



ROUNDDEL

MAY 1963
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ROUNDEL

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MAY 1963
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COVER CAPTION

This month the Golden Hawks, seen here over the Rockies, begin their fifth transcontinental tour. See page 2 for details.

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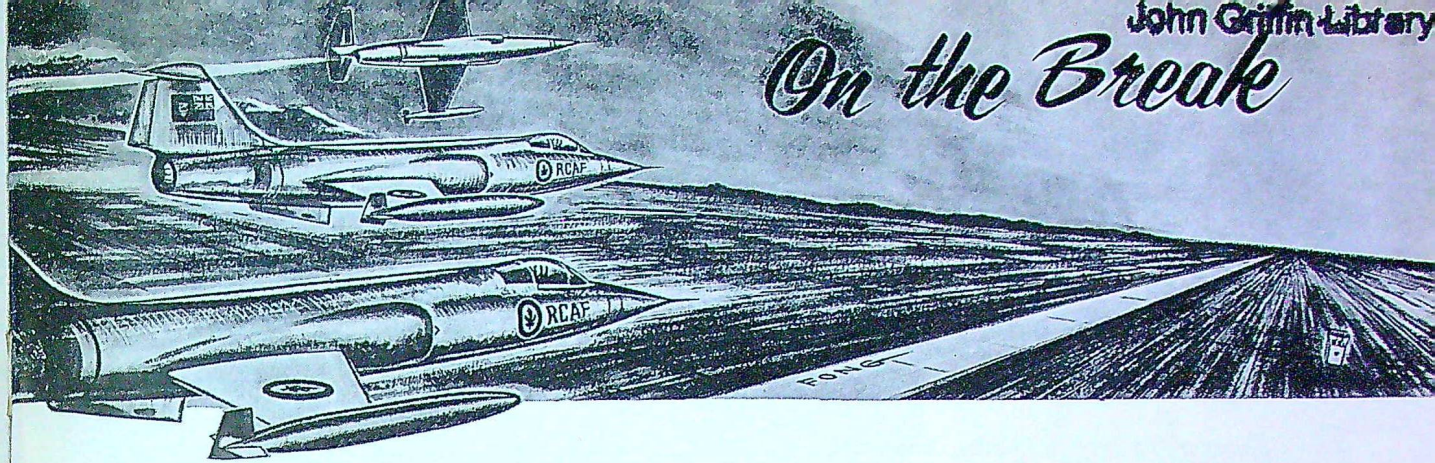
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On the Break



"WHERE do you get the articles that appear in **ROUNDEL**?" we're often asked. We'd like to be able to say we just sit back casually in our little Victoria Island shack and wait for the material to roll in, but that wouldn't be truthful. Fact of the matter is, most of our major stories are solicited and sometimes take months to develop.

Obviously, the first thing we need is an idea. Ideas come from a variety of sources — you, the readers supply some in your letters; others crop up as we monitor official reports or converse with our air force colleagues; a few are adapted from exchange magazines; many come to light during formal editorial committee meetings held for that very purpose.

Once we agree that an idea is worth a story, we usually go to the experts in that particular field and ask them to write us the facts. We are proud of the reputation **ROUNDEL** has gained over the years and we're determined to maintain its reliability. Naturally, we don't expect every **ROUNDEL** author to be a professional writer — if that were the case we'd be out of a job. So we go to work with blue pencil on the draft article and at the same time decide on suitable illustrations. The whole package is re-double-checked for accuracy before you see it. Did we hear someone ask sarcastically, "How come, then, you still print errors?"

was quite reluctant to have his by-line printed until we pointed out to him the above **ROUNDEL** philosophy. After all, who is better qualified to write about CEPE than that establishment's commanding officer.

A Manitoba native, G/C Morrison had a distinguished operational record in World War II. He flew two tours with No. 405 (Pathfinder) Sqn., being awarded both the DSO and DFC. For his outstanding work on the Korean airlift a few years later he was awarded the AFC. His tour at CEPE was broken in 1961 by a nine-month assignment as air commander of the UN Congo Force.



G/C H. A. Morrison

THE fact that RCAF units operated under American command against the Japanese 21 years ago may be news to some readers. Certainly it is not to those members of Nos. 8 14 and 111 Sqns. who found themselves posted to the Aleutians in 1942.

Their story is told, beginning on page 18, by F/L Fred Hatch, a member of the air historian's staff who at the time he recalls was himself a Canadian army officer in the European theatre. In 1951 school teacher Hatch enlisted in the RCAF as an education officer. He served in Saskatoon, Whitehorse and St. Jean before joining the historical section four and a half years ago.



F/L F. J. Hatch

PERSONAL publicity is not one of G/C Howie Morrison's strong points. Indeed, the author of the CEPE story (page 4)

At Paton s/l
Editor

GOLDEN HAWKS

START 1963 TOUR THIS MONTH

THE skies over the Bay of Quinte, in the Trenton area of Ontario, have been the scene for the 1963 Golden Hawks practice sessions. Since arriving at Trenton from their former base at Chatham, N.B., late last fall, the team has had a busy schedule.

With the change in home location came changes in personnel, too. Wing Commander Frank Hatton replaced W/C Jack Allan, who had been the team's commanding officer for three years. Four new pilots were selected for this year's team, to replace those who were posted. Several new members have joined the technical staff as well.

Squadron Leader Lloyd Hub-

bard, who joined the team in 1961 as left wingman and who led the team last year, will lead again during the 1963 tour. One of his first tasks was choosing the four new pilots from six who tried out for the vacant positions. Now the team is putting the finishing touches on the aerobatic manoeuvres which will be used during its four-month tour of Canada and the United States starting this month.

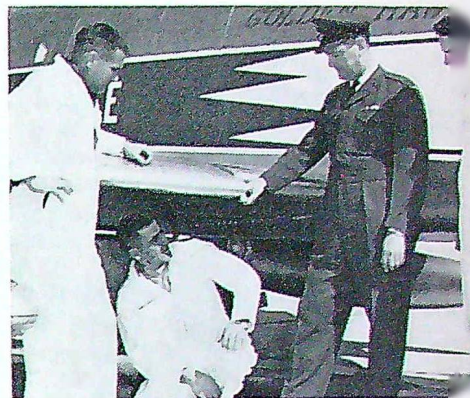
This year's team members are S/L L. J. Hubbard, leader; F/L A. Young, right wing; F/L N. J. Garriock, left wing; F/L C. B. Lang, slot; F/L E. J. McKeogh, lead solo; F/L D. Barker, solo; F/L L. W. Grip, second solo. Flight Lieuten-

ants Young, Lang, Grip and Barker (who was last year's Red Knight) are the new additions.

Flight Lieutenant B. J. Lebens will again be the commentator and F/L J. C. Giles will be public relations officer for the second year. The engineering officer for the past three years, F/O P. S. Perry, has been succeeded by F/L C. G. Peterson. Flight Sgt. D. Robinson, aircraft maintenance superintendent, Sgt. J. A. G. Latraverse, NCO i/c repair, and Sgt. J. F. Finnigan, NCO i/c servicing, remain with the team. Sgt. G. E. Williams, NCO i/c snagcrew, and Sgt. J. Clark, NCO i/c orderly room, are new additions to the team this year.



G/C D. J. Williams (left), RCAF Stn. Trenton commanding officer, welcomed W/C R. F. Hatton (right), Golden Hawks CO, and S/L L. J. Hubbard, leader of the team, as they arrived at their new home last fall. S/L Hubbard holds the team mascot.



Three groundcrew members who have been with the team since its formation in 1959 bid goodbye to former team engineering officer F/O P. S. Perry. The airmen are (l. to r.) LAC E. R. Harnum, Cpl. J. K. Terrio and LAC W. B. Briggs.

The 1963 Golden Hawks (clockwise from lower left): F/L L. W. Grip, F/L A. Young, F/L D. Barker, S/L L. J. Hubbard, F/L N. J. Garriock, F/L C. B. Lang, F/L E. J. McKeogh.

The following schedule, subject to change, has been planned for the 1963 tour.

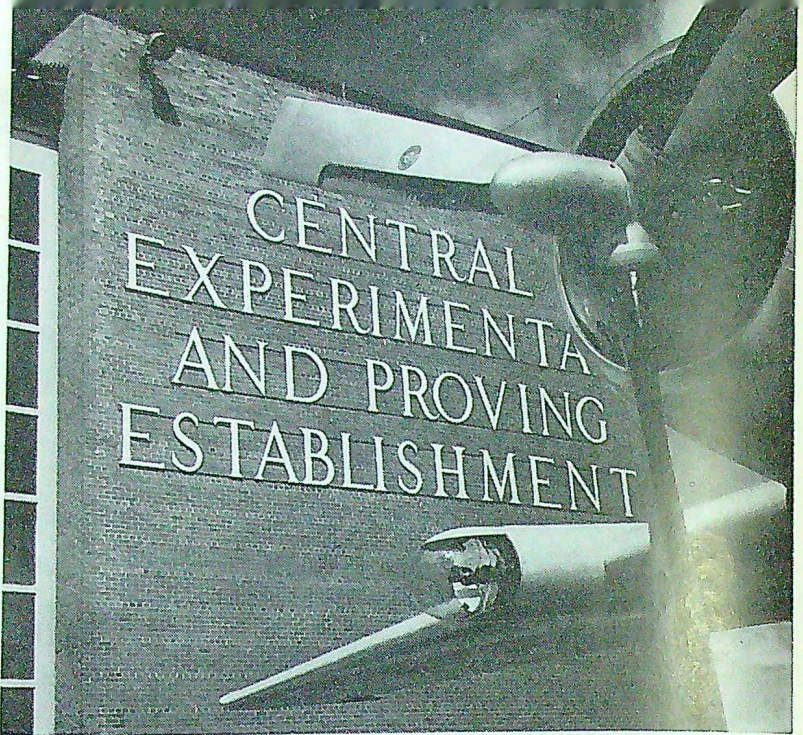
Date PLACE AND EVENT

- 18 May Windsor Air Show
- 19 May Sarnia Air Show
- 20 May Peterborough Air Show
- 22 May Welland Air Show
- 25 May Niagara Air Show
- 26 May Brantford Air Show
- 29 May Camp Borden AFD*
- 1 June Trenton AFD
- 4 June Chatham Air Show
- 5 June London Air Show
- 5 June Listowel Air Show
- 8 June National Air Force Day
Rockcliffe
- 12 June Gander AFD
- 14 June Torbay AFD
- 15 June Summerside AFD
- 16 June Moncton Air Show
- 19 June Sydney AFD
- 21 June Chatham AFD
- 22 June Greenwood AFD
- 23 June Fredericton Air Show
- 26 June Mont Joli Air Show

- 28 June Bagotville AFD
- 29 June Cornwall Air Show
- 30 June Quebec Air Show
- 1 July Three Rivers Air Show
- 1 July Sherbrooke Air Show
- 3 July North Bay AFD
- 3 July Falconbridge AFD
- 5 July Val D'Or -
Senneterre AFD
- 6 July St. Hubert AFD
- 7 July Timmins Air Show
- 10 July Sault Ste Marie Air Show
- 12 July Portage AFD
- 13 July Winnipeg AFD
- 17 July Regina Air Show
- 19 July Yorkton Air Show
- 20 July North Battleford Air Show
- 21 July Saskatoon Air Show
- 24 July Lloydminster Air Show
- 27 July Cold Lake AFD
- 28 July Namao AFD
- 31 July Penhold AFD
- 3 Aug. Lincoln Park AFD
- 4 Aug. Medicine Hat Air Show
- 5 Aug. Lethbridge Air Show
- 9 Aug. Kamloops Air Show
- 10 Aug. Penticton Air Show
- 11 Aug. Kelowna Air Show

- 14 Aug. Prince George Air Show
- 16 Aug. Victoria Air Show
- 17 Aug. Comox AFD
- 21 Aug. Gimli AFD
- 24 Aug. Kitchener Waterloo Air Show
- 27 Aug. Centralia-Clinton AFD
- 30-31 Aug. CIAS Toronto (CNE)
Air Show
- 2 Sep. Kingston Air Show
- 10 Sep. MacDill AFB** (Florida)
Air Show
- 11 Sep. Craig AFB (Alabama)
Air Show
- 13 Sep. Maxwell AFB (Alabama)
Air Show
- 14 Sep. Carswell AFB (Texas)
Air Show
- 15 Sep. Midland (Texas) Air Show
- 18 Sep. Randolph AFB (Texas)
Air Show
- 19 Sep. Brookley-Keesler (Alabama)
Air Show
- 21-22 Sep. Baton-Rouge (Louisiana)
Air Show

* Air Force Day
** Air Force Base



By GROUP CAPTAIN H. A. MORRISON, DSO, DFC, AFC
Commanding Officer, CEPE

ACCORDING to Greek mythology, Hercules was given 12 labours to perform, the second being the slaying of a hydra monster which grew two heads for every one that was cut off. This formidable task, which was eventually accomplished by Hercules, is depicted on the badge of the Central Experimental and Proving Establishment. The selection of this heraldic motif stems from the fact that, no matter how many tasks CEPE completes, it is faced with a never-ending number of tasks to perform.

Forty years ago the Air Board and the Canadian Air Force were jointly responsible for the test and devel-

opment of both civil and military aircraft and equipment. Most of the work was done at Ottawa Air Station (now Rockcliffe) with other stations, such as High River, assisting from time to time in certain projects. In 1931 a special RCAF unit was set up exclusively for this work. In that year Test Flight was formed at Ottawa with one *Fairchild* aircraft and a personnel strength of two—F/L N. C. Ogilvie-Forbes and an NCO. From such beginnings came the present day highly specialized Central Experimental and Proving Establishment, which moved its headquarters from Rockcliffe to Uplands in May 1957.

