the last war clearly indicated the value of this type of attack. In the opinion of many, "D" Day would not have been possible without the landings of the airborne divisions to protect the flanks of the amphibious assault (fig. 1).

The second category of operation (deep penetration) is a concept of the future employment of airborne forces. The best World War II examples of this type of attack are the operations of General Wingate's force in Burma. A prerequisite of the deep penetration operation is the ability to reinforce and maintain the force entirely by air, or to launch a rapid advance overland to its relief. If the operation is to be completely supported by air, it must be planned on a large scale—being, indeed, analogous to an amphibious assault.

Planning an Airborne Operation

Let us now take a hypothetical operation and examine a few of the salient points in its planning and execution. We will choose a deep penetration type of operation in order to bring into play all components of an airborne force.

It is proposed to establish an airhead two hundred miles in rear of the enemy's front, using an army (fig. 2). On establishment of the airhead, the army will break out—in co-ordination with a thrust from the main front—with the object of enveloping and destroying the enemy in this sector. The airhead will be captured by an assault corps, which will be rapidly followed up by the formations of our army in the air-transported rôle.

On receipt of the directive from the theatre commander, a combined army/air headquarters will be set up to plan and control the operation.

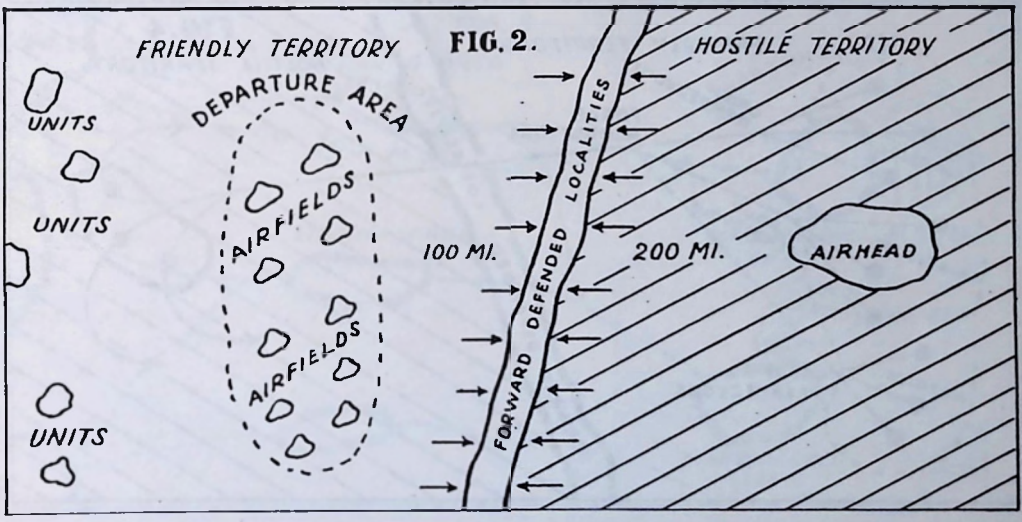
The plan can be immediately divided into three main phases, all of which are interdependent.

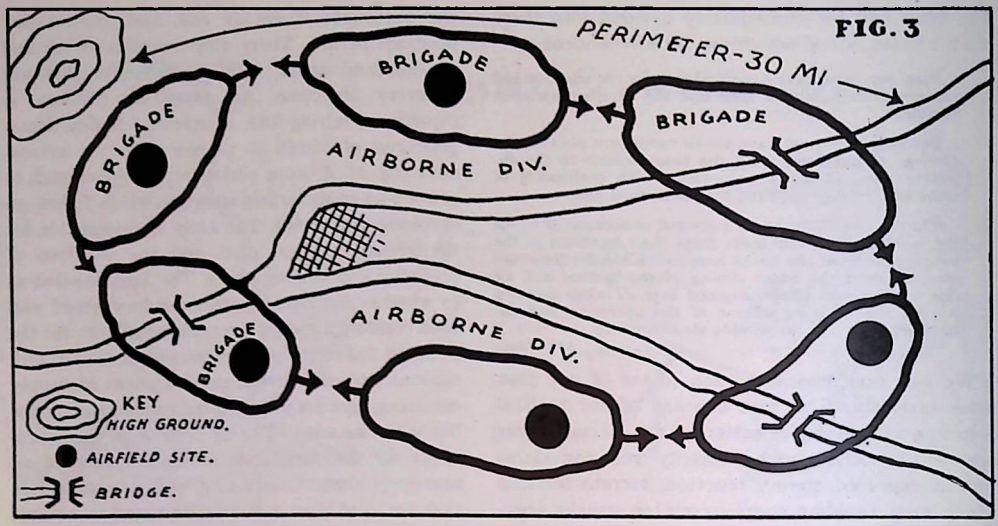
> First, we must have a tactical plan for the selection and capture of the airhead area and the specific objectives therein.
>
> Secondly, we must have an air movement plan for the carriage of our force from the base airfields to the objective area, in strict accordance with positioning of units and timings required by the tactical plan.
>
> Thirdly, we must have a ground movement plan for the movement of our units from their locations in the base area or front line to the base airfields in the departure area, to meet the exact timing of the tactical and air movement plans. (Superimposed over all other planning will be the logistics scheme of the operation and the establishment of a favourable air situation.)

We can now examine each phase of our plan more carefully. The first concern of our tactical planners will be the selection of the airhead. This area will be determined primarily from consideration of expected enemy reaction, terrain features which may canalize enemy counter-attacks (particularly armoured thrusts), the existence of airfields or suitable airfield sites, and the presence of suitable bridges if the area is traversed by rivers.

When the area is finally selected, it will be divided into specific unit objectives, such as airfield sites, key bridges, dominant terrain features, and points of resistance. Units will land right on the objectives if enemy flak and ground dispositions permit. There must be suitable landing or dropping zones within reasonable distance of every objective. An assaulting division is capable of seizing and completely dominating a perimeter of fifteen to twenty miles for several days (fig. 3). A corps perimeter is large enough to contain up to six airfield sites into which follow-up divisions can be fed. The army is responsible for the ground tactical plan and the selection of dropping and landing zones. The final decision as to whether the landing areas can be reached and used rests with the air force. Responsibility for the detailed follow-up plan, expansion of the airhead, construction of airstrips, establishment of supply receiving agencies and forward maintenance areas, lies with the army. The air force must make provision for the installation on each airstrip of all necessary control, servicing and administrative agencies, and plan a rapid turn-round of aircraft bringing in personnel, supplies and equipment, and evacuating casualties.

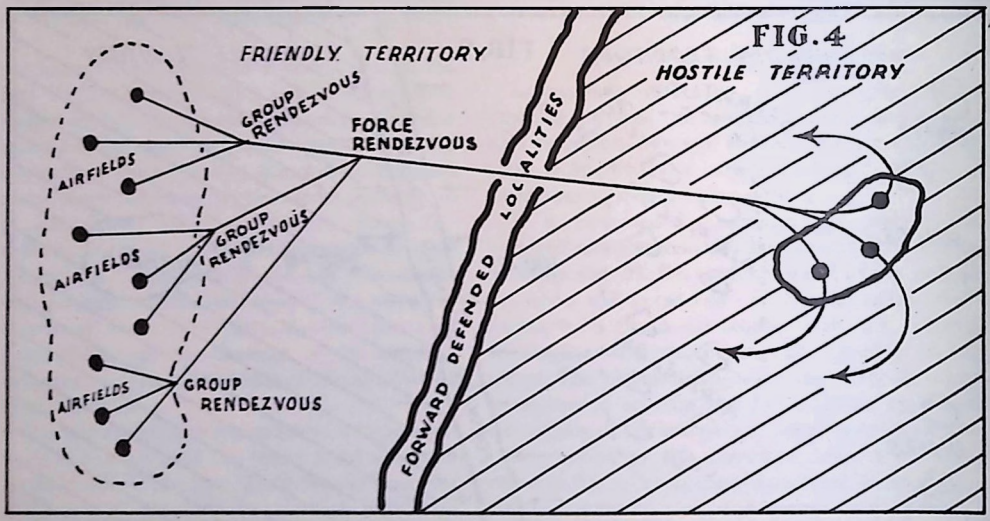
As the tactical plan begins to take shape, the organization of the departure area is accomplished. This area consists of a group of base airfields. To lift all fighting components of a division simultaneously, approximately one hundred modern





aircraft and two hundred and fifty aircraft/glider combinations are needed. This number of aircraft will require at least six airfields from which to operate. In close proximity to each base airfield will be a marshalling area, normally maintained by the army, for the complete administration of all units emplaning at the airfield. Atomic weapons may necessitate that airfields be small and widely dispersed. Concentration can be achieved by rallying in the air.

The airborne operation is a closely combined army/air effort, but from the time the troops enter



the aircraft until they are delivered at the forward area, it is an air operation of the first magnitude. It involves transport aircraft, light and long-range bombers to smother enemy defences, and fighter aircraft to protect the transport armada and provide offensive support of the ground battle. With such a variety of aircraft participating, command of the air operation must be vested in the highest air authority in the theatre.

The air force plans the complete air operation including the air movement scheme indicated by the army's tactical plan. To ensure that troops arrive at the right landing area, in the correct order and at the exact preplanned time, a rigid time-table of the fly-in is worked out. A carefully organized air route is established for the operation (fig. 4). The route selected must not pass over naval convoys, should avoid enemy flak areas, and must be guarded by search and rescue facilities if over water. Aircraft should have a straight run-up of about five miles to dropping and landing zones. To avoid duplication of search and rescue services, navigational aids and fighter cover, the return route will normally be the reciprocal of the outward track.

In the air movement plan, the final allotment of aircraft to airfields and troops to aircraft is made, times for loading and take-off are established, and all arrangements for deplaning troops in the air-head organized. When this plan is completed, the movement of units to the departure area can commence.

Airborne units are staged forward from their normal locations to arrive in the departure area in the correct order of take-off. Sub-units move by aircraft loads, and the integrity of formations is temporarily non-existent (fig. 5). On arrival in the departure area, units are directed to their allotted arifields and enter the transit camps of the marshalling areas. Here they are administered by static units and can devote themselves to briefing, loading and training. Ideally, their stay in the marshalling area should not exceed forty-eight hours. As "H"-Hour for the operation approaches, units will be moved, by aircraft loads, to the air-field for emplaning. Their place in the marshalling area will immediately be taken by a unit of the follow-up formation.