During the early 30s a great deal of RCAF activity was concerned with civil and government air operations. For Test Flight this meant airworthiness trials on civilian aircraft, so aircraft such as the Canadian *Cub* and the Curtiss Reid *Courier*, were flown by air force pilots to determine their suitability for the commercial market. Also in that era the RCAF began its testing activities, particularly winter trials, on behalf of the RAF when, in 1931, a *Wapiti* aircraft was supplied by "His Majesty's Air Ministry for experimentation and criticism". As testing and developing of aircraft became of greater national concern

the appropriate government agency, the National Research Council, and the RCAF's Test Flight were associated and, in 1938, Test Flight's expanding role and broader scope was recognized by the new name Test and Development Flight.

After the outbreak of World War II the 200 personnel of Test and Development Flight diverted their energies into a more aggressive role — arming *Ansons* with rockets, testing bomb sights, and experimenting with radar. In 1940 Test and Development Flight became Test and Development Establishment and at the end of hostilities the name was changed once more to Experimental and Proving Establishment (EPE). Finally, on 1 September 1951, the present-day organization known as the Central Experimental and Proving Establishment (CEPE) was formed by an amalgamation of the EPE at Rockcliffe, Winter Experimental Establishment at Edmonton, the air force's NRC detachment at Arnprior and the RCAF detachment at DRB's Suffield Experimental Station in Alberta.

During the post-war period CEPE undertook some unusual projects requiring special aircraft. In the latter category was the Rockcliffe "Ice Wagon", a *North Star* fitted with a large dorsal fin amidships and two special observation posts which enabled National Research Council scientists to study ice accretion. Other experiments in which CEPE played no small part, and which would come under the general heading of unusual, were three projects flown by CEPE pilots for the National Aeronautical Establishment (NAE). They were a tailless glider, a *Mustang* used as an airborne wind tunnel by carrying a model aircraft on its wing, and a combined RCAF/USAF project which consisted of a *Dakota* aircraft picking up a *Hadrian* glider during a low fly-past.

Today CEPE operates under the functional control of AFHQ. In general terms its responsibilities are:

- Evaluate, test and report on aircraft, associated equipment, and mobile equipment.
- Evaluate first production aircraft.
- Maintain up-to-date aircraft operating instructions.
- Test and accept flight simulators.
- Maintain flight test standards.
- Design, develop, test, evaluate and report on new devices, materials and systems.
- Provide experimental and flying service to other government agencies.

The present 1,000-member organization comprises, in addition to headquarters at Uplands, four acceptance units at aircraft manufacturing plants (Canadair in Montreal, Lockheed in Palmdale, Calif., Northwest Industries in Edmonton and Boeing-Vertol in Morton, Penn.); an air armament evaluation

detachment at Cold Lake, with a test range at nearby Primrose Lake; acceptance detachments at Canadian Aviation Electronics in Montreal, and No. 3 Wing, Zweibrücken, Germany; aircrew detachments at Canadian Armament Research and Development Establishment, Valcartier, Que., concerned with research into ballistics and associated subjects (sub-detachments at Patrick AFB, Florida, and Thule, Greenland); and a detachment at the National Aeronautical Establishment, Uplands, to assist in research on such phenomena as precipitation physics (cloud seeding) and icing on helicopter rotor blades. Additional acceptance testing is carried out at 10 other aircraft manufacturing sites. From time to time the climatic evaluation of aircraft requires the formation of sub-detachments based at Fort Churchill or Yuma, Arizona.

Each year CEPE handles over 100 new projects which emanate from AFHQ in the form of Test and Development Instructions and, depending on the work to be undertaken at CEPE, come under the



"Rockcliffe Ice Wagon", a modified *North Star* used by CEPE to study ice accretion in the early 50s.

jurisdiction of either W/C P. A. Hartman, DFC, AFC, senior test pilot, or W/C D. E. Cameron, senior test engineer.

Current projects include engineering evaluation of the CF-104 *Super Starfighter*, the CT-114 *Tutor* and the CH-113 helicopter; examination of value of infra-red reconnaissance equipment for maritime, arctic and anti-ballistic missile application; technical evaluation of modern anti-submarine warfare equipment; development of new methods and equipment for clearing runways with MSE blowers, ploughs and sweepers; a continuing evaluation of new communication and electronic equipment; trials of

ance of new and overhauled aircraft and flight simulators and providing flying or technical assistance to other agencies.

Requests for climatic tests on aircraft and equipment are received annually from the British Ministry of Aviation and periodically from the RCN and the USN. CEPE has also assisted the Army with projects such as evaluation of the L-19 aircraft, and the CEPE detachments at CARDE and NAE provide flying and technical service for projects sponsored by those agencies who, in turn, get many requests for assistance from the Department of Transport, the American Advanced Research Projects Agency and from

evaluations take many months to complete. Such was the case with the *Argus*, *Cosmopolitan* and *Yukon*.^{*} CEPE was involved with the manufacturer in proving that the aircraft would meet the specifications of civil air agencies as far as safety, handling and performance were concerned and would satisfy our own military specifications. A comprehensive proving program cannot be accomplished in a few days or a few weeks. Much time must be spent in installing a maze of electronic devices and special testing equipment including flight test instrumentations panels with cameras to record their readings, and, in compliance with unbelievably complex wiring diagrams, miles of multi-coloured wires threaded throughout the aircraft. In present day aircraft where there is little available space, merely installing the elaborate equipment is an engineering feat in itself. Calibration of this equipment follows, then the actual flight tests are undertaken. When the many phases of the program are completed, the results must be evaluated.

Acceptance of the *Super Starfighter* into service with the RCAF provides a good example of the test and acceptance role. For many months CEPE engineers, aerodynamicists, and technicians have been carrying out a test program on this aircraft. The CF-104 has been the subject of CEPE's penetrating attention from the time the first of these aircraft were built for the RCAF at the Lockheed Aircraft Plant in California. Test pilots from CEPE flew the acceptance tests at Lockheed and are now performing the same function at Canadair as CF-104s come off the production line and in No. 1 Air Division as the aircraft are re-assembled after shipment overseas. Concurrently,



LAC D. McLeod and F/O J. T. Greenslade check cameras used to photograph ejection seat test.

modern airborne photographic equipment; and such things as prototyping modifications for aircraft and equipment, investigating unsatisfactory condition reports, evaluating original ideas, accept-

the research and development branches of the US Armed Forces.

The largest task undertaken by CEPE is the evaluation of new aircraft with their associated systems. Depending on the complexity some

^{*} ROUNDEL, Vol. 13, No. 8, Oct. '61.

CEPE's Air Armament Evaluation Detachment at Cold Lake is engaged in evaluating the overall CF-104 weapons system.*

In addition to evaluating new aircraft CEPE is constantly involved in making improvements to proven aircraft and assessing aircraft being given new roles or operating under conditions for which they were not intended. An example is the elimination of flaws in older aircraft designed for temperate zones but operating now under Canada's arctic conditions. As different marks of aircraft are developed, smaller evaluations are required. Whatever time is taken up by the CEPE programs, however, is time well spent, for experience has shown that there is no substitute for a scientific and detailed approach to aircraft evaluation.

When an aircraft is brought into the service the manufacturer issues tentative handling notes, with part four performance figures printed in red ink to indicate that the figures are only estimates. It is then the responsibility of CEPE aerodynamicists and aircrew to check the figures and establish the actual performance. These final performance figures and recommended handling notes are then made available to the appropriate agencies for inclusion in revisions to the aircraft operating instructions.

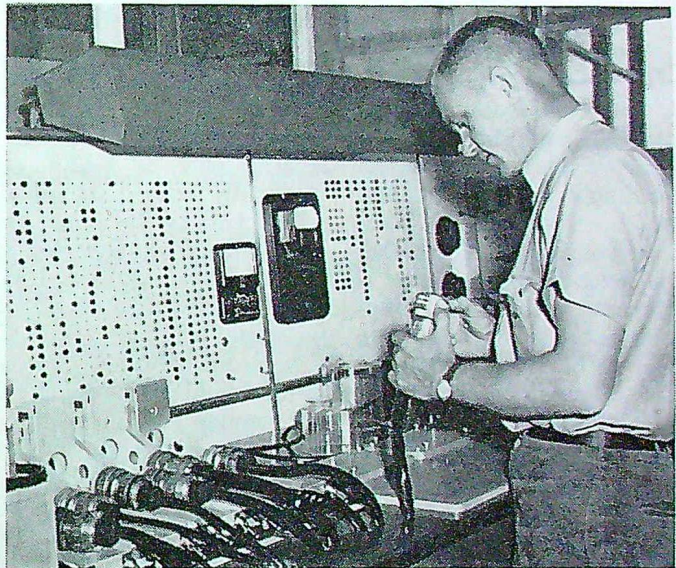
Central Experimental and Proving Establishment is responsible not only for each new type of aircraft coming into the RCAF but also for accepting each aircraft of each type. To handle this commitment CEPE has, as already mentioned, acceptance detachments at the major aircraft manufacturing plants in Canada. The aircrew at these detachments may accept an

aircraft after one trip or they may spend several weeks of testing and re-testing before they are satisfied with an aircraft's performance.

Many types of equipment acquired by the RCAF come under the close scrutiny of CEPE. This applies to a new fire truck as well as to a new aircraft. As mentioned, projects emanate from AFHQ and there are directives concerning field modifications, unsatisfactory condition reports, operational requirements and original ideas from individuals and factories. The people who cope with these directives are all highly qualified. Key personnel are transferred to CEPE on the basis of their qualifications and

School, Farnborough, England; the USAF Test Pilot School, Edwards AFB, California; or the USN Test Pilot School at Patuxent, Maryland. The radio navigation section has among its members Spec Ns, dealing in all aspects of the radio navigation branch. Although qualified in their own right, engineers new to the unit receive additional training in the specialized field of proving and development.

While the flight testing aspects of CEPE's work receive most publicity, the basic electrical, instrument and telecom workshops perform the routine developing, prototyping, testing and modifying of the equipment which makes the modern air-

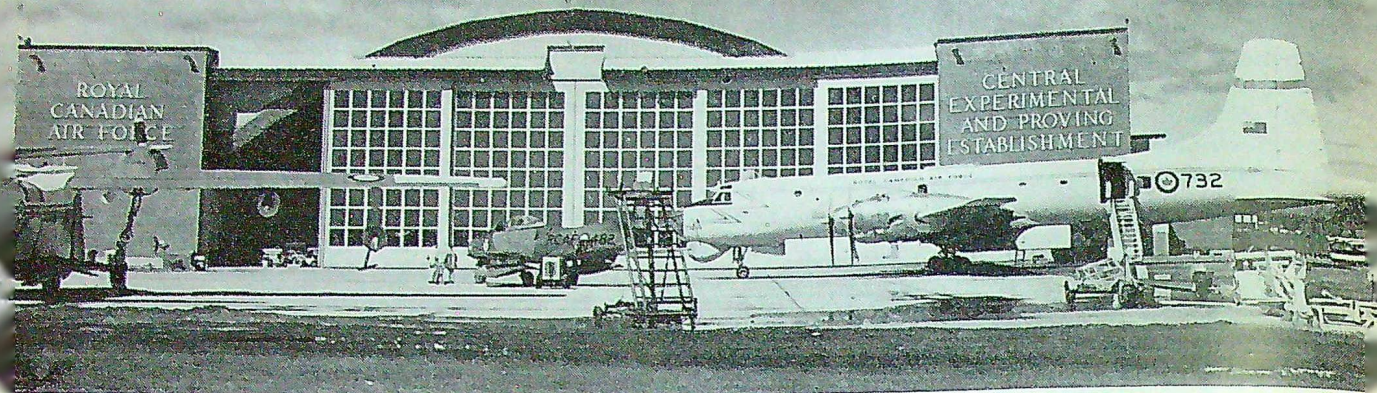


Cpl. C. A. Szyszkiewicz, one of CEPE's back room boys, works at auto-pilot test bench.

their background of experience. The pilot branch is composed of those having considerable experience, potential test pilots and qualified test pilots who are graduates of either the Empire Test Pilot

craft the complex beast that it is. The telecommunications section, for example, was responsible for the development of the RCAF communications network now reaching to any part of the globe. The proto-

* For a detailed description of CEPE's testing of the CF-104 escape system see *ROUNDEL*, Vol. 15, No. 3, Apr. '63.



CEPE hangar line usually accommodates several types of RCAF aircraft undergoing tests.

typing and evaluation of radio navigation aids such as TACAN and the VOR/ILS system go on continuously and the developing and testing of ECM and ECCM equipment are only a few of the achievements of this section. The photographic section has for years adapted new cameras and techniques to aerial reconnaissance uses, for example, the use of camouflage film to detect budworm blight from the air was pioneered by this section. Photographic coverage of tests, whether it be the actual engagement of a barrier arrestor gear or the dropping of sonobuoys from their chutes, has proven to be invaluable in the evaluation of new equipment and techniques. These workshops are constantly adapting new instruments to aircraft so that operational aircrew will have an accurate, reliable representation of conditions outside their cockpits.

CEPE has a rather unique maintenance problem since it is one of

the few units in the RCAF with such a wide variety of aircraft. At any one time there are around 10 to 15 different types of aircraft on the strength of CEPE at Station Uplands and sometimes every type of aircraft in service with the RCAF is attached to the CEPE organization. In addition, many of these aircraft contain special equipment stocked only by CEPE and are frequently located far afield, thus adding to the maintenance problem. Maintenance and servicing are also provided the various RAF and USAF aircraft that come to Canada for winter trials.

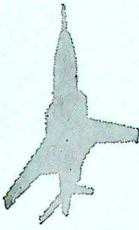
A recital of CEPE's accomplishments would not be complete without mention of the climatic section. One immediately thinks of the detachment at Churchill, where low ambient temperatures and wind chill produce a brutal environment for men and equipment designed for the more temperate zones, but climatic test requirements take

CEPE personnel to the Arizona desert in mid-summer to test equipment in both extremes of weather. Every aircraft procured for the RCAF must endure these climatic tests and it is a tribute to men and machine alike that they can function after a cold soak of 12 hrs. at 35°F below zero in a 40 knot breeze, or a debilitating day at 110°F above.

In order to keep abreast of the latest developments in the field of experimenting and proving, CEPE personnel regularly visit aircraft factories and testing facilities both in the UK and USA. In this way it is possible to ensure that the operating commands receive aircraft and equipment that are reliable and safe for service use, operationally effective and can be maintained by regular service personnel. The object of CEPE's efforts is to maintain a position of trust as the RCAF's authority on testing and development. 

The "truly inspired idea" evolves out of a pretty precise knowledge of what you want to prove or sell, and what it has that is provable or salable. Trouble is, in its polished form the idea is so obviously simple that "anyone could have thought of it." That's why, if you'll excuse the expression, it communicates.

JOURNAL OF COMMERCIAL ART AND DESIGN



Night Flight - A Voodonic Fantasy

By SQUADRON LEADER J. REGAN

SUN, blood-red, signals day's end.
Nature, moongold pattern following,
Weaves the shadowed scenes of night.

The *Voodoo* watches,
Its secret influence undreamed of.

In intimate probe,
Questing light insults its aerial worthiness,
Whispered warning now grown to rising wail,
Bright yellow'd tongue inspects the blackened tunnels;
Satisfied, withdraws to inner chambers,
And expels its searing breath unseen.

Umbilical tether loosed,
(As yet no hint of fleeting grace to come)
The *Voodoo* moves,
In straddled, high-arched stance,
Regards the amber'd sentinels
Aligned unwavering at its thunderous passing.

Swift folding means of earthly touch,
The *Voodoo* flies.
Chilled, vaporous curtains pushed aside,
Shrieking, implacable grace invades night's pale-lit stage.
Galactic audience enthralled,
Applauds;
In mystic flicker'd discourse beseeches Fate no victim claim
In lonely catastrophe.

Unreeling silvered thread in frosted trace,
The *Voodoo* soars,
In tapered, back-swept ecstasy fast spending time's meagre grant.
Chagrined sound once more abreast,
The *Voodoo* lands,
Brief rubbered cry calls forth nylon billowing.

The glowing heart, by man's controlling hand subdued,
Slower breathes; dies.

Ageless ritual soon bids the sun's arising.
In splendour, 'twines the golden skeins of dawn's bright tapestry.
Night, her purpled tenure ended,
Gathers her velvet skirts, and soft departs.

The *Voodoo* watches,
Its secret influence undreamed of.

CENTRAL OFFICERS SCHOOL

By FLIGHT LIEUTENANT L. A. DODD
and MR. N. HARGREAVES

THE air force has a new acronym* for a new school: COS. In March 1961 the Air Council decided to concentrate officer indoctrination and list/branch training at one centre. Accordingly, Central Officers School was formed at RCAF Station Centralia in September of that year.

The need for centralized officer training had been realized for some time, particularly in the technical branches. Previously, the relative isolation of technical training schools from one another resulted in considerable divergence of aims and concepts; on the other hand, the rapid evolution of equipment and techniques often caused duplication. A revision of the aims of initial training was obviously necessary. Thus was evolved the concept of two-stage training — of producing officers who are, initially, specialists in a particular field and then, primarily, leaders and managers of personnel.

New officers are first given the training that is felt to be essential for them at that time. Only after a suitable amount of field experience will the second, or advanced stage, be given. It is anticipated that the officer on his initial engagement

will not only benefit the air force by spending a greater period of time performing his specialty, but will also be benefited by becoming better able to decide whether he wishes to make the RCAF his career.

COS carries out basic training for aircrew flight cadets and non-flying list officers; English language training for French-speaking Canadians and for Nordic trainees; list/branch training for supply, aero-engineering, armament, telecommunications and construction engineering officers (courses for personnel administration and accounts officers are being planned). Management training courses have also been conducted. The SAGE Indoctrination Course, the Electronic Warfare Indoctrination Course, the Guided Missile and Space Technology Course are now conducted at COS. Indeed, it is fairly safe to say that if any junior officer has not yet been on a course at Centralia, he will be sooner or later.

Some of the functions of Central Officers School are legacies from the old days of Primary Training School.* All aircrew short service commission candidates, after selec-



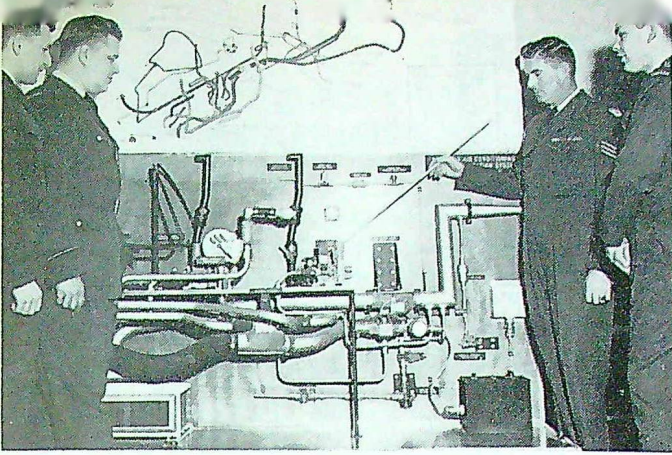
W/C G. C. Peek,
COS Officer Commanding.

A flight cadet must first learn how to do drill, then how to give the proper commands.

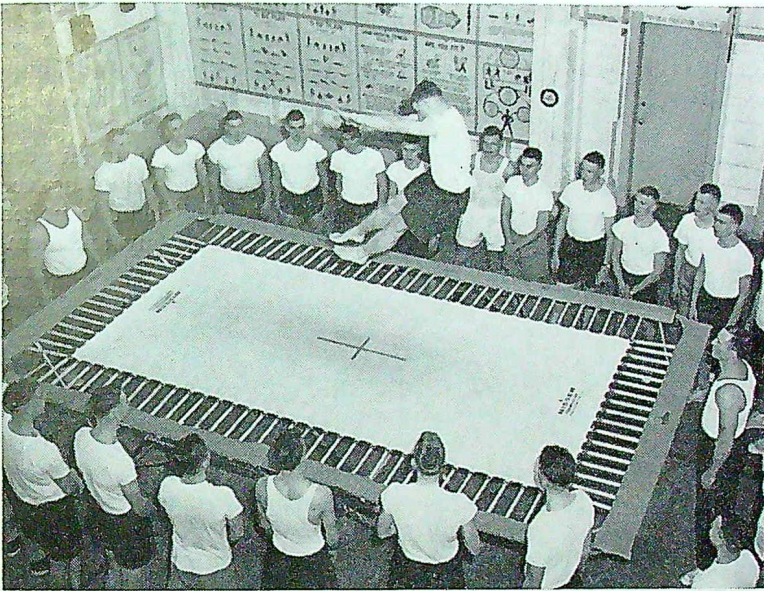


* A word formed from the initial letters of an organization.

* ROUNDEL, Vol. 11, No. 6, Jul.-Aug. '59.



Instructors make liberal use of training aids in modern, functional classrooms and in technical laboratories.



Trampoline is one of devices used in physical fitness training.

tion at the Officer Selection Unit (also located at Centralia) receive a 12-week course in those basic subjects known collectively as "officer development". Included are drill, physical education, and subjects such as air force law and

service writing. In common with basic training staffs of all services, the COS staff attempts first to teach the trainee to accept discipline, to take a pride in himself (these are the first steps towards self-discipline), then to identify himself

with the RCAF. Twelve weeks is a very short period to try to accomplish all that is required, and it must be remembered that COS is but one step in a long period of training.

Language training comes under the same branch of COS as the basic training courses. The relationship between these two courses is kept under careful review in order to ensure that the French-speaking Canadian can compete on equal terms with his English-speaking colleague when he enters basic training.

Training for the new non-flying list officer has not been a great deal different from that given to the air-crew flight cadet. The influence of the management training branch at COS has inspired a close review of this training in an attempt to make it more suitable to the university graduate. The gathering of list/branch courses on one unit is designed to achieve a common standard of training among the many RCAF list/branches, and to ensure that this standard is appropriate to the role that these officers will play in the field.

Managerial training is related directly to the responsibilities of the list/branch concerned and is normally given by officers of that branch. Management training staff personnel act as advisors, disseminating techniques which have been gathered from the business schools of Canadian universities and U.S. military institutions, and also conduct the COS courses on military management. These courses are to be given to officers from various stations throughout the RCAF who have completed several years in the field. The first course was given during the fall of 1962.

During the summer months the Reserve Officer School is conducted at Centralia to give a six-week basic officer indoctrination course to university undergraduates sponsored



A tri-service group of COS students tries out the language training section's master control.

by the RCAF. After completion of the course the ROTP/URTP students begin list/branch training at COS, or may be given contact training at units throughout the air force.

Several important advantages have accrued from the concentration of instructional facilities at Centralia. Economies have occurred in buildings and other facilities, in training aids and staff. Consolidation of officer training at one location has made it possible to standardize instruction, to eliminate repetition of material, to improve liaison between technical branches — and thus to provide better training.


All this has not been achieved merely by moving technical training from several units to a central school and appointing one commander over a collection of small schools. A great deal of forethought and planning has taken place to integrate each technical unit in the concept of a central

school. The current aim of COS is to ensure that the best use of specialist instructors is being made, that students from different courses can attend lectures given by air force experts on subjects common to the varied courses. Although on the surface this might not seem too difficult to accomplish, the combination of limited classroom facilities, different course lengths and arrangement of syllabi entails a considerable amount of planning.

Quite naturally, with the large expansion in student population and staff increases, the station facilities and amenities have been stretched to the full. New construction including quarters, a skating rink, swimming pools, and a new recreation centre has been planned for Station Centralia.

While the organization of COS is not yet complete, results so far have been gratifying. The Guided Missile and Space Technology School and the SAGE and Early Warning Indoctrination Courses

have recently arrived from Clinton and been placed under the control of COS.

The future will show to an even greater extent the value of the Central Officers School concept. There have been many and complex growing pains. The internal organization has changed frequently as additional training responsibilities were added, and no doubt, future changes will be necessary as training areas are re-aligned in keeping with managerial principles. It is too early, therefore, to go into organizational details of the school in this article. It is perhaps sufficient for now to provide only the broad picture of the COS role, and thereby advertise the existence and location of this relatively new officer training concept. Other details will undoubtedly be learned at first hand by a large segment of the RCAF officer corps as its members enroll in one of the multitude of courses now available at Central Officers School. 

WARRIORS AT REST

It has been said that old soldiers never die, they simply fade away. Now it appears that old aircraft too, especially famous ones, are slated for honourable retirement. At two widely-separated points in Canada — Calgary and North Bay — a *Lancaster* and a CF-100, respectively, have been placed on perma-

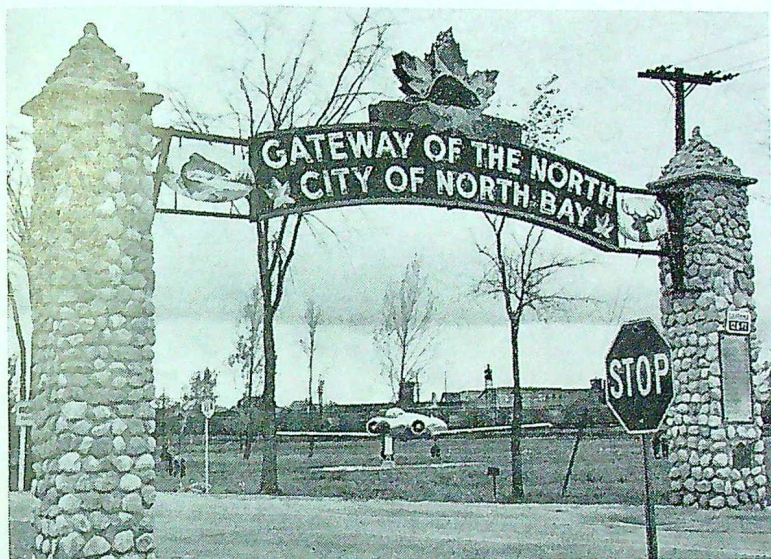
nent display as a tribute to these fine aeroplanes.

The *Lancaster*, which formed the mainstay of RAF Bomber Command during World War II, was the aircraft in which thousands of Canadian aircrew flew into battle, many for the last time. One of the two Victoria Crosses (Mynarski)

was won during a *Lancaster* operation. Both in war and peace, *Lancasters* rendered yeoman service to the RCAF.

The CF-100 interceptor was, for a decade, the bulwark of the RCAF's Air Defence Command. It became a familiar sight in Canadian skies and, from November 1956 until December 1962, it also made its presence known to Europeans as it played its all-weather role at No. 1 Air Division. To those who flew the aircraft or serviced it, the CF-100 will always occupy a special niche in their hearts.

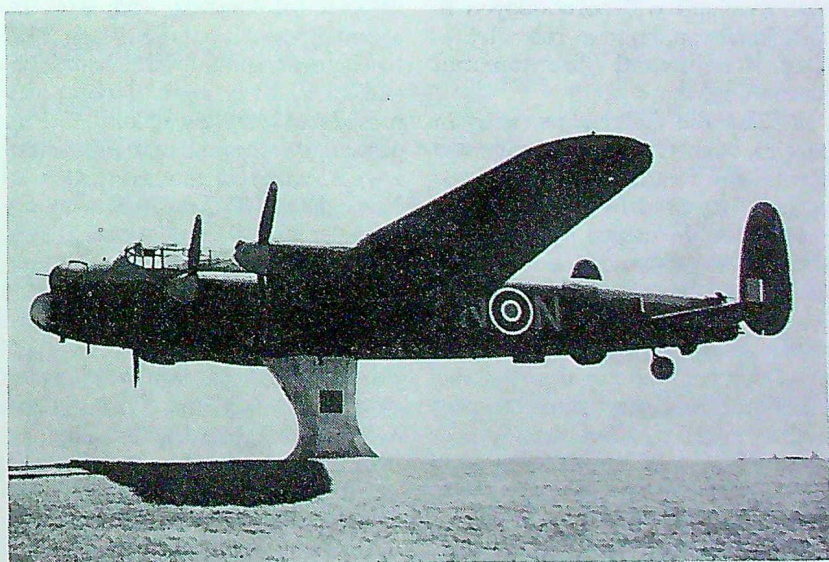
Now that the days of glory are over for the *Lancaster* and the CF-100, it is gratifying to know that they are not forgotten — at least in Calgary and North Bay. In the case of the *Lancaster*, many individual citizens plus members of several organizations worked long and hard as volunteers to prepare the aircraft and pedestal for display at the entrance to McCall Field. In North Bay the mayor and city council, the local wing of the RCAF and the commanding officer of RCAF Station North Bay were chiefly responsible for perpetuating the memory of CF-100s in a tangible way.