The ground movement plan is primarily an army responsibility. It calls for careful attention to timing, rigid movement control, and smooth administration.

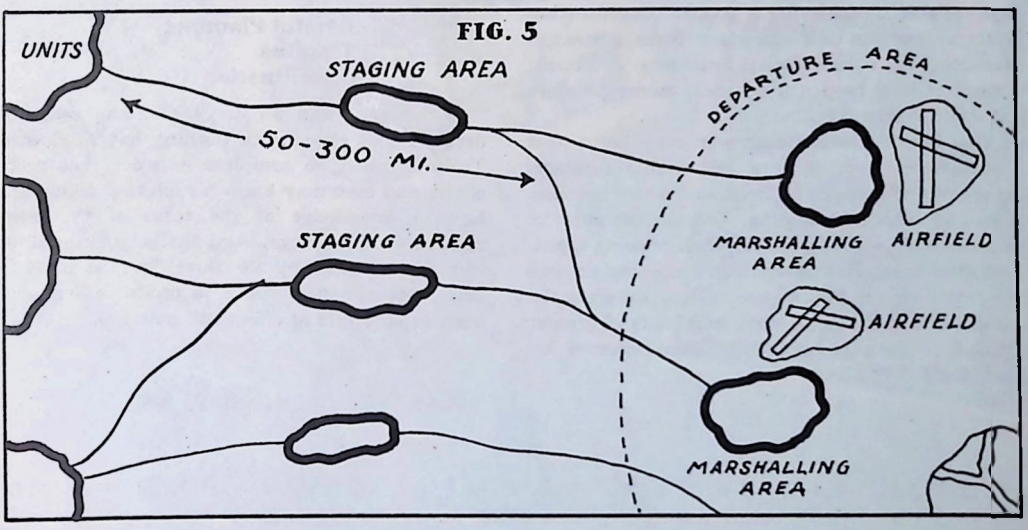


FIG. 5

Airborne forces of the future must be capable of performing every type of ground operation. Efforts are now being made to eliminate the need for the individual parachutist and the cumbersome glider. They must be replaced by devices permitting a faster and higher flight of the aircraft and capable of achieving a greater concentration of forces, both in time and space. Since contact in strength may ensure partial immunity to atomic attack, it may be politic to seek enemy pressure rather than avoid it.

The best foreseeable answer may be a fast transport aircraft with a detachable fuselage, which can be dropped in flight, and which becomes a ground vehicle on landing. This aircraft must be capable of great lifting power, high cruising speed, and short take-offs and landings. Improved devices for retarding the fall of objects dropped from the air are now undergoing tests, and loads of greater than four tons have already been lowered by parachute.

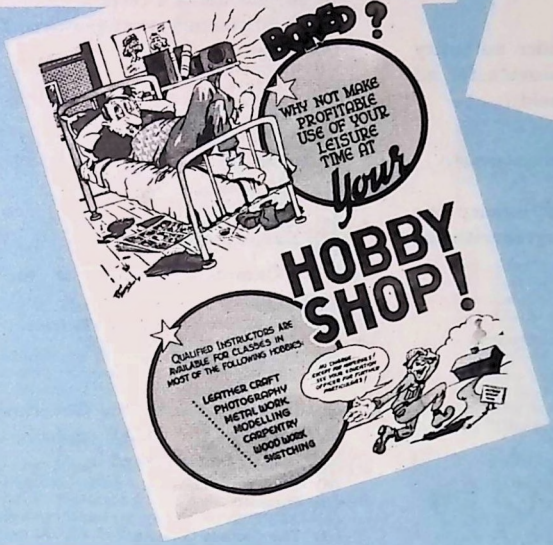
* * *

This, then, is a brief description of how an airborne operation is planned. Tactics and techniques will keep pace with scientific development, but the three essential requirements for an airborne operation will remain constant:

Careful Planning
Training
Co-ordination

Both army and air force planning must be detailed and clear, with nothing left to chance. Training must be complete in order that every officer and man may know his job thoroughly and have a knowledge of the tasks of the other members of his section. And finally, the co-ordination of the effort by the three Services must be such that the best result is produced with the least expenditure of effort and material.

Have You Seen these Posters?



RCAF Poster No. 62: Pleased to Meet You

RCAF Poster No. 63: Carelessness Brings Death

RCAF Poster No. 64: Bored?

RCAF Poster No. 65: Remember Me

ORDER WHAT YOU WANT FROM YOUR SUPPLY SECTION

WHAT'S THE SCORE

A score of 16 or more is above average. Answers are given on page 48.

1. An AOC has to send a message of vital importance to AFHQ. The highest precedence (priority) he can assign it is:
   (*a*) Extra Special.
   (*b*) Rush.
   (*c*) Flash.
   (*d*) Urgent.

2. KR(Air) and orders issued under authority of KR(Air) do not always provide for all cases. In such an event you would:
   (*a*) Write AFHQ for clarification.
   (*b*) Ignore the regulations and orders.
   (*c*) Interpret the regulations and orders reasonably.
   (*d*) Consult a lawyer.

3. At the conclusion of a court of inquiry one member of the court does not agree with the proceedings. He should:
   (*a*) Walk out on the court.
   (*b*) Refuse to sign the proceedings.
   (*c*) Veto the proceedings.
   (*d*) Sign the proceedings subject to reservations.

4. As the result of a courageous act an airman loses his life. He may be recommended for:
   (*a*) A pension.
   (*b*) The Air Force Medal.
   (*c*) The Long Service and Good Conduct Medal.
   (*d*) The George Cross.

5. Before reporting the case to higher authority, a CO must give a member of the RCAF who fails to pay his debts a certain amount of time to make satisfactory arrangements. That time is:
   (*a*) One year.
   (*b*) Six months.
   (*c*) Ten days.
   (*d*) Three months.

6. The equivalent naval rank to leading aircraftman is:
   (*a*) Able seaman.
   (*b*) Ensign.
   (*c*) Leading seaman.
   (*d*) Bosun's mate.

7. The Command-in-Chief of the RCAF is vested in:
   (*a*) The Minister of National Defence.
   (*b*) The Chief of the Air Staff.
   (*c*) The Governor-General.
   (*d*) The King.

8. Regulations made by the Governor-in-Council in respect of the RCAF, to have the effect of law, must be published in:
   (*a*) The Police Gazette.
   (*b*) Hansard.
   (*c*) AFRO'S.
   (*d*) The Canada Gazette.

9. For official purposes the 1939-1945 War is referred to as:
   (*a*) World War II.
   (*b*) The Big War.
   (*c*) The Second World War.
   (*d*) The 1939-1945 War.

10. The highest security grading that can be given a document is:
    (*a*) Important.
    (*b*) Top Secret.
    (*c*) Hush Hush.
    (*d*) Most Immediate.

11. The number of days from the original date of absence of an airman that must elapse before an investigation can be conducted into his absence is:
    (*a*) Seven.
    (*b*) 23.
    (*c*) 60.
    (*d*) 14.

12. Where, after a sustained search, a conduct sheet is missing, the CO must immediately:
    (*a*) Place the NCO i/c Station Records on charge.
    (*b*) Convene a Court of Inquiry.
    (*c*) Inform the Provost Marshal.
    (*d*) Inform AFHQ(RO).

13. The Chief of the Air Staff is directly responsible to:
    (*a*) The Minister of National Defence.
    (*b*) The Defence Committee.
    (*c*) The Minister of National Defence for Air.
    (*d*) The Cabinet.

14. An adverse report on an airman is:
    (*a*) A low assessment in any one or more components of a trade examination.
    (*b*) A report in narrative form on an inefficient airman.
    (*c*) A periodic return required on an airman who is not carrying out his duties.
    (*d*) A report made as an appendix to an R211.

15. At a station commanded by Sqn. Ldr. Brown, Cpl. Jones receives an order from F/O Smith which conflicts with a previous order from F/O Burns. Cpl. Jones points out the conflict to F/O Smith, but the latter states that his instructions are to be obeyed notwithstanding. Cpl. Jones should:
    (*a*) Obey F/O Smith's order.
    (*b*) Obey F/O Burn's order.
    (*c*) Do nothing until the conflict is resolved.
    (*d*) Apply to Sqn. Ldr. Brown for a decision.

16. The Act under which the RCAF was originally constituted is:
    (*a*) The Royal Canadian Air Force Act.
    (*b*) The Air Force Act.
    (*c*) The Aeronautics Act.
    (*d*) The Department of National Defence Act.

17. An aircraft coming to rest upon water would be said to be:
    (*a*) Alighting.
    (*b*) Setting down.
    (*c*) Landing.
    (*d*) Ditching.

18. "Battle of Britain Sunday" is observed on:
    (*a*) The Sunday nearest 15 September.
    (*b*) 15 September.
    (*c*) The Sunday immediately preceding 15 September.
    (*d*) The Sunday immediately following 15 September.

19. The motto of the Canadian Air Force was:
    (*a*) Semper Peratus.
    (*b*) Sic Itur Ad Astra.
    (*c*) Sic Transit Gloria.
    (*d*) Per Ardua Ad Astra.

20. The first RCAF Chief of the Air Staff was:
    (*a*) Air Chief Marshal L. S. Breadner, C.B., D.S.C.
    (*b*) Wing Commander J. S. Scott, M.C., A.F.C.
    (*c*) Air Marshal G. M. Croil, C.B.E., A.F.C.
    (*d*) Wing Commander W. G. Barker, V.C., D.S.O., M.C.

(The foregoing questionnaire was submitted by Sqn. Ldr. F. Gaffney.)

NORTHERN SKYTRAILS: Part 9

The Story of the Work of the RCAF in Canada's Arctic and Sub-Arctic

by FLT. LT. E. P. WOOD, D.F.C.

THE RCAF IN THE ARCTIC (CONT'D)

In the last instalment of this series of articles brief mention was made of the trek of F/O A. Lewis and his two companions through the arctic wilderness after a forced landing on an icefloe. In this issue it is proposed to describe the little party's experiences in greater detail. The account is taken from the longer narrative prepared by F/O Lewis himself—who incidentally, is now a Group Captain and, at the time of writing these lines, Commanding Officer of RCAF Station Trenton.