Final resting place for this CF-100 is Lee Park, North Bay.

Photo courtesy B. Davis, DAILY NUGGET

Three huge cranes were used to hoist this *Lancaster* onto its reinforced concrete pedestal at McCall Field, Calgary.



INTRODUCING THE CH-113 HELICOPTER



New search and rescue helicopter on a trial flight.

By FLIGHT LIEUTENANT A. G. TRIMBLE
Directorate of Maintenance Engineering

SIX new helicopters, designated the CH-113, enter RCAF service this year and will be employed in the search and rescue role at Stations Greenwood, Trenton and Vancouver.

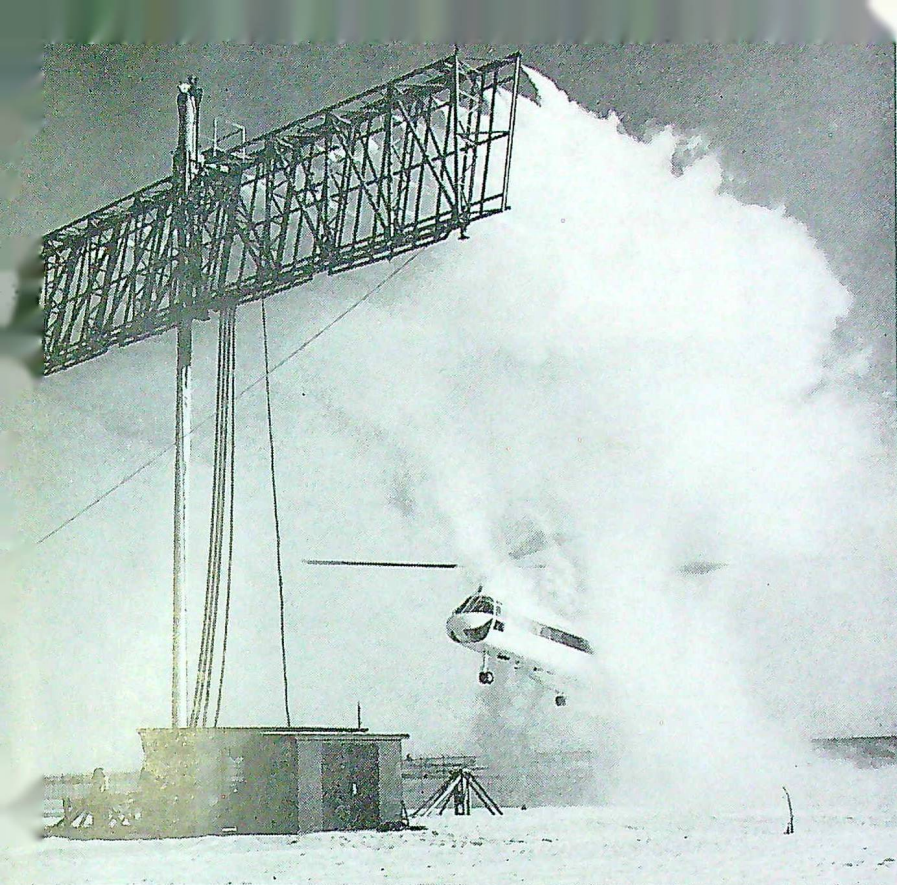
Unlike the helicopters now in service, the CH-113 incorporates several new features: a tandem rotor system, operated by twin turbines permits single engine operation in the event of an engine failure; built-in flotation makes water landings possible; rotary wing de-icing, a rear-loading ramp and a dual stability augmentation system give the helicopter handling characteristics similar to fixed wing aircraft and make it especially suitable for operation under IFR conditions.

The all-metal fuselage is of semi-monocoque construction. Aluminum

is used extensively in skin and fitting construction, while stainless steel is utilized for firewalls and skins in areas adjacent to the engines. The fuselage measures 44 ft. 7 in. long and 16 ft. 10 in. high. Troop seats provide a seating capacity for 26 passengers; alternatively, provisions are also made for the installation of 15 litters in a three-tier arrangement.

Designed and manufactured by Vertol Division Boeing, the CH-113 is powered by two General Electric T58-GE-8B axial flow turbine engines, positioned side by side in the aft pylon in an area confined by stainless steel firewalls. The engines are mounted horizontally with exhaust casings positioned aft; power turbine shafts, extending aft through these casings, are coupled

to the helicopter rotary wing drive system. Each engine produces 1250 shaft horsepower at the power turbine, and it is interesting to note that nearly two thirds or 2000 hp. of the 3200 hp. produced by each engine is required to drive the compressor and engine accessories. A hydromechanical fuel metering unit provides maximum engine performance without exceeding safe engine operating limits. Power turbine speed, and hence rotary wing speed, is controlled between 85 percent and 100 percent rpm. Speed adjustment is not required during normal helicopter flight operation, and a change in the pitch of the helicopter rotary wings varies the load on the power turbine. The T58-8 engine, complete with accessories, weighs approximately 340 pounds.



CH-113 undergoes rotor icing evaluation at National Aeronautics Establishment facility at Uplands.

The fuel cells, located in the landing gear stub wings have a fuel capacity of 750 imperial gallons, 375 gals. per tank. The all up weight of the CH-113 is 19,000 lbs. and under normal operating conditions a 2000-lb. payload can be transported in excess of 650 miles without refuelling at the normal cruise speed of 130 knots. The stub wings also provide lateral stability during water operations.

A power operated, rear loading ramp permits straight in loading and unloading and is operable both on the ground and in the air; during flight the ramp may be kept open to accommodate items longer than the cabin. The ramp may also be operated manually by means of a hydraulic hand pump. Both a cargo and personnel rescue hoist have been installed in addition to facil-

ities that will provide towing capabilities. The landing gear consists of two main gear assemblies and one nose gear assembly fitted with dual wheels. A full 360 degree of nose wheel swivel is allowed by the nose gear strut.

The stability augmentation system (SAS) is used to aid the pilot by stabilizing the helicopter automatically in three axes: longitudinal (pitch), lateral (roll) and directional (yaw). It prevents the helicopter from varying rapidly, because of changing conditions, from flight attitudes that are desired by the pilot. Automatic corrections from the SAS continuously affect the flight controls without changing positions of the cockpit controls. For added reliability a dual SAS system is installed in the CH-113 and in normal operation both systems operate at

half authority. Failure of either system will result in the failed system shutting off and the remaining system switching to full authority regardless of cockpit selector position. In essence, the SAS is an electronically controlled, closed servo loop that operates to dampen undesirable attitude deviations of the helicopter.

Other features of the aircraft include two 40 KVA AC generators, mounted on and driven by the aft transmission. In turn, AC power is converted by transformer rectifiers to supply DC power requirements. Electrical de-icing of the rotary wings will permit an all weather capability not previously possible with conventional type helicopters and the fitment of the latest type radio aids will make the CH-113 an effective search and rescue vehicle.

THE WILDERNESS



This rabbit will soon be in the pot, bringing sustenance to hungry survival students.

Students are trained to orient themselves and travel in the bush with map and compass.



The students move out to their "classroom" in the great outdoors.



IS THEIR CLASSROOM



Setting snares is one method to obtain rations in the wilderness.

SURVIVAL in the wilderness that makes up much of Canada may depend on a man's character, resourcefulness and his adaptability. In most instances, ingenuity will be the key to his survival and a man trained to use that key will live; the untrained may die. The RCAF's Survival Training School exists to teach aircrew how to stay alive under adverse conditions.

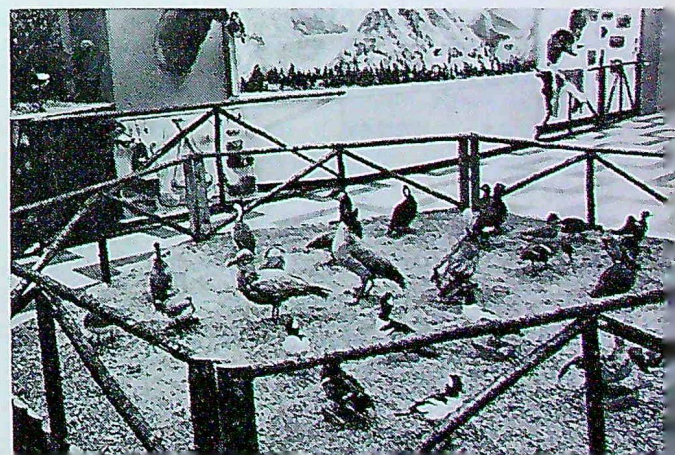
The main base for this school is at Namao near Edmonton where the students, mostly Canadian with a sprinkling of British and Americans, are given a series of lectures to prepare them for what lies ahead. They are also issued with equipment similar to that carried in their aircraft and are taught how to use it.

But, the main classroom is the great outdoors and the course is rigorous for survival techniques cannot be learned in a heated classroom. Conditions facing the crew of an aircraft forced to land in the bush country would probably be severe either from cold, hunger, insects or any combination of these. The school is operated on the principle of duplicating these conditions. (C)



Two students prepare a meal in front of their lean-to shelter.

A wildlife display at the RCAF Survival Training Centre, Namao.



THE ALEUTIAN CAMPAIGN

By

FLIGHT LIEUTENANT F. J. HATCH
Air Historical Section

FIRST OF TWO PARTS

THE Aleutian campaign of 1942-43 marks the first time that units of the RCAF served under American operational command. This alone would make it worthy of our attention but there are, of course, other reasons for taking a backward glance at this rather obscure campaign which was conducted in an obscure part of the world.

Approximately 500 RCAF personnel served in the Aleutian theatre, 11 of whom received the United States Air Force Medal, one the OBE, one the DFC, four the AFC and two were mentioned in despatches. Eight others lie buried in the U.S. cemetery in Kiska, while the names of four who have no known graves are inscribed on the Commonwealth Air Memorial on Green Island in Ottawa.

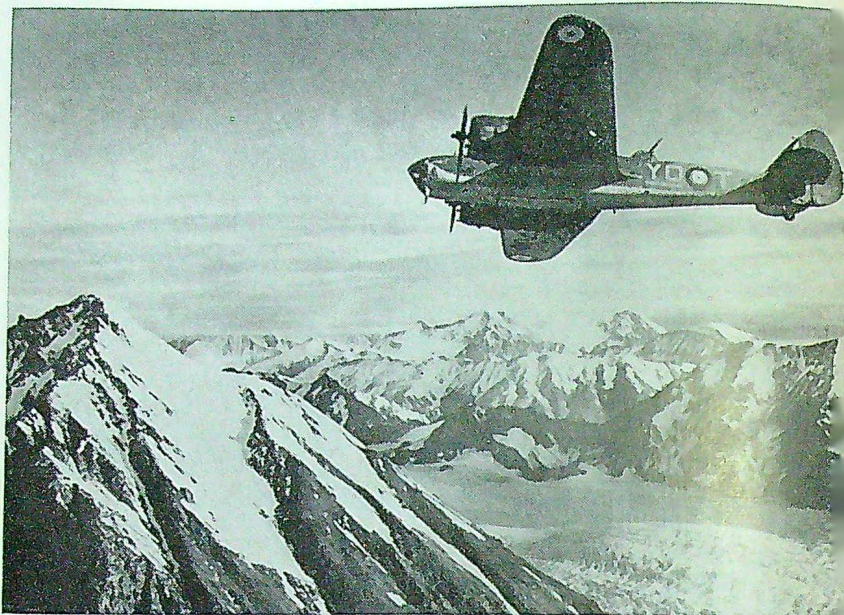
Although such strange-sounding names as Naknek, Umnak, Adak or Amchitka may hold little meaning for most of us, for the members of the RCAF Aleutian expedition they will undoubtedly conjure up memories of the worst flying weather in

the world, of a war that came in fits and starts, and of unfulfilled ambitions to meet Japanese *Zeros* in air combat.

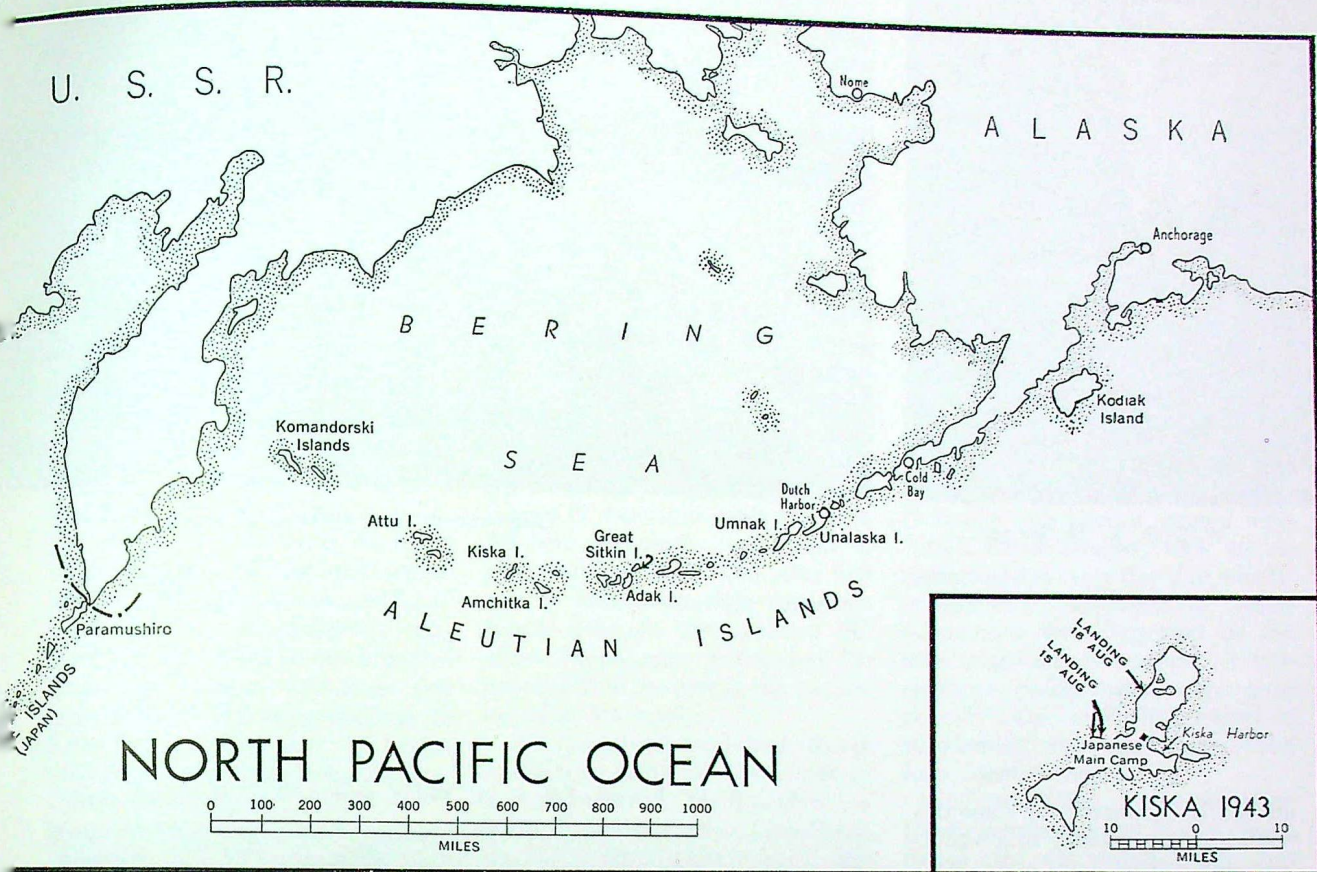
The story of the Aleutian campaign begins early in May 1942 when the tide of war was running strongly in Japan's favour. The Japanese High Command, having decided to "go for broke" in the North Pacific, assembled a tremendous striking force which, according to Mastake Okumiya and Jiro Horikoshi (co-authors of the book entitled "Zero"), included "350 vessels of all types, more than 1000 war planes, and more than 100,000 officers and men". Their double objective was to oust the Americans from Midway

Island and then to strengthen Japan's position by establishing strong perimeter bases in the Aleutian Islands, which extend like the links of a giant chain about 1,200 miles westward from the Alaskan peninsula (see map).

Unfortunately, from the Japanese point of view, before this formidable armada left its home waters American intelligence sources had alerted Washington as to its probable purpose and destination. Ottawa, too, was kept informed and it was at this point that the RCAF came into the picture. The U.S. War Department had to bolster its Alaskan air defences immediately and suggested that Canada make



Bolingbroke over Alaskan mountains.



Historical Section. G.S.

plans to lend air assistance to the American forces in Alaska. This proposal did not come as a surprise because it had already been agreed that the defence of the northern United States, British Columbia and Alaska was a task in which both countries must share. To supply the required help fell within the scope of responsibility of Western Air Command. The Air Officer Commanding, A/V/M L. F. Stevenson, was juggling his meagre forces to see how this could be done without unduly weakening the air defences on Canada's west coast when, on 27 May, Maj. Gen. S. B. Buckner, commanding the Alaska Defence Command, sent him an urgent mes-

sage requesting that one bomber squadron and one fighter squadron proceed immediately to Yakutat at the north end of the Alaskan panhandle.

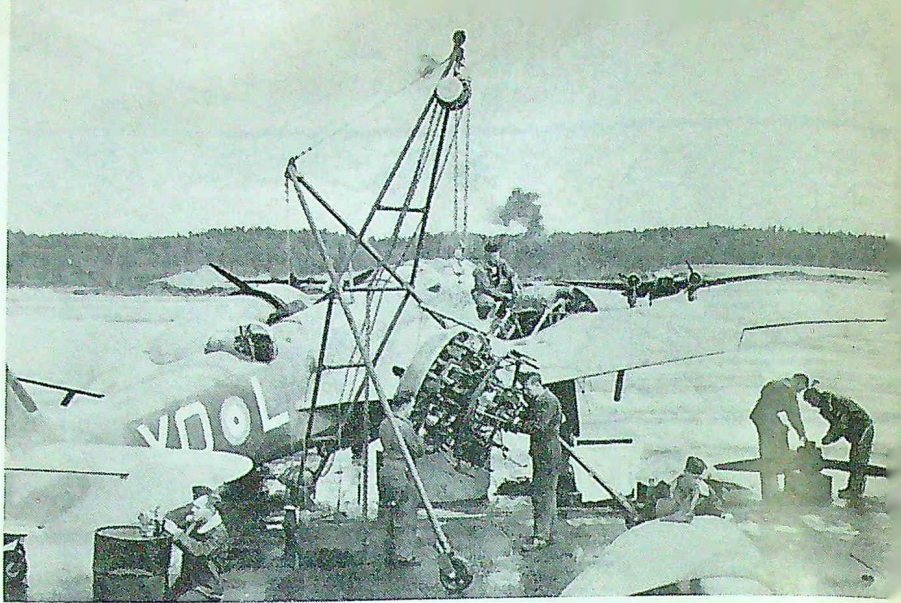
As it happened, A/V/M Stevenson had already selected No. 8 (BR) Sqn., working out of RCAF Station Sea Island and No. 111 (F) Sqn., stationed at Patricia Bay, for possible service in Alaska and on 28 May they were warned for movement. At this time no one in No. 8 Sqn. was acquainted with the route to Alaska nor had any of its members even so much as seen an air navigation map of the area north of Prince Rupert. However, maps were soon found; on 2 June, 12 of

the squadron's *Bolingbrokes*, led by S/L C. A. Willis, took off from Sea Island on the 1,000-mile flight north to Yakutat, staging through Annette Island and Juneau. They arrived at their destination the next day and on 4 June were joined by No. 111 Sqn., whose pilots had flown their *Kittyhawks* up the interior route through Prince George and Whitehorse.* Some of the ground crews

* At the time No. 111 was under command of S/L A. D. Nesbitt. On 13 June Nesbitt was appointed to command a two-squadron RCAF wing temporarily established at Annette Island, Alaska, to guard the approaches to Prince Rupert. B.C. Nesbitt was succeeded by S/L J. A. Kerwin, who like Nesbitt had flown in the Battle of Britain.



W/C G. R. McGregor



Open-air maintenance.

arrived by *Stranraer* the same day, while the main party followed by boat and rail.

Number 111 Sqn. was accompanied to Yakutat by W/C G. R. McGregor,° a veteran of the Battle of Britain who had been brought back to Canada to assist in the development of fighter operations in Western Air Command. In view of his record and experience it is not surprising that he was appointed to head the force sent to Alaska. His small headquarters, which for lack of a better name was called "X Wing", served as the point of contact between the Alaska Defence Command and the RCAF. The Canadian government consented to the two squadrons being placed at the strategic disposal of the 11th American Air Force and taking their operational orders directly from its commander, Maj. Gen. W. O. Butler, on the understanding that

F/O B. W. Bristol, S/L C. A. Willis and F/O J. B. Doak.



° Now TCA President.

questions of major importance would be cleared beforehand with McGregor. Somewhat ironically, one of the general's first orders was for the red centres on the top wing roundels of all RCAF aircraft to be painted out as he considered that there was a confusing similarity to the red identification disk carried on Japanese planes. Further changes in RCAF marking were made by painting a blue band 14 inches wide around the tail end of the fuselage.

On 5 June No. 8 and No. 111 Sqns. were ordered to deploy in defence of Elmendorf Field, near the thriving town of Anchorage. At the outset the two units made up about one fifth of the air strength of Alaska Defence Command* and their presence at Anchorage enabled the Americans to move two of their own bomber squadrons and one of their fighter squadrons to Cold Bay and Omnak at the beginning of the Aleutian chain. The first DROs issued by S/L Willis at Elmendorf Field appeared on a single sheet size 8 x 10 on 9 June. They outlined the routine to be followed at the American base, confined all ranks to camp, ordered the carrying of personal weapons and emphasized the need to observe security regulations. The notice concerning mail, always an important item for those serving far from home, was probably the most studied item on the historic DRO. During its sojourn in Alaska the mail from home was to reach its members via A.P.O. 942, Seattle, Washington, and for quick delivery the use of U.S. airmail stamps was advised.

Meanwhile, a task force under Admiral Kakuji Kakuda opened the Aleutians-Midway offensive with a

diversionary attack on the American base at Dutch Harbour which did a limited amount of damage but fooled no one. The main attack went in against Midway 24 hours later and in the great battle which followed American air power carried the day, repulsing the enemy with staggering losses. On 6 June, in a face-saving gesture, a Japanese naval force invaded uninhabited Kiska at the western end of the Aleutian Islands. A neighbouring island, Attu, was also occupied the day after and landing parties dug in with the intention of establishing permanent garrisons on these bleak fringes of American territory. Since Admiral Yamomoto had failed to take Midway, Kiska and Attu had a very limited strategic value for Japan although their seizure did allow the Japanese government "to conceal from the people the terrible losses at Midway".

It is doubtful if the Japanese ever considered using the Aleutians as a passageway to the mainland of North America. As Maj. Gen. Buckner said, "They might make it, but it would be their grandchildren who finally got there, and by that time they would all be American citizens anyway". Nevertheless the presence of the Japanese on far-away Attu and Kiska served to create in the minds of the Pacific coast inhabitants of Canada and the U.S. the impression that such an invasion was feasible. To dispel such fears the governments of the two countries had to maintain sizeable forces at home when they were badly needed elsewhere. Thus the main motive for clearing the Aleutians was to remove the apparent threat of invasion and thereby relieve more of the home forces for duty overseas.

No. 8 SQUADRON

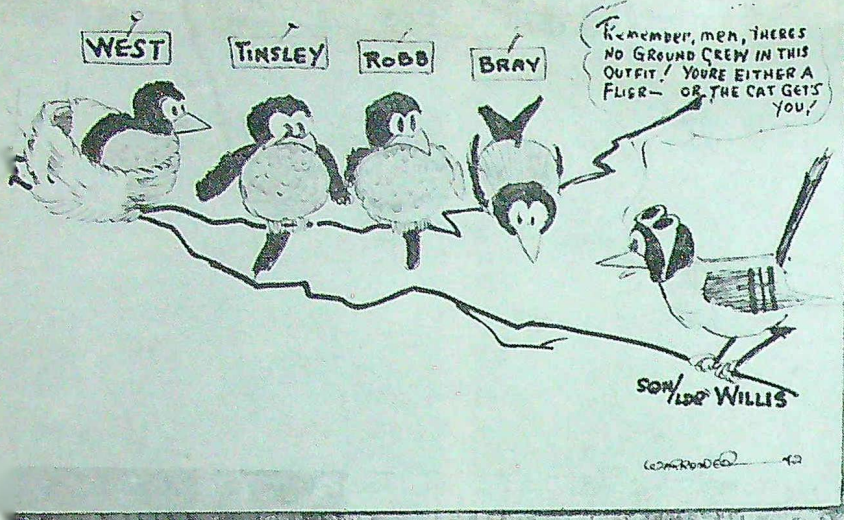
After the Battle of Midway, Alaska Defence Command turned rapidly to the offensive. Men and

materiel were pouring in through the Gulf of Alaska to construct a chain of island bases that would bring the Americans (and Canadians) within striking distance of Kiska and Attu. For the time being, the command's most vulnerable spot was its supply lines, there being still many elements of the Japanese Navy lurking about. To help in making the sea lanes safe for the convoys No. 8 Sqn. was assigned to patrol a given area in the Gulf of Alaska.* Instructions from the 11th Air Force called for the squadron to have six of its 14 *Bolingbrokes* at readiness state at all times. Normally two aircraft, armed with 300-lb. depth charges, took off on routine patrol every day that weather permitted. In addition, when submarines were reported in the area a special detachment of two or three *Bolingbrokes* were temporarily based at Kodiak Island to supplement the American strike force located there.

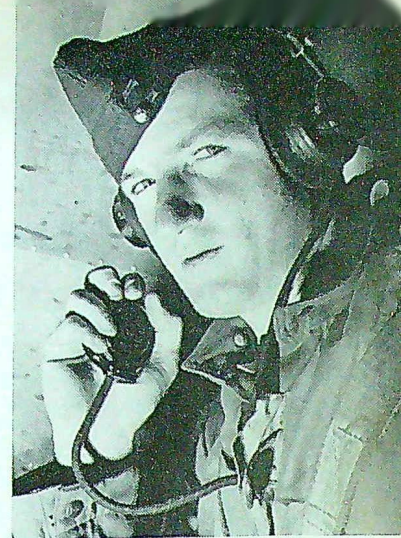
The possibility of encountering Japanese aircraft in No. 8 Sqn's patrol area was rather remote but Alaska weather and terrain, characterized by constant dense fog and uncharted mountain ranges, more than made up for the absence of enemy fighters. Between Anchorage and the Gulf of Alaska there was a table of unsurveyed peaks rising in some places to 10,000 feet, leaving but one possible answer to an error in judgment. In his book "First Steps to Tokyo", F/O D. F. Griffin gives a graphic account of the hazards of flying in Alaska. He describes the Alaskan fog as "... of the worst kind, rising from the ground up, building itself into thick layers . . . Where those layers of ground fog stop, the clouds commence." An additional peril was provided by the sudden squalls

* The air formation under Butler's command consisted of about 11 heavy bombers, 44 medium bombers and 98 fighters. Included in these figures are 14 *Bolingbrokes* and 19 *Kittyhawks* of X-Wing (RCAF).