Narrative of F/O Lewis

"ON THE 17TH OF FEBRUARY 1928, at approximately 11 o'clock in the morning, I departed from Port Burwell on a regular ice-patrol, piloting a Fokker aircraft, with Flight Sergeant Terry as engineer, and a one-eyed Eskimo named Bobby. Our route lay directly across the Hudson Strait to Resolution Island, half-way up Frobisher Bay, and back across Grinnel Glacier and the Strait to our Base.

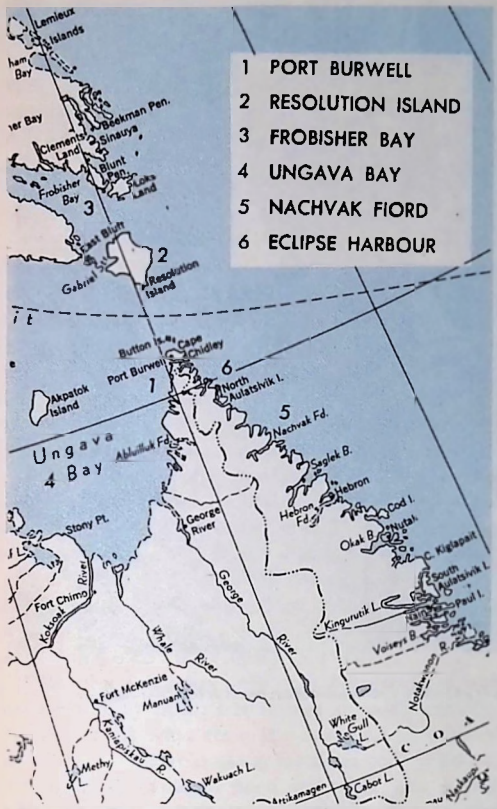
"Weather and visibility on the outward trip were reasonably good, but they deteriorated rapidly as we returned. After crossing Grinnel Glacier on Baffin Island, and having reached the Strait, we ran into heavy snow of blizzard and even hurricane proportions. I was forced to let down to within a few feet of the icepack, where accurate navigation became well nigh impossible. I was endeavouring to allow for at least 20° drift to port, but it was more guesswork than technique, for my chief problem was to keep right-side up.

"By the time our fuel was almost exhausted, total darkness was approaching rapidly. Since the aircraft was fitted with a wireless transmitter (but no receiver), I tapped out a message to Base informing them that I was lost and about to forced-land on the icepack, and that I was unaware of my exact location. I then held the aircraft dead into wind and proceeded to look for a suitable place to land.

"At times we were so low, because of poor visibility, that I was obliged to dodge pinnacles. Suddenly I saw immediately below what appeared to be a stretch of clear, greenish ice. Fervently praying that it extended ahead at least a short distance, I cut the engine. The aircraft dropped like a stone almost vertically, and when we hit the ice, the wind stopped us immediately. The pinnacles were so numerous, however, that we could not avoid hitting one head-on, and the aircraft finished up with its tail in the air and its nose and skis buried in a deep snowdrift.

"None the less, we were down safely—although Terry told me that while I was making the landing Bobby tried to leap out of the cabin door, and that it was only by throwing him down on the floor and placing his heel on his neck that he was able to prevent him from so doing.

"It was now quite dark, and the immediate job was to build an igloo as quickly as possible to avoid freezing to death. Working fast, the three of us completed our first igloo in about half an hour. Our sleeping-bags and other emergency equipment had previously been taken out of the aircraft, and when we were comfortably inside we made some tea. We decided to consume our emergency



rations only when it was absolutely necessary to maintain our strength. We took an inventory of them and set about organizing a method of rationing for the future. To do this, of course, it was first necessary to determine the maximum length of time the rations would have to last.

"Though we were not sure where we were, we knew we were out at sea and not on land. Since we had been flying towards Port Burwell from the Eastern tip of Baffin Island, I had no idea whether we were in the Atlantic Ocean or Ungava Bay.

"We finally decided that if we did not reach safety in fifteen days, the rations wouldn't be of much use anyway; and we proceeded to divide up the six slabs of chocolate, the hard-tack biscuits, and the malted milk tablets, with mathematical precision. There appeared to be much more tea than we were likely to consume in fifteen days, and the kerosene, if used sparingly, seemed sufficient to outlast this period. In addition, we hoped to come across some living thing to shoot with our B.S.A. rifle.

"Now came the problem as to which way we should start to walk. If we were in the Atlantic, by walking east we would arrive nowhere and would eventually reach open water with our rations exhausted and no possible chance of surviving. If, on the other hand, we were in Ungava Bay, then by walking either east or west we would strike shore. In reconstructing the flight in my mind, I came to the conclusion that we must be in Ungava Bay, for, as already mentioned, I had been allowing at least 20° to correct for the north-west gale. With that decision firmly fixed in my mind, I decided that on the morrow we would walk east towards the Labrador mainland.

"During that first long night Terry and I, who were both Englishmen, talked on English country pubs, the shows we had seen, our motorcycles and their respective merits; and we vowed there and then that if we ever survived this ordeal we would spend our very next leave in England and toast our deliverance in nut-brown ale in some little pub buried in the heart of the English countryside.

"In the morning, we dug ourselves out of the igloo and made ready for our journey. The first thing to decide was the weight of equipment we were each physically able to carry. That was where Bobby came into the picture. He was a husky fellow, accustomed all his life to carrying big loads, and able to carry at least half as much again as either one of us without any fatigue whatsoever. In addition, despite his missing eye, he was a crack shot. With only fifty rounds of ammunition at our disposal, Bobby was going to be worth his weight in gold.

"Our next problem was to determine exactly what we should carry with us. The most important items were the rations, the sleeping-bags, the

Flt. Lt. A. A. Leitch (with map in pocket) and F/O Carr-Harris (in fur parka) about to take-off on search for F/O Lewis.

rubber life-raft and paddles (for we were sure to encounter many leads before we could reach shore), the B.S.A. rifle and 50 rounds of ammunition, the compass and eight-day clock dismantled from the aircraft, and such smaller items as clasp knives, fishing-line and hooks, snow-knife, matches, etc.

"By the time we set forth, the blizzard of the day before had been replaced by a strong gale, with overcast skies, poor visibility, and a temperature which felt like thirty or forty below zero.

"Though we could not have walked for more than about two hours that first day, one thing about the formation on the ice struck me as being very singular. I had anticipated that, if we were walking towards a shore, the ice-pinnacles should become smaller and the floes less rough. Yet the reverse was the case. The pinnacles were becoming taller and the floes almost impossible to negotiate. We were undoubtedly walking in the wrong direction, so I decided to call a halt at once, build an igloo, and reserve our energies until I had thought out this new situation.

"In less than half an hour we were comfortably drinking tea and consuming our meagre ration. Later I disclosed to Terry my fears that we were walking out to sea. He replied very simply that, if that was so, all we had to do was to walk in the opposite direction. We slept on that thought.

"The following day broke clear and cold. We were completely surrounded by tightly packed ice-pinnacles and could not immediately sight anything on the horizon, although, if we were

really in the Atlantic, we could not possibly be beyond sight of the Labrador mountains. Climbing to the top of one of the pinnacles, I glanced to the west. There, clearly etched in the sky, were what appeared to be mountain peaks white with snow. A rough calculation convinced me that we must be 50 miles out in the Atlantic, and with renewed hope turned and began to retrace out steps in a westerly direction.

"During the first hour or so there was little change in the icepack. The going was slow. At times we were up to our waists in snow, and at others we were walking on clear, greenish sponge ice which gave beneath our weight and emitted a weird squeezing sound. Occasionally we were forced to scale jams of tightly packed ice-pinnacles to maintain our compass course and eliminate many extra miles of walking.

"Our stomachs and muscles were now beginning to feel the strain of insufficient food and too much exercise, but the greatest hardship of all was the complete absence of fresh water. We were forever parched for it. When floes and pinnacles were being formed, salt is precipitated on the ice and forms a thick crust on the outside. Even the snow in contact with ice becomes tainted.

"On the following day the temperature was comparatively mild, but it was snowing heavily, with a strong wind from the east and practically no visibility. After walking for three to four hours, we suddenly came to open water. It was a lead about twenty yards wide and much too long to consider walking around. It was at this point that the life-raft got its baptism.

Fokker.

"The crossing of the lead took so long that there was little time left for finding a drift suitable for an igloo. Stopping at a cluster of low pinnacles that provided an adequate wind-break, we scraped together what little snow there was on the surface and so formed a low enclosure about two feet high. There we huddled in our sleeping bags, and made tea. Sleep was out of the question, for we were apprehensive as to whether we would ever awake.

"It was then I decided that this was an emergency warranting use of the brandy which was part of the emergency rations. Bobby wasn't very interested, for he had never tasted liquor and had always been warned by the missionaries that it was devil's brew. For my own part, I feel quite sure that had it not been for the hot tea and the frequent sips of brandy, we would not have survived to tell the tale. Throughout the night we sang and talked. Bobby kept muttering under his breath something about 'Jesusee'. I am afraid we capitalized on his smattering of religion in order to keep up his spirits; for if Bobby had ever given up the ghost, it is doubtful if Terry and I could have survived with our more limited capabilities. Terry and I didn't know many hymns, so we sang anything that came into our heads, telling Bobby they were hymns and thus getting him to hum them along with us.

"At the first sign of light we went on our way. We had only been walking about half an hour when to our intense joy the dark shadow of the mountains loomed right ahead of us. In the half-light we seemed to be only a short distance away from them, but this was an illusion. Nevertheless, during daylight hours the compass would no longer be necessary. In the distance, and slightly to our right, were two peaks towering up into the sky. We had brought our maps with us from the aircraft, and, on studying them, I found a spot designated as 'Four Peaks', approximately 80 miles down the Labrador coast from Port Burwell. If the two we could see were part of this group, we had drifted for quite a considerable distance south with the Labrador current. Theoretically, we should have allowed for this drift by walking at an angle towards the shore, but we decided to

Bobby.

disregard it and to reach shore as quickly as possible.

"On we walked through the endless monotony—when suddenly, straight ahead of us, we saw a wide lead with literally hundreds of walrus swimming about in it. Right before our eyes was more fresh meat than we could have imagined in our wildest dreams.

"To shoot a walrus in the water is sheer waste of ammunition, for it will merely sink to the bottom. Our only chance was to wait until we could see one on solid ice. Finally, one huge fellow dragged himself up on the ice and began to roll. Bobby slowly cocked the B.S.A., took steady aim with his one eye, and fired. The walrus leapt several feet into the air and almost fell back into the water again. Although he was stunned by the shot in the head, he was still alive and breathing heavily. This fact did not deter Bobby. He cut a huge slab of flesh out of the poor creature's side and ravenously devoured it. Terry and I, however, hungry though we were for fresh meat, drew the line at living flesh and decided to wait until it was frozen, when we could chop it into small squares and swallow them whole. This incident was probably the real turning point in our adventure, for it had been obvious for some time that the rations were grossly inadequate for the amount of energy we were expending.

"It took some little time to get organized again after all this excitement, but eventually we collected ourselves and prepared for our second voyage across a lead. When we were safely landed on the other side, Terry and I went into consultation over our course, leaving Bobby to pack up the raft. We then carried on with renewed vigour until dark, when we found an excellent drift at the base of a clump of small pinnacles, where we dug ourselves in for the night.

"After we were comfortably installed inside the igloo, I made a routine check of our equipment. To my consternation, the familiar bulk of our life-raft was missing. Bobby, we discovered, had deliberately left it behind so that he could carry its weight in walrus flesh. This reasoning was perfectly sound provided that we encountered no more leads, but I was convinced that they would become, if anything, more numerous as we neared shore. However, it was too late to turn back.

"Next morning we breakfasted on frozen walrus squares, biscuit, chocolate, and tea. Feeling like normal men again, we set out on our way.

"Though this day passed uneventfully enough, the one that ensued did not. We had been walking for about two hours when, sure enough, we came to a lead. It was impossible to determine how far it stretched in either direction, but, since we now had no raft, there was nothing for it but to walk north in the direction of the drift.

"After walking for about an hour, we decided to pry loose a pan of ice sufficiently large to support the weight of the three of us, and to use it to ferry across to the other side.

"After we had separated a fairly large pan from the main pack, Bobby took a flying leap on to the centre of it and kept it level while we in turn jumped on. The pan, under our combined weights, sank into the water at least three inches, and our feet, awash in ice-cold water, rapidly became numb. We crouched down as low as we could to

prevent the pan from capsizing, and quickly paddled our way across the few feet that barred our way to deliverance. When we hit shore, Terry, in his hurry to get off, slipped and fell into the water. His immersion gave us some concern, but the water had not penetrated sufficiently to cause him any great discomfort. We bivouacked in the lee of an ice-ridge and there we remained until dawn, drinking tea and sipping brandy.

"At the first sign of light, we were off again. When at last we reached shore, there was nothing but bare rock and snow. But it was land, and any storms from now on would at least be known factors, and the ground was not likely to open up underneath us. Our first thought was to find a drift and build an igloo, since the urgency to continue our journey was lessened now that we were off the floes. When we were comfortably settled inside our sleeping-bags, drinking tea and eating our rations, we determined as accurately as possible our position on the coast. Taking the 'Four Peaks' as our datum-point, we decided that we must be approximately 90 miles down the coast from Port Burwell, somewhere between Nachvak and Nanuktok. By walking North for approximately twenty miles we should strike the

Two of the Eskimos carried on all flights in case of forced landings.

inlet of Kamaktorvik.

"When we awoke and dug ourselves out of the igloo, the weather was clear and very cold, with a strong north-west wind. We set off towards the north on the second phase of our adventure. The going was infinitely rougher than we had anticipated, with the snow many feet deep and at times up to our waists. After about ten miles of most arduous walking, we called it a day, built an igloo, and drew up another plan of action. We decided that on the following day we would scale the mountain we were now on and obtain a more accurate fix of our position.

"I shall never forget climbing that mountain in the face of the wind, through deep snow-drifts, over dangerous crags, and up a long steep glacier lying in a valley of its own. When we arrived at a point almost abreast with the crest of the mountain, we caught the full force of the north-wester, which must have been of full-gale proportions. I lost my balance, slipped, and started to roll down the way we had just come. Over and over I rolled, down and down with increasing momentum, until suddenly I pulled up short and found myself buried in a deep drift. Climbing out, I beheld Terry within a few yards of me. He had been swept off his feet in exactly the same way. As we stood there talking, Bobby came tobogganing down on his bottom to help us, grinning from ear to ear. We recommenced the ascent of the glacier, this time taking full advantage of any protection that offered itself, and went on climbing until utter fatigue made further progress impossible.

"The next day we breasted the crest entirely, and there ahead of us we beheld a great wind-swept plateau, level as a billiard-table. Far beneath us we saw the frozen sea. We walked along the plateau for about two hours before halting and making a light repast of raw walrus and snow. Then we continued our pleasant stroll along the plateau until we reached the other extremity—when, lo and behold! a long wide inlet stretched away beneath us from the sea, disappearing among the mountains. To reach it, however, we had to descend a steep mountain side.

"We were unable to find a route where there was any possibility of walking. All we could do was to jump from crag to crag, gingerly wade through deep drifts, and circumnavigate the steep chasms with which the mountain-side abounded. When it appeared as if we had reached the half-way mark, we called a halt by a huge snow-drift. We consulted our maps in the igloo that night, and it became clear that the inlet beneath us must be Kamaktorvik. After crossing to the other side, we should be able to reach Eclipse Harbour approximately 25 or 30 miles away, where we knew definitely that there was a large Eskimo settlement.

"We were up at dawn. The second half of the descent proved easy to negotiate, and we set foot on the inlet without mishap.

"We continued across the inlet in single file, walking in absolute silence for at least two hours, when out of the deathly quiet I was startled by a deafening yapping of dogs. Behind me, almost at my heels, I beheld a dog-team and komatik (large Eskimo sled), and three Eskimos—a man, a woman, and a little Eskimo boy. Bobby and Terry had been picked up a few minutes before, and I was still plodding on in sublime ignorance, oblivious to our good fortune.

"Bobby was almost hysterical, jabbering away at top speed. It transpired that the Eskimos were from Eclipse Harbour, which could be made in one sleep with a little extra effort. After the excitement had abated somewhat, our new friends hauled out of their komatik some beautiful salmon-trout, off which they hacked splinters with an axe. Seldom had anything tasted so delicious. Then, still parched for fresh water, we proceeded inland under our hosts' direction for about a mile to a frozen lake, at the edge of which a spring bubbled furiously beneath the snow.

"The Eskimos suggested we stay with them for our sleep. Without further ado, we soon constructed an igloo large enough for the six of us. When we had eaten our fill and the Eskimos' pipes were in full blast (they were all inveterate smokers), we told our story to their amazed ears several times over, then fell into the deep sleep of exhaustion.

"We were awaked by the Eskimos, and when we crawled out of the igloo, a full moon was shining and the night was wonderfully clear. The Eskimos

The Midnight Sun.

were resolved to reach their settlement at Eclipse Harbour without any more sleeps or building of igloos. That hectic komatik dash from moonlight to moonlight will forever stay in my memory (for it was moonlight again before we finally reached our destination). The unfortunate dogs took a terrific beating, tired almost beyond endurance, with bleeding paws and frothing mouths. If they as much as slowed down, an Eskimo would run ahead and hurl a heavy steel fox trap at the delinquents. So, to the tune of alternate yelling from the Eskimos and howling from the dogs, we made our way up the coast.

"All day long we travelled thus, with brief rests; and at last, when the moon was waning again, we came upon a village of igloos. Standing around awaiting the return of the hunters, were groups of Eskimo men and women. Bobby was shortly in his element. He was the lion of the hour, chattering like a machine-gun to all and sundry (especially the women) who crowded around him.

"Eventually we were introduced to the headman of the village. He took us in hand and gave Terry and me two wooden bunks in one (the most palatial) of the igloos—which were not nearly as comfortable on the inside as they appeared, to our trail-weary eyes, from the outside. The floors were inches deep in water from the melting snow, and the particular igloo in which we found ourselves was so hot that the Eskimos, male and female alike, were beginning to discard their clothing, while some were already in a state of complete nudity.

"After a meal that had upon us (in our weakened state) the effect of a seven-course banquet, we fell asleep with minds at last at rest; and the next morning, to the accompaniment of numerous farewells and promises to return and visit them with a 'tingiook' (aeroplane), we bade our friends good-bye. The little Eskimo boys ran ahead, apparently quite tireless, urging on the dogs and throwing the inevitable steel traps at the more obstinate ones. We travelled on, hour after hour, taking turns at riding and trotting, until the moonlight had given way to darkness, and darkness to dawn. Just before darkness set in again we stopped for about an hour to feed and rest the dogs, then we were off once more into another night and another full moon—until finally, at about midnight, while the moon was still bright, our goal came into sight. Across a bay we could dimly make out the Hudson Bay Post and the faint outline of the old Moravian Mission building which was our home.

"All was deathly quiet, with not a soul astir, for we had long since been given up for lost. As we

neared the base, the dogs set up a terrific howling and doubled their pace. Soon there were answering howls from other dogs at the Base, and a veritable bedlam ensued. When we were within hailing distance, Bobby produced the rifle and fired our entire stock of 49 rounds into the air. The sound of firing produced an immediate reaction. The doors opened and out rushed everyone in various stages of undress. Frank Coghill, the O C of the Base, Doctor Kelly, Constable Montague of the R.C.M.P., Louis Paquette (who was later lost with Parker Cramer flying the Atlantic), Wilson of the Marconi Co., and Captain Bennet of the S S "Canadian Raider" which had been wrecked the previous summer. Out dashed the cook, old Congdon, and Sgts. Kirkcaldy, Semple and Torrie, all in utter amazement at our return from the dead. It will forever be an unforgettable moment in my life, and one which cannot be adequately expressed in writing. .

"An immediate party was decided upon, and we were practically carried into the dwelling. Terry and I, however, with our empty stomachs, decided to call it quits after one large brandy, and the following day we were placed on a liquid and fish diet and told that we were to remain in bed for observation. After two days in bed, a reaction set in and we found it impossible to get out of bed without help. During that week in bed, we were obliged to retain our straggly beards owing to the frost-bite scabs, and it was almost a month before we could have a proper shave. The brown scars remained for over a year, and even to this day one side of my face is extremely tender.

"Bobby all this while was being feted royally by his own family, and to enable them to do this they were issued with as many supplies from our stores as they wished. The two Eskimos who had brought us back home remained with us several days, taking part in the celebrations. When they were ready to return home, they were issued with as many stores as they could carry on the komatik and were promised still more if they cared to make a second trip . . .