* The Canadian cruisers "Prince David", "Prince Henry" and "Prince Robert" and two Canadian corvettes were operating in Aleutian waters at this time.



This not-so-subtle poster in No. 8 Sqn's ops room reminded pilots Alaskan flying was no "piece of cake".



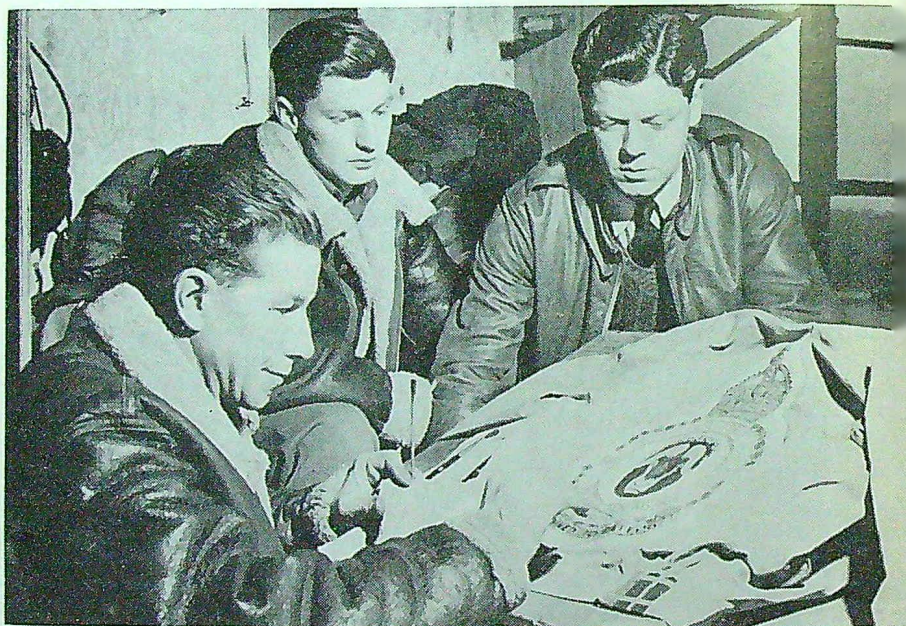
F/L (now G/C) J. K. F. MacDonald

known locally as "williwaws" which swept down from the mountains with great force, sometimes reaching gale proportions within half an hour.

No. 8 Sqn. had its first encounter with Alaskan fog on its move from Yakutat to Anchorage. Ten *Bolingbrokes* took off with two U.S. Army transports following with the ground crews. Only three of the aircraft got through, one of which was flown by S/L Willis. The others returned to base or diverted to Seward.

When Japanese submarines penetrated the Bering Sea at the end of June a detachment of three *Bolingbrokes* was ordered to Nome—a town on Alaska's Bering Sea coast which at the beginning of the century had been the scene of a gold rush but in World War II was important as a staging point on the route over which pilots of the USSR ferried planes obtained on lend-lease from the U.S. For the next six months No. 8 Sqn. aircraft and ground personnel remained at this isolated base keeping watch over Norton Sound. The one good feature about the field at Nome was

LAC R. Chalmers paints No. 8 Sqn. badge on windbreaker as Sgts, R. Cawson and D. McMurchy kibitz.



that the low rolling tundra around it presented no serious flying hazard. Otherwise it was a most uninspiring place—gravel runways, no hangars and only canvas accommodation. Still, social life, if not

abundant, was at least not absent. In their off-hours the Canadians amused themselves by visiting with the local inhabitants, conversing in wild gesticulations with the Russian flyers or panning the nearby

streams for gold. (No strikes were reported.)

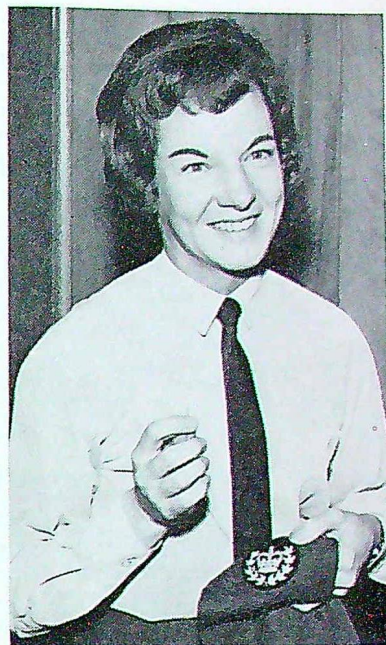
Although No. 8 Sqn's 14 *Bolingbroke*s were a valuable addition to the forces of Alaska Command, they stuck out like a sore thumb when it came to obtaining spare parts. For example, when the squadron received its first operational instructions from the 11th Air Force, "All aircraft to be bombed up and stand by. Enemy contacted in position 57°N 170°W", it was discovered that the adapter rings on the *Bolingbroke*s didn't fit any of the bombs in use in Alaska. The maintenance crews, with American assistance, immediately took up the task of modifying the adapter rings until others could be flown in from Western Air Command. This was the story over and over again. Parts, for the Canadian-built aircraft, which of course couldn't be obtained from American stores, invariably arrived late, in insufficient quantity or of the wrong kind. Ground crews were forced to use their skill, training and ingenuity to the limit to keep the aircraft serviceable. Much of the work had to be done in the open or under canvas. Major overhauls and engine changes bordered on the impossible but somehow they were accomplished, though it meant working 18 hours a day, and the *Bolingbroke*s were kept flying.

Well before the end of the year the tactical situation in the Aleutians had passed the point where they were of very much use because Japanese submarines were now operating far beyond *Bolingbroke* range. Moreover, long range *Liberators* (B-24s) were being put at Butler's command while some of his fighter squadrons had been withdrawn for operations in the South Pacific. Taking into consideration the maintenance problems of the *Bolingbroke*s and the changed fighting conditions in Alaska, the American general asked that Canada replace No. 8 Sqn. with a fighter

unit. As far as the RCAF was concerned the main problem was to find a fighter squadron properly equipped and trained for action. Again the question was handed to Western Air Command. After going into the matter thoroughly with Gen. John L. deWitt of U.S. Western Defence Command, A/V/M Stevenson agreed to pull back the *Bolingbroke*s and send No. 14 (F) Sqn. to Alaska.

Rumours, running far ahead of official channels, foretold that No. 8 would be back in Canada for Christmas. But the squadron remained in Alaska long enough to celebrate an announcement in the New Year's Honours List that two of its members, P/O W. O. Woods and WO2 T. Lindsay, had been awarded the Air Force Cross for their zeal and determination in carrying out their patrols, totalling 300 hours, under the very bad weather conditions prevalent in Alaska. Preparations for the move back to Vancouver began in late January; by early March the entire squadron was once again at Sea Island. It left behind a record unequalled by any other squadron in Alaska inasmuch as none of its aircraft had been lost on patrol — a remarkable achievement when one considers the inadequacy of the existing (or non-existing) meteorological stations and radio communication facilities. ©

(Next month's concluding part of "The Aleutian Campaign" will deal with the activities of Nos. 111 and 14 Sqs. on this north-western frontier of North America.)



FIRST FEMALE WARRANT OFFICER

Warrant Officer II Pat Savage, a dental technician now at RCAF Station Winnipeg, has become the first airwoman to attain the rank of warrant officer in peacetime.

She joined the RCAF as a dental technician in October 1951. Because of her previous experience in this profession, she was given the rank of corporal on enlistment. Following her basic service training at St. Jean, she served on various RCAF stations attached to the Royal Canadian Army Dental Corps.

In April 1954 she was posted to England to take a course for dental hygienists. She was one of two airwomen selected for this special training. Returning to Canada in December 1954, as a sergeant, WO Savage served at RCAF Station Rockcliffe where she was married to Cpl. M. Savage in March 1956. Her promotion to warrant officer came while she was serving at Trenton.

FOREIGN LIAISON— AT HOME AND ABROAD

By FLIGHT LIEUTENANT T. G. COUGHLIN
Assistant Editor, *ROUNDEL*

IN an office at Air Force Headquarters in Ottawa a telephone rings. A military air attache in Washington is calling about the RCAF's facilities for training helicopter pilots. Moments later an army officer, who is also his country's accredited air attache, walks into the office to ask about technical manuals on RCAF radio equipment. The phone rings again, bringing a heavily-accented request for the best place to buy fishing gear in Ottawa. To S/L R. M. Porter, who handles the phone calls and receives the visitors, such a variety of requests is all part of his day's work as the RCAF's foreign liaison officer (FLO).

During World War I Canadian and British forces naturally had very close liaison through numerous channels, but the first exclusively air force liaison officer wasn't appointed until the end of hostilities. On 17 March 1919 Major P. A. Landry of the Canadian Air Force was attached to the Air Ministry in London. According to a historical file Major Landry's main concern

seemed to be the packing and shipping of the 100 aircraft which the British Government had given to the Canadian Air Board.

Times have changed. The RCAF FLO now works out of AFHQ but he is the contact man for 41 military personnel from 34 countries who are accredited to Canada as air attaches. He is also the connecting link with AFHQ for the RCAF personnel who serve as air attaches in various countries around the world. As an Air Ministry official commented in 1919, when the position of a Canadian liaison officer was established, "the job covers a lot of ground". It does, indeed, both figuratively and literally.

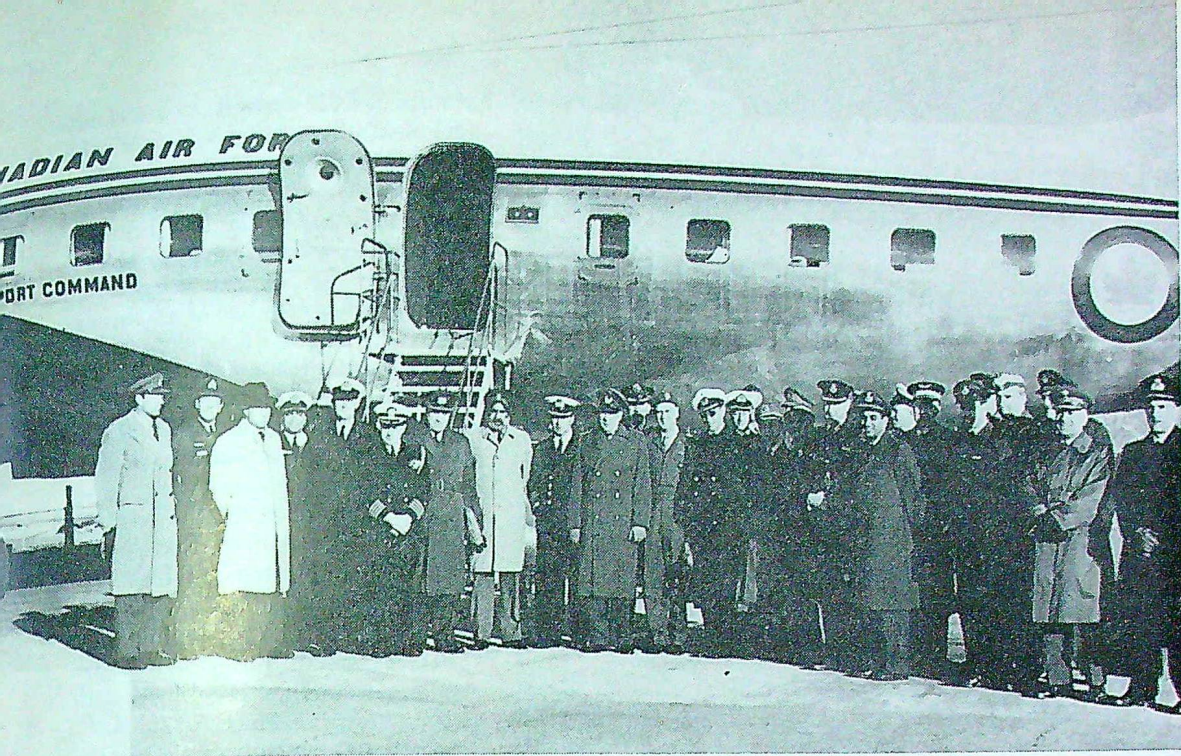
Requests for information from the attaches cover the whole spectrum of air force activity and as the RCAF inevitably increases in complexity, finding the answers to these

requests becomes a monumental undertaking. In the literal sense, much ground is covered when the attaches are taken on trips to let them see Canadian defence installations, Canadian industry and some Canadiana. Each year, for instance, the attache corps in Ottawa is taken on four extensive tours. Since the corps is made up of army and navy as well as air force personnel, S/L Porter is accompanied on these trips by his counterparts in the RCN and the Canadian Army.

On the last such trip in 1962, 27 persons boarded the RCAF's C-5 aircraft at Station Uplands and flew to Winnipeg. At Winnipeg the attaches were given a tour of the station, then a briefing of the role of Training Command. This RCAF station is, of course, always of particular interest to several of Canada's NATO allies since they still



Air Commodore J. A. Verner welcomes Major-General N. E. Leschly of Denmark to RCAF Stn. Winnipeg. Squadron Leader R. M. Porter, foreign liaison officer, makes the introductions.



Last fall this group of Ottawa-based attaches toured Canada aboard the C-5.

have aircrew training with the RCAF. From Winnipeg the tour went to Calgary where the attaches visited units of the Canadian Army.

From Calgary a side trip to Banff, with a ride up Mount Norquay on the chairlift, gave the attaches an excellent view of the Canadian Rockies and a look at some wildlife. The military attaches then flew to Victoria where an inspection of the Royal Canadian Navy was provided by a tour through HMCS Naden and HMCS Venture, the RCN's two training establishments on the west coast. An insight into a Canadian Services College was then given by a visit to Royal Roads. In addition to seeing the military side of Canada, the attaches were also shown something of Canada's potential as an industrial nation through exhibits and briefings at the Pacific National Exhibition in Vancouver.

Later, the manufacture of aluminum was seen at close range by a visit to Kitimat and Kemano, B.C.