"Three weeks later, when Terry and I were up and about again, we took another aircraft and flew over the route we had followed on our trip. On this particular occasion the weather conditions were perfect, with unlimited visibility in every direction. When we were halfway across the Strait we flew out into the Atlantic for about sixty miles, then south parallel to the Labrador coast (hoping, in vain, to catch a glimpse of our aeroplane), down to Eclipse Harbour, and over the Eskimo village at which we had been guests. Our emotions, as we gazed from above on the scenes we had so recently viewed in such vastly different circumstances, can, I think, be more readily imagined than described."

* * *

(This completes Flt. Lt. Wood's account of the RCAF in the arctic and sub-arctic up to the outbreak of World II. The next issue of "The Roundel" brings us into a period with which the majority of those now in the Service are much more familiar. Flt. Lt. Wood wishes to remind his readers once again that the eight preceding instalments do not pretend to be in any way an exhaustive study. They constitute merely a broad correlation of existing written records of a phase of the RCAF's history which has already, unfortunately, been forgotten by most of us.—Editor)

THE SOUTH AFRICAN AIR FORCE: Part 2

By Major P. E. Stableford

(Reprinted by courtesy of the "South African Air Force Journal")

The Western Desert and North Africa

It was in this theatre that the S.A.A.F. won its greatest glory. The first South African squadrons (No. 1 Sqn. on Hurricanes and No. 21 Sqn. on Marylands) arrived in Egypt by April 1941 in time to support Wavell's push in June, after the successful conclusion of the Abyssinian campaign had released them from operations there. From then on the number of S.A.A.F. units increased steadily, and by November of that year No. 3 S.A. Wing had been formed to take control of Nos. 12, 21 and 24 Light Bomber Sqns. 12 and 24 Sqns. were equipped with Bostons and No. 21 with Baltimores. Nos. 1 (Hurricanes), 2 and 4 (Tomahawks) Fighter Sqns. were serving in R.A.F. Wings in the Western Desert Air Force, and 60 Sqn. had started to operate in a P.R. role using Baltimores. These squadrons represented South Africa in the severe battles for mastery of the air that were taking place over Libya at that time.

By the beginning of 1942, the light bomber squadron of 3 Wing, operating in boxes of 18 aircraft, had earned from the Afrika Corps the title of "The Eighteen Imperturbables" because of the apparent disdain with which they carried out their famous shuttle bombing operations against axis positions, in spite of the concentrations of flak. The fighter squadrons (by this time consisting of Nos. 1, 2, 4, 5 and 7 Sqns., operating on Tomahawks, Kittihawks or Hurricanes), had converted to a fighter-bomber rôle and were making their contribution towards upsetting Rommel's plans. It was perhaps the Blenheims of No. 15 squadron that dealt the most spectacular blow to Axis aspirations in Egypt, when they attacked and sank an enemy tanker at the entrance to Tobruk harbour, at a time when the tanks of the Afrika Corps were grinding to a standstill for want of fuel before the Allied line at Alamein.

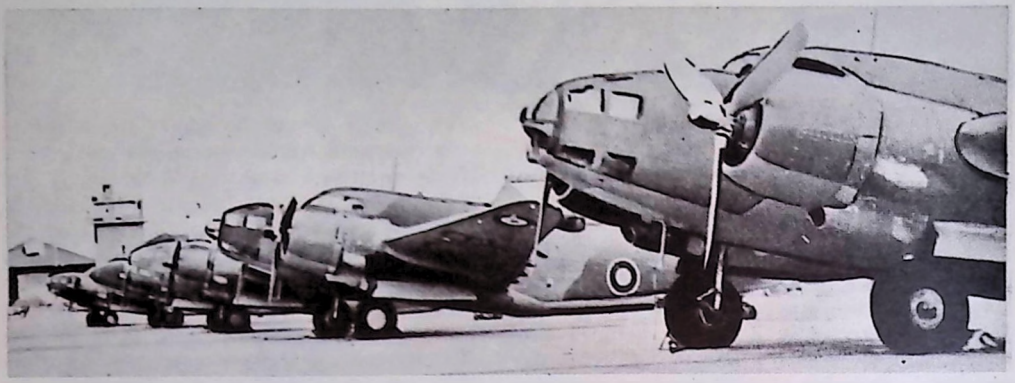
The South African Squadrons committed to supporting the historic operations of General Montgomery were those of 3 Wing (12, 21 and 24 Sqns.), 1, 2, 4, 5 and 7 Fighter Sqns., 15 G.R. 40 Tac/R and 60 P.R. Sqns. Shortly after the advance began, No. 7 S.A. Fighter Wing was formed to take control of a number of South African and R.A.F. fighter squadrons. By the time Rommel's forces surrendered, the South African effort amounted to 16 Squadrons, which comprised 8,000 men (including 2,300 non-Europeans). Air Marshal Tedder, then Air C.-in-C. in the Mediterranean, paid the following tribute to the S.A.A.F.

"I want to say how proud I am to have been entrusted with the command of such men. I met your Squadrons first when they came up fresh from their victory in Abyssinia to help us through when we were hard pressed by events in Crete and Greece. I remember meeting your first Bomber Squadrons when they arrived in Egypt with their new Bostons which were later made famous in the "Shuttle Service," which again and again broke the enemy's morale. I watched your Squadrons during that long retreat to the Delta which provided the extraordinary anomaly of a land retreat coupled with a crushing air victory.

"I shall never forget the avenging spirit in the Squadrons during that period. Your boys, whether fighter pilots, bomber crews, recce crews or those magnificent ground staff men who got so much of the work and so little of the glory, maintained an effort which, had I been asked before, I should have said was quite beyond the bounds of human endeavour. There is no doubt that this inspiration, which emanates from your great leader, an inspiration which I myself have felt on the occasions when I have been fortunate enough to meet him, also permeates your forces, whether they have been serving in your own S.A.A.F. Units or in R.A.F. Units."

Sicily and Italy

The South African Air Force was represented in the invasion of Sicily by Nos. 1 (operating in 244 Wing, R.A.F.), and 12, 21 and 24 Sqns. of 3 Wing, operating from Malta. No. 1 Sqn. had the distinction of being the first Allied squadron to return to the European soil after the Dunkirk evacuation. For the invasion of Italy proper, No. 3 Wing, No. 7 Wing (now comprising Nos. 1, 2 and 4 Fighter Sqns. mounted on Spitfires), 40 Sqn. (Spitfires), and 60 Sqn. (Mosquitoes) all played their parts, and they continued to support the 8th Army as it advanced up Italy. The S.A.A.F. Light Bomber



Venturas of No. 21 Squadron.

Squadron also shared in the difficult task of supporting the operations in the Salerno and Anzio bridgeheads, and the G.R. squadrons assisted in defending the vital lines of communication that ran from both ends of the Mediterranean to the ports that were gradually being opened up in Sicily and Italy. In September 1944, the newly formed No. 8 S.A. Wing (consisting of No. 3 and 41 S.A. Sqns., and 187 and 193 R.A.F. Sqns., all equipped with Spitfires) arrived in Italy and joined the American 12th Tactical Air Command. This formation was operating on the West Coast in support of the American 5th Army, of which the 6th S.A. Armoured Division now formed a part. No. 3 (now armed with Marauders), 7 and 8 Wings, and 5 and 15 Sqns. operating in R.A.F. Wings, thus constituted South Africa's contribution towards the Allied tactical air forces in Italy; and together with No. 40 Fighter/Recce. Sqn. they supported the various operations of the 5th and 8th Armies which led to the final victory in South Western Europe some days before the general collapse in Central Europe.

Other South African units that operated in Italy were Nos. 16 and 19 Beaufighter Sqns., and 25 and 30 Marauder Sqns., which, as part of the Balkan Air Force, carried out extensive operations in the Adriatic and Jugoslavia in support of Tito's Partisans. Nos. 28 and 44 Sqns. of the S.A.A.F., both equipped with Dakotas, were responsible for the bulk of the transport operations in the Mediterranean, including scheduled services, casualty evacuation, and supply dropping to partisans in Jugoslavia and Northern Italy. General Reconnaissance operations were carried out in the Mediterranean by Nos. 17 and 27 Sqns., both equipped with Venturas (P.V. 1). No. 60 Sqn., mounted on Mosquitoes, carried out all strategic photographic reconnaissance for the whole of the Mediterranean theatre.

The Warsaw Operations

In July, 1944, No. 2 S.A. Wing, comprising 31 and 34 Sqns, and equipped with Liberators, had joined No. 205 Group, R.A.F., the strategic night bomber element of the American Fifteenth Air Force, and was located in the Foggia area in Southern Italy. It was the squadrons of No. 2 Wing, in conjunction with No. 178 Sqn. R.A.F.—the only Liberator squadrons in 205 Group—that carried out the supply dropping operations to Warsaw in August and September, 1944. These were perhaps the most hazardous operations undertaken by the S.A.A.F. during the war, and they involved a round trip of over 1,700 miles, from Southern Italy almost to the Baltic and back, through some of the areas of Nazi Germany that were then most heavily defended by night fighters. Although subsequent events showed that very little was accomplished by these operations, they nevertheless represent one of the most outstanding achievements in the history of the South African

Air Force, and will go down in the annals of air warfare. It is of interest to note that No. 205 Group was commanded at the time by a member of the S.A.A.F.—Brigadier (later Major-General) J. T. Durrant, C.B., D.F.C., now Director-General of the South African Air Force. In addition to its night bombing and mining operations, this Group carried out a considerable number of supply dropping missions to Jugoslavia and Northern Italy, the former often being done by day.

Strength of S.A.A.F. in The Mediterranean

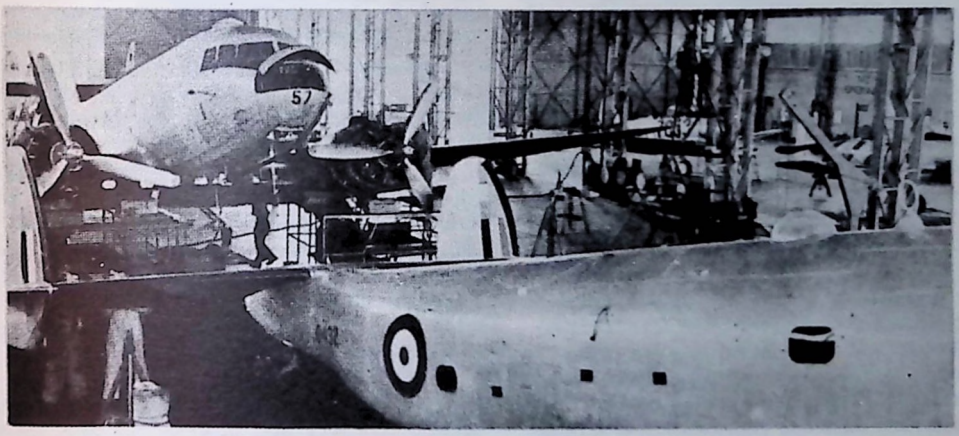
By September, 1944, the South African Air Force reached its peak strength in the Mediterranean theatre when it consisted of four wings—No. 2 on Liberators, No. 3 on Marauders, No. 7 and 8 on Spitfires. The total number of squadrons in these wings, together with those operating in R.A.F. Wings, amounted to 27, which formed about one-third of the R.A.F. Operational Command in the theatre. There were 17,721 S.A.A.F. personnel (10,732 Europeans) in these units or attached to other Allied Air Forces when the South African Air Force reached its maximum strength in the Mediterranean at the end of 1944.

Madagascar and the Atlantic

Nos. 36 and 37 Flights, equipped with Marylands and Beauforts, operated in support of the ground forces in Madagascar and also carried out G.R. operations around that coast. These two units were later amalgamated to form No. 20 Sqn., which was later re-designated No. 16 Sqn. and moved to the Mediterranean, where it re-armed to Beaufighters and joined the Balkan Air Force. In the Battle of the Atlantic, South Africa was represented by No. 26 Sqn. (Wellingtons) operating from Takoradi, and No. 22 Sqn. (Venturas) operating from Gibraltar. No. 26 Sqn. played a considerable part in safeguarding the shipping bringing aircraft and other important supplies to the vital air terminal at Takoradi for delivery by the overland air route to the Middle East. No. 22 Sqn. in turn operated from Gibraltar at a time when the main supply route to the Middle East and Italian theatres was through the Straits of Gibraltar and the Mediterranean.

Air Transport Operations

The perpetual shortage of shipping coupled with South Africa's geographical position, made some form of air link with the various theatres in the North essential, and resulted in the establishment of what came to be known as the "Shuttle Service." This was established early in 1940, when



No. 1 S.H.Q. is responsible for the servicing of all S.A.A.F. aircraft in the Transvaal.

Our picture shows a batch of reinforcements boarding a Dakota at Zwartkop en route to join the 6th S.A. Armoured Division in Italy towards the end of the war.

a service between Pretoria and Nairobi was inaugurated, using Valentias and JU 52's. These were later replaced by Lodestars, and the service was extended to Egypt when South African units started to move to that theatre. In due course Dakotas were also put into service, and the northern terminal was moved to Italy.

When hostilities ended, part of the service was extended to the United Kingdom to facilitate the evacuation of ex-prisoners-of-war. The end of hostilities did not, however, end the shipping shortage, and the responsibility for repatriating the bulk of the U.D.F. from Italy and the Middle East was given to the S.A.A.F. To help in meeting this enormous task, the Liberators of 205 Group, both R.A.F. and South African, undertook to transport the homeward bound South Africans over the first leg of their journey from Italy back to the Middle East. The second stage, from Cairo West to the Union, was undertaken by Dakotas of No. 5 Wing (based at Germiston) and the converted Venturas of No. 10 Wing (based at Pietersburg), under the control of No. 4 Group.

This intensified transport service came into operation in July 1945, and had reached its peak by the end of the year, when an average of six Dakotas and three Venturas arrived and departed daily at the Pretoria terminal at Zwartkop. In addition, the Sunderlands of No. 35 Sqn. were also employed in a trooping rôle, and these combined forces between them brought home over 54,000 South Africans in the 7-month period between July 1945 and February 1946. In all, the "Shuttle Service" carried over one hundred thousand passengers between the time it was started in 1940, and the time it ceased to operate in 1946. The majority of these passengers were carried over the 4,500 miles between Pretoria and Cairo.

The Joint Air Training Agreement

A scheme for air training in South Africa began as far back as 1937. It was greatly expanded after the outbreak of the war, when the United Kingdom was offered facilities for training R.A.F. aircrews in South Africa. The Joint Air Training Scheme virtually came into existence on the 1st June, 1940. Two months later, schools were opened at Baragwanath, Randfontein, Kimberley, East London, Oudtshoorn, Cape Town and Port Elizabeth. When the scheme reached its peak, 36 Air Schools were operating. The half-share in these 36 Air Schools represented a considerable effort on the part of the S.A.A.F., and absorbed about half its available manpower and resources. This gigantic task was not, however, in vain, for by the end of 1945 the Joint Air Training Scheme in

South Africa had produced 33,347 aircrew of all categories, of which 20,800 were R.A.F., 12,221 S.A.A.F. and 326 Allied personnel.

Anti-Aircraft Units

The South African Air Force was the only allied air force that was given the responsibility of providing the anti-aircraft units for its country's armed forces. These units were not only responsible for the defence of the main ports in the Union, using both heavy and light guns, but they also provided the mobile units for the defence of S.A.A.F. airfields and for inclusion in the 6th S.A. Armoured Division.

The Women's Auxiliary Air Force

The invaluable assistance rendered to the South African Air Forces by the W.A.A.F. is too well-known to need emphasis. This force of 6,500 took its place within the framework of the Air Force organisation, and served it throughout the war. It was largely due to the assistance received from the Women's Auxiliary Air Force that the S.A.A.F. was able to maintain so many units in the field and still play its part in the Joint Air Training Scheme.

Non-European Services

No record of the South African Air Force's achievements in this war would be complete without reference to the Non-European Services. These personnel provided a variety of services —aerodrome defence, transport drivers, aircraft hands, cooks, batmen, clerks, and assisted in a host of other ways. In an emergency they were always at hand to assist, be it to help in bombing up, to clear a crashed aircraft off the runway, or to make an extra trip to the Army post office for mail. In addition, these services released considerable numbers of Europeans for combatant duties.

The V.I.P. Flight of No. 28 Squadron.

Summary of S.A.A.F.'s Achievements in World War II

When the S.A.A.F. reached its peak strength in 1944, it consisted of four Wing Headquarters, 35 Operational Squadrons, one Operational Training Unit, 22 Supply and Maintenance Units, nine anti-aircraft batteries, and five battalions of Cape Coloured Infantry (in addition to other non-European Services). To this must be added South Africa's half-share in 36 Air Schools functioning in the Union under the Joint Air Training Agreement, to give the maximum strength attained of 45,000 all ranks (including 6,500 members of the W.A.A.F.). These personnel saw service with S.A.A.F. units in eight different theatres of operations, on 33 different types of aircraft, and flew an untold number of operational hours and sorties. On the training side the achievements of S.A.A.F. personnel were no less outstanding. The Union can justifiably claim to have contributed its fair share towards the success of the world-wide Empire Training Scheme. Between them the members of the South African Air Force gained one V.C., 35 D.S.O.'s, 415 D.F.C.'s, 74 A.F.C.'s 23 D.F.M.'s, 10 A.F.M.'s, 2 George Medals, 887 Mentions-in-despatches, and a number of foreign decorations.

END

ROYAL CANADIAN AIR FORCE Association

Sudbury and District Air Force Association Receives Charter

On the eve of the RCAF's 25th anniversary, in a ceremony which was impressive in its simplicity, No. 402 Wing of the RCAF Association received its charter. The presentation was made by Air Chief Marshal L. S. Breadner to Mr. Al Sangster, President of the Wing.

Issuing a challenge to his listeners to maintain the fine traditions of the RCAF in which they had served, and to make their voice voluble in support of a crack Royal Canadian Air Force, Air Chief Marshal Breadner traced briefly the history of the development of air power.

He explained that the first air force was formed in Britain prior to World War I, when a single plane was purchased in order to enhance the range of the Army and Navy. This, actually, was the beginning of a new era in warfare.

The development was fostered by the Army, which gradually learned how the air arm could be used as an attack weapon. It was, however, still an auxiliary of the Army and Navy.

Air Chief Marshal Breadner then spoke of the next step—the handling and administration of the new weapon. There were two schools of thought, one of which held that the Air Force should be entrusted to the Army and Navy, making it a component of the other Services. While this plan had certain advantages (among them, the avoidance of setting up a new administration), it limited the use of the Air Force to the thinking of Army and Navy men, and involved considerable duplication. Fortunately the other school, which advocated a separate unit concentrating on aeronautics, eventually won the day; and Britain was the first nation to centralize air authority. In April 1918, the Army and Navy branches merged into the Royal Air Force. Curiously enough, though, the idea of the separate unit was not really new, having been first conceived in 1912; but it had taken the stimulus of war to overcome interservice jealousies.

The first demonstration of the advantages of a single autonomous Air Force came during the years between the First and Second World Wars, when Britain used aeroplanes to police isolated colonies. At the same time, she was coming to realize that air power was essential to repel attack from the continent. Although, as the Air Chief Marshal pointed out, everyone knows the result of the Battle of Britain, when the Royal Air Force saved the world, it should also be clearly understood that this feat could not have been accomplished under a divided command.

From here he went on to express the view that the might of air power had been more forcibly demonstrated by the Americans' capture of Japan than in any other theatre of war. Japan surrendered with millions of men still under arms, without ever having been invaded. Further, he said, certain competent authorities maintain that Germany too could have been brought to her knees by air power alone, had the Air Force been permitted to concentrate on bombing strategy instead of being required to divert its energies to assist army and navy operations.

No. 100 (Bluenose) Wing, Halifax

No. 100 (Bluenose) Wing, composed entirely of ex-WD's, was the first wing formed in Nova Scotia. The following letter, received from their

Presentation of Charter by Air Chief Marshal Breadner (left) to President Al Sangster, No. 402 Wing, Sudbury. (Courtesy of "The Sudbury Daily Star")

President, Miss Ruth Vogler, is published to demonstrate the fine work these ladies are doing.

"Our Club has grown exceedingly since its inauguration, and you can be assured we are both pleased and proud to be the first Wing formed in this Command.