Although all the major details on these trips are arranged far in advance, there is always much work for our FLO and his army and navy colleagues to attend to. Sometimes last-minute changes are made or delays occur due to weather, or an attache wishes to take a look at something that wasn't on the itinerary. Sometimes a touch of humour and a degree of initiative are called for. One time in Victoria a naval attache's hat disappeared from his hotel. Since he was scheduled to visit an RCN ship, where he was to be piped on board, the matter of the missing headgear was serious. However, an RCN hat was hastily provided so the foreign visitor, dressed partly in the uniform of his homeland and partly in the uniform

of a Canadian naval officer, carried out his visit without further incident. In Vancouver the Indian army adviser asked to see the local Sikh temple. It was fortunate that he made the request in that city where there is such a house of worship. It was also fortunate that the FLO knew of the temple and its whereabouts.

One item which is of particular importance on these tours is food. Whenever possible, the FLO tries to arrange it so that the attaches can have some of their native dishes, no simple task where more than two dozen nationalities are involved. And, of course, there are certain restrictions. For religious reasons Moslems will not eat pork and Hindus will not eat beef so alternative food must be provided.

At every stop all the attaches must be properly introduced by



Aboard an RCN ship off Canada's west coast.

rank, name and country. This requirement necessitates a good memory and an appreciable amount of dexterity. Since some of the attaches are stationed in Washington and visit Ottawa only infrequently, the FLO must connect names with faces which he seldom sees. There is also the matter of pronunciation. To an English-speaking individual the pronunciation of many foreign names poses a problem; but this difficulty is one which has been overcome, by much practise, on the part of the RCAF's FLO. Fortunately, another area where trouble might be expected is no trouble at all, namely, the matter of language. All of the air attaches speak English. The FLO, however, has achieved some degree of linguistic ability. As a result of his present assignment, S/L Porter claims that he can now speak English in 16 different dialects.

Naturally enough, the attaches turn to the FLO as their source of information about Canada. While this is all very flattering, it also poses something of a problem as it would take an oracle to come up with all the answers. On a flight across Canada an attache may sud-

denly turn to the FLO and ask about the timber industry in B.C., the causes of the Northwest Rebellion or amendments to the British North America Act. As a result of these quiz sessions it is quite conceivable that the FLO may become one of the foremost authorities on Canadiana in the RCAF.


In addition to the cross-Canada tours the FLO also organizes many short tours throughout the Ottawa area. Computing Devices of Canada Ltd. is a favourite with air attaches since the inertial navigation system, designed by this company, now equips *Starfighters* flown by various NATO countries. Although the air attaches are in Canada primarily to get information, not to go shopping, they sometimes come in contact with something which makes them request a purchase order from their homelands. The Argentinian air attache, for example, was so impressed by the emergency kits carried by RCAF aircraft that when Argentina sent an expedition to the Antarctic, its aircraft carried emergency kits made in Canada.

As well as finding answers to the questions asked of him, S/L Porter

studies CEPE reports to seek out technical information which is useful to the various air attaches. This research has proved fruitful. Among other things, CEPE has brought about many modifications to *Otters* and since this aircraft is now in service with a number of air forces, the result of CEPE's labours has been widely disseminated.

For a variety of reasons various air forces are interested in the Canadian way to handle technical problems. NATO forces which have worked with, or seen, the RCAF's No. 1 Air Division in Europe are thoroughly interested in RCAF procedures. Other countries which are in the process of developing their air forces look to the RCAF as the model of efficiency combined with economy. For instance, W/C K. R. Greenaway's book on arctic navigation is practically a book-of-the-month selection for the air attaches. In every case information, both solicited and unsolicited, is channelled through to the attaches by the RCAF's FLO.

The second half of the FLO's role is that of administration for the Canadian air attaches abroad. Before an RCAF officer is posted overseas for liaison duties he visits the foreign liaison office at AFHQ for a comprehensive briefing ranging from administrative procedures to protocol. Once the RCAF attaches are established in their overseas posts they are still the concern of the FLO, as all administrative problems confronting the air attaches are channelled through him. In this category are such widely-varied requests as a new staff car for the RCAF air attache in Warsaw to an urgent appeal for stationery supplies for the office in Bonn.

But whatever the request or the problem, if it is from an RCAF attache in a foreign land or a foreign air attache on duty in Canada, the RCAF's foreign liaison officer is the man for the job. 

SUNSHINE AND LIGHTNING

An English Electric *Lightning* races over sun-bathed clouds on a test flight across the Irish Sea.

The *Lightning*, which has been in service with the RAF for several years, was the first British aircraft to reach the speed of sound in level flight and, in 1957, became the first British aircraft to attain Mach 2. The latest production version of the *Lightning* (Mark III) differs from earlier production models in having Avon engines. The *Lightning's* two Avon 300 series engines are each rated at 13,200 pounds thrust and 16,600 pounds with afterburning. The aircraft will eventually carry Red Top air-to-air missiles in place of the Firestreak missiles carried by the Mark I and Mark II versions.



RCAF UNITS WIN NATIONAL FIRE AWARDS

RCAF stations won three first-place shields and 14 certificates of merit for Fire Safety and Education performance during 1962.

First-place shields were won by RCAF Stations Beaverbank, N.S.; Grostenquin, France; and Trenton, Ont. Certificates of merit were won by RCAF Stations Summerside, P.E.I.; Uplands, Ont.; St. Hubert, P.Q.; Namao, Alta.; Goose Bay, Lab.; Calgary, Alta.; Vancouver, B.C.; Penhold, Alta.; St. Sylvestre, P.Q.; Holberg, B.C.; Falconbridge, Ont.; Moisie, P.Q.; Senneterre, P.Q.; and Dawson Creek, B.C.

Each unit of the RCAF is

grouped in one of three classes: small, medium or large. A first-place shield represents supremacy in Fire Safety and Education in each class. A certificate of merit indicates the station placed either second or third in its particular class, or deserved honourable mention.


The RCN won the 1962 Grand Award of the National Fire Protection Association (Military Division), emblematic of over-all supremacy involving the three Canadian military forces. The RCAF won this award for three consecutive years from 1958 to 1960.

AUTOMATION BACKUP

A reliability engineer was showing a visitor through a new, fully-automated transport aircraft. "The chances of a total failure of our landing and flight systems are practically nil", he said. "If this automatic pilot should fail, the No. 2 autopilot cuts in. In the unlikely event of the second autopilot's failure, No. 3 takes over. Automatically, of course."

The visitor was sceptical. "Suppose all three should fail . . ."

The R-man smiled confidently, and led the visitor to the cockpit. There, behind a glass panel sat an airline captain in a state of suspended animation. Painted on the glass was a sign: "In case of emergency, break glass."



Voice from the jungle

REPRINTED FROM "THE TIMES", LONDON, 7 JAN. '63

THE 1st (West African) Infantry Brigade was marching by a circuitous route to establish itself behind the Japanese operating in the Arakan. The country was severe, consisting solely of steep hills densely clad in bamboo and intermittently trackless. Intermittently, because such tracks as existed always veered away in the wrong direction and so the only means of keeping direction was to cut new tracks.

For several days neither village nor dwelling was seen. Brigade headquarters, somewhere about the middle of the long column in single file, was moving along a game trail on the top of the razor-backed spine of a long hill whence we saw, far ahead, three *Dakotas* with our supplies seeking the dropping zone already cleared by the advance guard.

The aircraft circled their target and were then lost to sight as they began their run-in up the narrow valley to discharge their stores, ammunition, rations and letters. Suddenly we heard a distant explosion. When we climbed to the spine of the next hill only two *Dakotas* were visible en route for India on conclusion of their mission. A distant

pall of black smoke lay like a carelessly draped funereal shawl over the near side of a distant hill and across the green bamboo. It told us what the explosion meant.

Two hours later the advance guard commander reported that he had already sent a patrol to locate the wrecked *Dakota*. A chaplain accompanied it in case, as seemed likely, his services were required. Just before nightfall the patrol returned. It had located the almost inaccessible wreck and the chaplain had read the appropriate service over the grave in which the unrecognizable remains of the crew were buried. No survivors were reported.

The brigade rested the following day, except for one battalion sent ahead to secure the next harbour. The day after, just as the headquarters column was approaching its destination, the brigadier met an officer peering tensely into the jungle.

"Hullo," the brigadier said, "what are you up to?"

"I've just returned with this patrol from that hill, sir," the officer replied, "but only a moment ago somebody hailed us here from the

jungle. He called: 'Hello there.' It wasn't an English voice, I wondered if it was a Jap?"

We had some experience of Japanese hailing us in English and in Hausa as a means of getting us to disclose our positions.

"I'll bet he's a lost Jap," the brigadier commented. "See if your chaps can collar him. Alive if possible."

The patrol was hastily strung out in a long line, the ends of which were pushed forward into a wide crescent destined to form a circle. About 200 yards away somebody in unfamiliar uniform dodged hastily through the bamboo from one tree to another. The ring closed in but the Jap now lay doggo.

Tall, black Nigerians, with fixed bayonets, were closing in inexorably, ignorant of the exact location of their quarry. Suddenly a figure emerged and staggered forward. The African nearest the officer raised his rifle but his commander, mindful of the brigadier's order to take the Japanese alive and by no means certain that he was a Japanese, knocked up the weapon. The

stranger was captured without difficulty.

He was no Japanese. He was not dressed in olive green as were all our troops nor in normal enemy uniform. Instead, he wore an unfamiliar light-coloured khaki. He was near exhaustion. He belonged to the Royal Canadian Air Force. Anxious to see something of Burma, he had volunteered to accompany a *Dakota* as "chucker-out".

When the aircraft crashed he was thrown clear without weapon, food, water or anything except his clothes. His limbs intact, he had rolled to safety before the *Dakota* exploded. Somewhat concussed, he had wandered, lost, in the unfamiliar jungle for over 48 hours without sleep or sustenance until, by chance, he saw our unfamiliar soldiers. By no means sure who they were, he had hailed them cautiously, only to be alarmed by watching them deliberately hunt him.

It may be objected that nobody would be likely to mistake an African for a Japanese, but judgment on this is probably best left to those who have undergone a

similar experience. Being a Canadian, and therefore unexpected in the Burma jungle, his accent had led the patrol commander into suspicion of his nationality.

Suffering from shock and exposure, he was handed over to the field ambulance. For two days he was borne on a stretcher on the heads of Nigerian soldiers until we reached terrain suitable for an airstrip — a narrow valley where the bunds of paddy fields were levelled sufficiently to take light aircraft. Thence, with the rest of our sick and wounded, he was flown to hospital on Ramree Island.

After that we lost all knowledge of him. But one hopes that somewhere in Canada is a former airman who remembers thankfully his happy, fortuitous and only encounter with West African troops.

(Who was this RCAF airman? Anyone knowing his identity and present whereabouts is asked to forward the information to ROUNDEL. — Editor.)



Flying Photographers

The RCAF's first four photographers to be awarded the airmen's flying badge smile approvingly after receiving their wings at RCAF Station Rockcliffe recently. From left to right: Cpl. J. G. Inglis, LAC F. D. Stinson, Cpl. J. P. H. Carriere and Cpl. H. G. Hansen. All fly with No. 408 (Photo) Sqn.





RCAF ASSOCIATION

This section of ROUNDEL is prepared by Air Cadet League Headquarters, 424 Metcalfe St., Ottawa, Ont.

AWARDS OF MERIT

The Association Award of Merit, approved by the 1960 National Convention, is given to all members of the National Executive Council upon their retirement and to Group executive members on retirement when recommended by their Group. The award is also available to Wing members who have contributed substantially to the betterment of the Association, on recommendation from the Wing through Group to National.

The National President, on recommendation of the Awards Committee, is pleased to announce the names of the 1962 recipients as follows:

Retiring National Council members:

Mr. A. J. Boyd, Regina
Mr. G. M. Esdale, Edmonton
Miss Elizabeth Rowand, Edmonton
Miss Mary O'Grady, Montreal
Miss Evelyn Halliday, Fort William

Retiring Group executive members:

Mr. F. G. Michalak, Montreal
Miss Marion Graham, Saskatoon
Mr. W. M. Guinn, Regina
Mr. R. D. White, Edmonton

Wing executive members:

Mr. G. Harrison, 306 (Maple Leaf) Wing
Mr. L. Villeneuve, 302 (City of Quebec) Wing

New Ontario Wing

We welcome members of the newly-formed No. 448 (Owen Sound) Wing to the Association. Mr. W. G. Walpole is president of this most recent Ontario addition.

COLD LAKE WINS MYNARSKI TROPHY

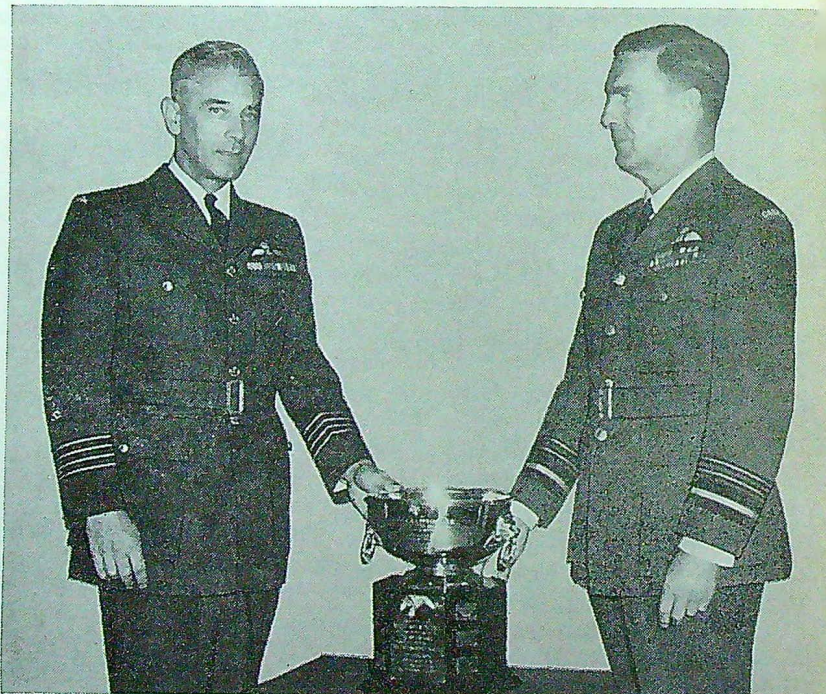
RCAF Station Cold Lake is this year's winner of the Mynarski Trophy, presented to the RCAF by members of the RCAF Association who were formerly members of the World War II Polish Air Force. The trophy is awarded annually to the RCAF station whose married quarters community council makes the most effective use of its resources in developing a youth recreation program suited to the needs of the community.

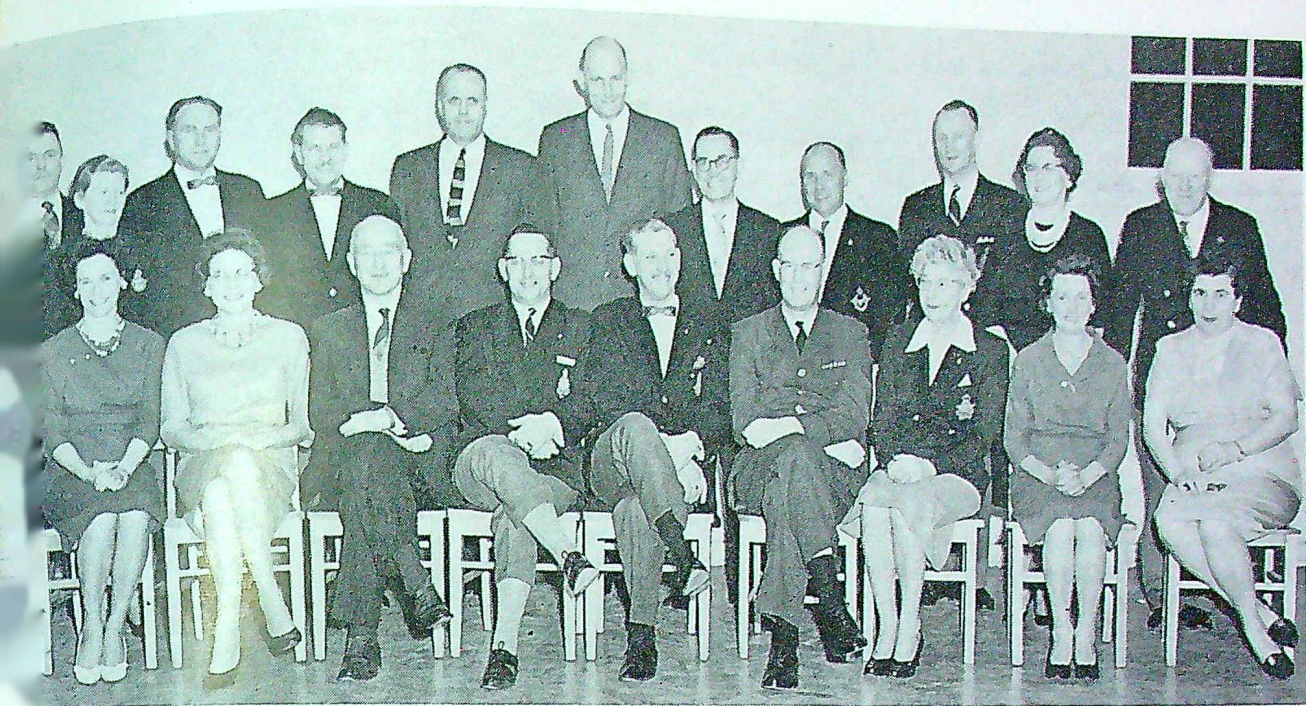
The Mynarski Trophy is a memorial to P/O A. C. Mynarski, a

Victoria Cross winner of World War II.

Air Marshal C. R. Dunlap, chief of the air staff, presented the trophy to Station Cold Lake's commanding officer, G/C D. L. MacWilliam, at a ceremony attended by children of the married quarters community and by the volunteer leaders, both civilian and service, who were responsible for the success of the recreation program. This is the second time Cold Lake has won in the four years that the competition has existed.

RCAF Stn. Cold Lake CO G/C D. L. S. MacWilliam accepts Mynarski Trophy from Chief of the Air Staff A/M C. R. Dunlap.





VANCOUVER HOST WING CONVENTION COMMITTEE

Back row (l. to r.): A. Graham, E. A. (Cherie) Hall, H. N. Harris, T. H. Scott, F. N. A. Rowell, R. Battle, J. M. Addie, W. B. Hamilton, D. R. McCallum, Miss A. W. M. Johnstone and J. H. K. Ellison. Front row (l. to r.): Mrs. J. E. Wootten (president, Ladies Auxiliary), Mrs. G. Breault, A/V/M K. M. Guthrie (honorary chairman), S. H. Wootten (chairman), H. D. Bohart (president, No. 802 Wing), F/O P. J. S. MacKenzie (RCAF liaison officer), Miss E. U. Gear, Mrs. I. Addie and Mrs. K. Graham.

CONVENTION COMMITTEE AT WORK

On this page you see a group of hard-working Vancouverites who, under the direction of Convention Committee Chairman Stan Wootten, have plans for the 1963 National Convention in September already well advanced. Also on this page, for your convenience is printed a registration form which you may use to ensure your place at the Bayshore Inn or alternate hotel in Vancouver, come next September.

A/V/M K. M. Guthrie is Honorary Chairman, giving the committee members help with his knowledge of past conventions and his organizational ability. National President P. F. Connell met with this committee in Vancouver last month and expressed his pleasure with the arrangements which have been completed to date.

NATIONAL CONVENTION, VANCOUVER SEPTEMBER 26 - 27 - 28

If you are a member of the RCAF Association you are eligible to attend the 13th National Convention in Vancouver as a FRATERNAL delegate. For the \$10.00 registration fee you receive the same amenities as an *accredited delegate*. All you have to do is complete and mail this coupon together with your \$10.00 per person registration fee to:

The Host Wings' Convention Committee,
RCAF Association,
P.O. Box 246, Station "A",
Vancouver, B.C.

Hotel Reservation
Registration Form

1963 RCAFA Convention
Vancouver, B.C., 26 - 27 - 28 Sept.

NAME DATE

ADDRESS

I/We plan to attend. Enclosed is cheque for \$..... registration fee for myself and Please reserve room (double) (single) at the Bayshore Inn or alternate Hotel for arrival Sept., Departing Sept.

Letters to the Editor

MODEL BUILDER WANTS HELP

Dear Sir:

I would like to do my bit in preserving RCAF heritage by constructing models of all aircraft types flown by the RCAF during World War II and feel the help of *ROUNDEL* readers would be most valuable.

The miniatures will be made to a scale of one inch equalling six feet and will be complete in all details. This calls for a great deal of research involving the markings and particulars of each machine. I would like people to volunteer information concerning "their aircraft." Photos of course are invaluable. They would be copied with the greatest care and returned to the sender by registered mail. I have even set forth a simple form to help get the right details from the donors.

P. J. Campbell,
17 Lang Ave.,
Kapuskasing, Ont.

BOOKS WANTED

Dear Sir:

RCAF Station Armstrong requests assistance from other stations or organizations in the building up of a unit library. All contributions sent to the undersigned will be gratefully acknowledged.

J. Senecal,
RCAF Stn. Armstrong, Ont.

ARMY MOVEMENTS

Dear Sir:

Regarding the photo-story "Operation Rotation" (Vol. 15, No. 1, Jan.-Feb. '63), it was erroneously stated that No. 3 Canadian Army Movements Control Group is attached to No. 2 Air Movements Unit, RCAF Stn. Trenton.

We operate under the direction of Army Hdqts. and are located in Trenton to look after the reception and despatch of army personnel and their dependents going to and returning from Germany, France, Italy, Britain, the Middle East and Congo. We also despatch and receive freight, issue railway transportation warrants, etc.

This letter is not designed to take any credit away from No. 437 "Husky" Sqn. who flew the aircraft, but I think more credit is due to the hard-working personnel of this detachment who looked after all the other arrangements.

Sgt. J. M. Kooyman,
No. 3 Movement Control Group,
Royal Canadian Army Service Corps,
RCAF Stn. Trenton, Ont.

COVER COMMENT

Dear Sir:

The excellent covers on Vol. 15 issues have given *ROUNDEL* a new look which

is most welcome. It's as if your wife came home with a fancy new hairdo — you liked her the way she was before, but oh, how did she become so glamorous!

It's unfortunately that Sgt. Walls received full credit for the March cover, though. His "Might and Majesty" was excellent but as his painting was copied from an RCAF photograph, it seems fitting to mention the photographer, Sgt. Ken Ferguson of this office, whose original photo received considerable coverage by newspapers and magazines.

Graphic art conveys its message in terms of form and tone; both were clearly established in Sgt. Ferguson's photograph. This is not intended as criticism of Sgt. Wall, as copying is permitted in the RCAF art contest.

F/L E. F. Paterson,
Alberta Area PRO,
RCAF Stn. Namao, Alta.

RFC TRAINING

Dear Sir:

When I saw that picture of the *Jenny* hanging in the tree tops (Vol. 15, No. 2, Mar. '63), I thought someone had raided one of my old picture albums.

The date of the photo was 8 Oct. 1918. The place was Camp Rathbun where I was a flying instructor. One of my cadets took off with his tail too high; the tips of his prop were damaged; I watched him mush along, desperately trying for altitude to get him over the trees behind the barracks at the north end of the field. He didn't quite make it.

Old "hungry liz" dashed madly off to pick up the pieces. I made my way on foot. We found the plane hanging precariously on the branches, with the student sticking horizontally out of the cockpit. It took half an hour to get a ladder and bring him safely down. Meantime, I got my camera and took some pictures.

In line with tradition, I immediately took the cadet up for a test-run, found his nerves to be unshaken and again sent him solo. Eight days later he graduated from the school.

P. B. Keffer,
2131 MacPherson Ave.,
Regina, Sask.

(Correspondent Keffer served in the RFC from 1917 to 1919, then went to work as a newspaperman in Regina. Last month he retired as general manager of the REGINA LEADER-POST. — Editor.)

CALLING WORLD WAR I VETS

Dear Sir:

With regard to Mr. Thomas E. Andrews' letter in your March 1963 issue,

I should like to mention to your readers the existence in Canada of the "Canadian Aviation Historical Society", the aim of which is to seek out and publish factual information on this country's aerial heritage and her role in World War I.

Annual membership is \$2.00, which includes the society's quarterly journal. For further details write to this address: Mr. Jeffrey Burch, Secretary/Treasurer, Canadian Aviation Historical Society,

19 Franson Cres.,
Weston, Ont.

EXCERPTS FROM OTHER LETTERS:

As a member of the first graduating class of the Curtiss Aviation School, I enjoyed very much your series on "Canada's First Air Training Plan." After obtaining my pilot certificate in July 1915 I joined the Royal Naval Air Service . . .

C. N. Geale,
304 Rogers St.,
Peterborough, Ont.

I got a big bang out of the RFC Canada story in *ROUNDEL*. It brought back memories that I cherish very much. One of the highlights of my life was my association with the armed forces north of our border 46 years ago when I was at Leaside and Camp Borden . . .

R. J. Barrett,
(ex-US Signal Corps),
Hamilton, Montana.

OLD ACQUAINTANCES

Dear Sir:

Since I emigrated to Canada from Great Britain a few years ago I have felt I should like to renew contact with some of the RCAF aircrew members whom I knew and shared experiences with while serving in the Middle East during World War II.

I was an NCO navigator with No. 294 Squadron, RAF, which was formerly known as the Middle East Air-Sea Rescue Flight. From May 1943 to August 1945 I was stationed at various points in the western desert, Cyprus, Egypt and Palestine. At the conclusion of my operational tour I was posted to No. 78 OTU in Ein Shemer where I was an instructor.

My first contact with RCAF aircrew was in England at No. 3 GR School at Squire's Gate, Blackpool, and in Ireland at the Limavaday OTU during the winter of 1942. Most of these men went with me to the Middle East at the end of the course to join No. 38 Squadron, RAF.

I shall be very grateful if you could print my request in *ROUNDEL* and suggest any other way I might try to renew contacts.

Mr. Kenneth S. Watkins,
635 Laurentian Boulevard,
Apt. 12,
Montreal 9, Quebec.



Aircraft ALBUM:

Consolidated "Liberator"

The mighty "Lib" is best remembered as a heavy bomber which served with the USAAF during World War II. Equally important was its role as a patrol bomber with the RCAF and RAF, providing convoys with air cover as far as the mid-Atlantic. The *Liberator* entered service with the RAF Coastal Command in the summer of 1942, and at "V-E" Day constituted one-fifth of the command's strength. Many were flown by Canadians in the RAF, one of whom was F/O K. O. Moore. On the night of 7/8 June 1944, F/O Moore, in a *Liberator* of No. 224 Squadron, sank two U-boats in 22 minutes, for which he was awarded the DSO and the American Silver Star.

Overseas No. 442 (RCAF) Sqn. equipped with *Liberators* for transport duties in August 1945, but disbanded before training had been completed. No. 426 Sqn. received *Liberators* after V/E Day and carried out 120 round trips between India and Great Britain, carrying troops and supplies, before disbanding in December 1945.

At home the RCAF operated 149 *Liberators*, beginning in May 1943 when No. 10 (BR) Sqn. converted to the type from *Digbys*. The squadron's *Libs* subsequently made ten attacks on U-boats and killed two. No. 11 (BR) Sqn. converted to *Libs* in August 1944 and made two attacks on enemy subs. No. 168 Transport Sqn. used the type on the trans-Atlantic mail run. *Liberators* were used at No. 5 O.T.U. Detachment, Abbotsford, B.C., in 1944-45 to train BCATP graduates for heavy bomber operations in the South East Asia Theatre.

The *Liberator V* had an endurance of 15.3 hours at 165 m.p.h. It had a crew of seven or eight, and carried 2500 pounds of depth charges in several combinations. Wing span was 110 feet and power was four Pratt and Whitney "Twin Wasps" of 1200 hp each.

Roger Duhamel

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