"Our main activity to date has been an endeavour to spread some sunshine in the wards of Camp Hill Hospital. To this end, groups of ten girls go there every second and fourth Tuesday evenings to arrange Bingo for the boys and girls in the T.B. wards. These patients are treated as virtual outcasts by other city clubs, and very little is done to make their days more pleasant. You can therefore appreciate how much our visits mean to them.

"The prizes for each game of Bingo are contributed by the girls attending, as our funds are not yet sufficiently large to be drawn on for these occasions. Every fifth Tuesday (which is very occasionally), we entertain all the up-patients of the other wards in the new Red Cross Lodge, where we play bridge and cribbage with them, and then serve refreshments. On the first and third Tuesday evenings, we have our meetings in the very nice room which has been placed at our disposal at Gorsebrook, by Air Commodore F. G. Wait, C.B.E."

Ontario Group

We take pleasure in announcing the appointment of Air Vice-Marshal G. E. Brookes, C.B., O.B.E., as Provisional President of the Ontario Group. He is replacing Air Commodore A. H. K. Russell, C.B.E., who has had to relinquish this post because of ill health. Air Vice-Marshal Brookes was the first Air Officer Commanding No. 6 (Bomber) Group overseas, and since his retirement has been living in Toronto. His address is 128 Highbourne Rd., Toronto 12. We suggest that the Ontario Wings of the association make themselves known to him. He will be very glad to hear from you and to assist you wherever possible.

New Wings

Since our last issue, the following new Wings have been chartered:

No. 405 Wing, Timmins—President: Ernie A. Cain
No. 406 Wing, North Bay—President: Reg. Lehman
No. 501 Wing, Port Arthur—President: Clifford P. Leaney
No. 603 Wing, Yorkton—President: Jack H. Park
No. 800 Wing, Courtenay—President: William E. McKerrall
No. 801 Wing, Victoria—President: Dr. W. Douglas Marshall

The Air Force Association of Toronto, founded in 1935, unanimously decided at a regular meeting on March 15th to join the RCAF Association as a Wing. At time of writing, their Executive, led by President Ben. B. Ross, is preparing their application for Charter.

* * *

The ROYAL CANADIAN AIR CADETS

* * * * *

by G. M. Ross, Managing Director, Air Cadet League of Canada

Future Plans

As the eighth year of squadron activities draws to a close, Canada's 15,000 Air Cadets face the future with mounting enthusiasm. Ahead of them lies one of the most ambitious summer programmes in cadet history. Flying training, summer camps, exchange visits, and the international drill competition highlight the schedule for the forthcoming few months.

Some of our recent announcements from Ottawa emphasize the growing importance to Canadian aviation of the Air Cadet League's operations. Of particular interest is the flying training programme under which some 1,000 cadets have been taught to fly since 1946—the majority of them under RCAF sponsorship.

In order to raise the calibre of trainees reporting for the RCAF scholarship courses, new regulations governing selection were introduced this year. Interested cadets were required to make formal application for training and to pass qualifying examinations in navigation, meteorology, and airmanship. They must also be fit for full flying duties in accordance with RCAF and Department of Transport requirements. Successful candidates are reporting to the flying clubs on July 4th to commence four weeks of concentrated air training.

The approved RCAF course offers 17 hours' air time in standard light planes, plus 60 hours of ground-school instruction. Plans are now being discussed whereby top students may go on to private pilot's licenses. Scholarship cadets, incidentally, are eligible for government subsidies but receive only half of the regular cash grant upon attainment of P.P.L. standard.

Due largely to the careful methods of selection, we anticipate a higher standard of training this year than on any of the previous courses. In addition, the RCAF is working on a standard system of assessment so that the calibre of trainees across the Dominion can be accurately judged. Cadets achieving the required proficiency will be authorized to wear the special cadet flying badge on their uniforms.

Supplementing the RCAF course, a number of our civilian committees are expanding their activities in the flying training field. In most instances, free air time is being presented to cadets as a reward for good attendance or outstanding proficiency.

The current year will also see a record number of academic scholarships awarded to outstanding graduate cadets. At the time of writing, the League has raised the remarkable total of 29 new scholarships to the Canadian Services Colleges at Royal Roads, B.C., and R.M.C., Kingston. Valued at $600 each, these scholarships cover all expenses for the first year of training. However, cadets are given employment between college terms and may earn enough to pay for the succeeding year's tuition. Primary aim of the four-year course is to train cadets for future positions of leadership in the RCAF.

One of the more unusual scholarship donations came from an American citizen—Col. D. Harold Byrd, a director of the U.S. Civil Air Patrol, who attended the recent Annual Meeting of the League. Another scholarship came from the Public Relations and Advertising Department of Trans-Canada Air Lines, while the remaining 27 were put up by public-spirited citizens and business firms across the country.

* * *

Details of the triangular exchange of cadets between Canada, the U.S.A. and Great Britain were settled recently at a conference held in London, England. The Canadian delegation was headed by League honorary president, C. Douglas Taylor, Montreal, who is to a large extent responsible for the continuous development of exchange visits. He was accompanied by the writer and by Squadron Leader A. G. Dagg of Air Force Headquarters. Air Marshal Sir Alan Lees, commander-in-chief of the RAF Reserve Command, presided. General Carl A. Spaatz, chairman of the Civil Air Patrol national executive board and former chief of the U.S. Air Force, headed the American delegation.

Following the conference, it was announced that a total of 51 Canadian cadets will be selected for exchange this summer. Twenty-five will travel throughout the United Kingdom, with a side trip to the British Zone of Germany. The remaining 26 will make an air tour of the United States, enjoying a prolonged stay in California. Return parties from both countries will be entertained in Canada. For the first time, the United Kingdom will exchange cadets directly with the United States—a development which stemmed from a proposal originated by the Air Cadet League.

Considerable interest is apparent in this year's version of the International Drill Competition, slated for the Canadian National Exhibition, August 30th. The Canadian team, selected from squadrons in Ontario, will defend the General Beau Trophy won by Quebec Air Cadets at Idlewild Airport last summer. Extensive regional and zone competitions have been held in the United States, and it is anticipated that a top-flight team will represent the C.A.P. this year.

Further evidence of the growing international flavour of Air Cadet activities was presented recently when a regular executive meeting was held by the League in Washington, D.C. The Dominion directors were in the U.S. capital to attend the annual Presidential Dinner of the Civil Air Patrol, and they took advantage of this opportunity to get together for a discussion of League business.

* * *

Upwards of 4,000 cadets are expected to attend summer camps at RCAF stations in July and August. During the two-weeks' camping period they will receive instruction in syllabus subjects, go aloft for familiarization flights in Service aircraft, and participate in organized sports. Despite the high level of summer employment among young men in Canada, the camps are gaining in popularity each year. This year they will be held at Summerside, Aylmer, Gimli, and Abbotsford.

Reflecting on the second national Air Cadet Week which was observed throughout Canada this spring, the League has good reason to be pleased with the results obtained. Designed to focus public attention on the aviation and citizenship training programme sponsored by the civilian group, the special week also gave Air Cadet units across the Dominion an opportunity to appeal for financial support. Coming as it did in the wake of the RCAF Silver Jubilee, Air Cadet Week created an unusual degree of public interest. Now that the returns are in, it is apparent that daily papers and radio stations throughout the Dominion have clearly recognized the vital nature of the League's work.

Said the Montreal Herald in its editorial column: "Canadians are acutely conscious of the need for

strengthening their country's air defences today. Encouraging the Air Cadet movement is one contribution all can make toward this end."

In a slightly different vein, the Montreal Gazette added:

"It is no wonder that the Air Cadet League of Canada has a special attraction for Canadian Boys. The romance of air development has stirred their imaginations, the excitement of flying has appealed to their spirit of adventure, and still unexplored fields of development beckon them on to take an interest in the whole field of aviation."

With this kind of support from the recognized moulders of public opinion, and with the continuing interest of the public-spirited business and professional men who comprise the League, the ceiling is unlimited for the future of Canada's 15,000 Air Cadets.

* * * * *

Maxims For All Ranks

(Reprinted by courtesy of "Forces Aériennes Françaises)

★ The man who asks exemption from P.T. is old, very old, too old . . .

★ The most important quality in a non-commissioned officer is zeal. The second quality is knowledge of his trade.

★ The man who backs his staff to the limit when they are in undeserved trouble is indeed a leader.

★ An order is not the starting-point for a discussion.

★ The wife (or girl friend) of a flying man should realize that there are two of them: herself and flying.

★ You will receive ridiculous orders. Try to understand them. If possible, ask for explanation, but don't let your discontent appear on the outside. The General Staff is often in error; but would you yourself do any better?

★ Be just and firm towards your subordinates. Be even more so towards your superiors.

★ Your subordinates ask only to respect you. If you let them down, they will not forgive you.

★ If you look over the wall of your men's private lives, you will perceive the reasons for many of their weaknesses.

Colonel G. Leroy

The Legend of Icarus

(Most members of our Service have at some time during their training heard mention made of Icarus and his fatal crash about 3,000 years ago. The following brief article, translated from a longer one in "Alas de America," contains the whole sad story of that immortal prang.
—Editor)

DAEDALUS, WHO WAS THE FATHER OF ICARUS and who personifies the beginnings of architecture and sculpture, was banished from Athens to Crete. There, because he aided and abetted King Minos' wife Pasiphae in her criminal love-affair, he was imprisoned together with Icarus in the famous labyrinth which he himself had built.

Deprived of freedom, Daedalus devoted his time to devising means of escape. This is the way Ovid tells the story:

"Wearied of Crete and of his long exile, Daedalus felt love for his native land reborn within him"—but the only road to liberty lay through his dreams. " 'Minos,' he said to himself, 'can close both land and water to me, but the sky spreads open above me. I will go hence by that route. Minos may be lord of many things, but he is not master of the air'.

"Having spoken thus, he set himself to the study of an art until then unknown, and applied new laws to nature. He placed many feathers in a row, in such a manner that a shorter followed a longer, like the unequal-pipes of a rustic flute. Then, having fixed them in place with wax and linen, he gave the whole a slight curve to imitate the wings of real birds. The youth Icarus, unwitting that his father was making the instruments of his destruction, never left his side. With laughing countenance, he amused himself by catching the flying feathers that the wandering breeze carried off and by moulding the wax in his fingers, hindering his father's labour with his sport.

"When the craftsman had given the final touches to his work, he was eager to try his wings and to hover in the light winds. First he gave instructions to his son: 'Icarus', he said, 'keep always to the middle height in thy flight; this I counsel thee. If thou descendest too low, the water will increase the weight of thy wings. If thou soarest too high, the heat of the sun will scorch them. Fly between the two. Gaze not upon the ox-herd, nor upon the Great Bear, nor upon the naked sword of Orion. Take me for thy guide, and follow my direction'.

"Then he taught him the art of flying and how to fit to his shoulders the wings that were until then unknown. And flapping his own, he looked at his son, and they took to the air. A fisherman tending his nets, a shepherd resting on his crook, a countryman at his plough—these saw them leave, and they remained amazed at the vision of these men who could fly. They mistook them for gods.

"Delos and Paros were far behind, and now Samos, beloved of Juno, appeared on the left, with Lebintos and Calimnea, rich in honey, upon the right—when the boy, wholly entranced by the joy of his daring flight, forsook his guide. Yielding to the lure of the heavens, he rose to loftier regions. Then the proximity of the sun swiftly melted the fragrant wax which controlled his feathers; and, deprived of the wings that enabled him to navigate in space, he was no longer able to sustain himself in the air . . . " and he fell into that part of the Aegean which later took the name of the "Icarian Sea."

Reversible Props as DIVE BRAKES

(Condensed from an article by Irving Stone in "Aviation Week")

THE POTENTIAL of reversible pitch props to permit rapid, controlled descent of aircraft in emergency and procedural letdowns was strikingly shown at a demonstration conducted at Curtis-Wright Corp.'s propeller division at Caldwell, N.J.

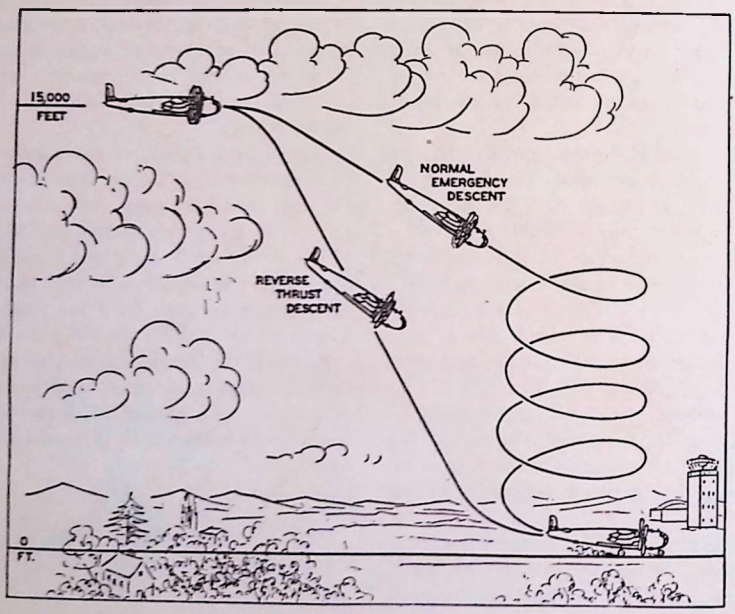
Starting at an initial altitude of 15,000 ft., a C-54 was put into a dive of approximately 40 deg. with all four propellers in reverse pitch for air braking effect. Touchdown was accomplished in a little more than 3 min. from the start of the dive.

* * *

The exhibition was conducted using two planes —one, a USAF C-54 test ship, the other an American Airlines DC-4, to give comparative data for emergency letdown without reversing the propellers in the air.

The two planes rendez-voused at the 15,000-ft. altitude about five miles distant from the airport. Just before the start of the test, which was signalled by radio from the air, the C-54 gave a clear trace of its flight path with a trail of white smoke from its tail.

At the prearranged signal, both craft began the emergency letdown, the test ship with all four propellers in reverse pitch and its 40-deg. angle of descent outlined boldly against the sky by the trailing line of smoke.



Pull-out for the C-54 was effected at 1000 ft. and elapsed time was stop-watched at 1 min., 30 sec. for the 14,000-ft. descent. Total elapsed time to runway touchdown was 3 min., 8 sec.

Coming down from 15,000 ft., the American Airlines DC-4 descended in tight spirals, touching the runway in 5 min., 1 sec., stop-watch time.

Unofficial observers timed the test ship's descent to 1000 ft. at 1 min., 22 sec., and to touchdown at 2 min., 55 sec. For the AA DC-4, unofficial timing was 4 min., 48 sec. until touchdown.

For the first 5000 ft. of descent, speed of the test ship was 200 mph. (indicated), and remainder of drop was at about 190 mph. Rate of descent was estimated to be about 10,000 ft. per min. Rate of descent for the AA craft was estimated at 3500 fpm.

The test ship installation is controlled to give constant speed in reverse—a feature which commercial craft with reverse pitch props don't have.

Curtiss-Wright officials feel that about 1 to 2 years of study and refinement will probably be required before CAA approval is likely to be obtained.

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Yukon Bear Hunt

Flt. Lieut. S. Skinner, D.F.C. (left), and Flt. Lieut. C. C. W. Margerison, D.F.C., with three grizzly bears which they shot during a three-day hunt at RCAF Station Whitehorse. The largest of the three grizzlies tipped the scales at 550 lbs.

IN MEMORIAM

The above photographs show the lowering of the Stars and Stripes and the hoisting of the Canadian flag over the graves of four Canadian airmen killed in British Guiana during World War II. The flag, which was given to U.S. authorities by Viscount Alexander, replaced the Stars and Stripes in a ceremony marking transference of the care of the graves from the Americans to the British. The Canadian airmen who lie buried here are: Sgt. F. A. R. Milbury, Sgt. H. D. G. Ward, P/O K. P. Probert, and P/O R. F. Stubner. All of them were flying with RAF Ferry Command at the time of their death.

CHEER UP, CHICKENS!

COLLISIONS BETWEEN man-made and feathered birds, though not always serious for both parties, are invariably fatal for one of them. The above photograph shows what recently happened at Rivers, Man., when a Mustang ran into a large hawk while preparing to come in for a landing. The pilot, F/O E. K. Prentice, was able to make a normal landing—but the hawk will terrorize the farm yards no more.

LETTERS TO THE EDITOR

Sir:

It is generally considered that your "What's the Score?" in the April issue was of considerably more benefit and interest to all ranks than those previously published.

We would like to see more such Service knowledge quizzes in future issues.

F/O D. R. Miller
F/O E. S. Bonderski

(Hope you like the questionnaire in this issue. As for the future—what about sending one in to us?—Editor.)

Sir:

I read W/C Shelfoon's article on all-weather flying (May issue) with considerable interest, but I cannot help thinking that he tends to minimize the hazards encountered in cu-nim. No matter how seasoned a pilot may be, we "old ones" feel that sooner or later he is bound to encounter "finger trouble" along his flight path.

Over Belgium/Holland one evening in a Mosquito, we ran into what we presumed to be a stretch of nimbus. Since we were only flying at about 2000 ft., we thought it was too low to be cu-nim.

Heavy rain was encountered, with the odd and not too alarming glare of lightning. After about 5 minutes of this, however, there was a blinding flash accompanied by static that almost took off my helmet. At the same time, the stick nearly jumped from my hand.

It could not, we realized, have been flak, as we were 20 miles inside our own front line. After collecting our wits, we took stock with a flashlight. The lighting system was U/S, the gyro was spinning like a top, the compass was doing things no self-respecting compass should do. The trim was way off—in both respects. Only the artificial horizon seemed to be behaving normally.

We reset the gyro on zero, made an approximate 180° turn, and eventually managed to get home—thanks entirely to the resourcefulness of my navigator, whose Gee Set was also U/S. When we climbed out of the aircraft we found that the rivets had been blown off the cowlings, so that they were flapping in the breeze like washing on a line.

According to the book, cu-nim floats around 5000-30,000 feet. So what happened? Your guess is as good as mine.

Flt. Lt. H. N. Fisher

A SAGE HATH SAID...

"Regard your soldiers as your children, and they will follow you into the deepest valleys; look on them as your own beloved sons and they will stand by you even unto death. If, however, you are indulgent, but unable to make your authority felt; kindhearted but unable to enforce your commands; and incapable, moreover, of quelling disorder: then your soldiers must be likened to spoilt children; they are useless for any practical purpose."

Sun Tsu: *The Art of War* (*circa* 500 B.C.)

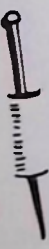
(*Reprinted by courtesy of "Air Clues"*)

★

Answers to "What's the Score?"

1 : C	2 : C	3 : D	4 : D
5 : D	6 : A	7 : D	8 : D
9 : C	10 : B	11 : B	12 : B
13 : A	14 : B	15 : A	16 : C
17 : A	18 : D	19 : B	20 : C

★



DELAYED ACKNOWLEDGEMENT

Thanks are due to Bilvic Studio, Dawson Creek, for the photograph which accompanied the item "First Wings in Peace River" in our last issue.—Editor.

Two Messages

A LETTER FROM THE RT. HON. W. L. MACKENZIE KING, P.C., O.M.

Dear Air Marshal Curtis:

I should like to extend sincere congratulations and best wishes to yourself, and to all ranks of the Royal Canadian Air Force, on the celebration of Air Force Day on June 11th.

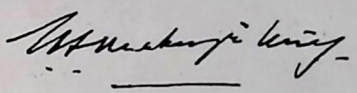
The record, progress and achievements of the RCAF since its beginning twenty-five years ago are of a character in which every Canadian may take pride.

In the annals of the Royal Canadian Air Force, this year also marks the Silver Jubilee of air power in Canada. Since its formation, the RCAF has gained for our country high honour in peace and in war.

I should be grateful if you would accept my personal congratulations, and convey, at an appropriate occasion, my best of wishes to all officers and men of the RCAF.

To all I send every good wish for the future.

Yours sincerely,



A MESSAGE FROM GENERAL HOYT S. VANDENBERG, CHIEF OF STAFF, UNITED STATES AIR FORCE

I extend warmest greetings, both personally and on behalf of the United States Air Force, to the Royal Canadian Air Force on its third annual Air Force Day. Let us consider that this day marks the completion of another year of the close, friendly co-operation which so characterizes our two services. This co-operation is an outstanding example of international harmony at work, and is bred by unity of purpose and mutual respect.


The
ROUNDEL