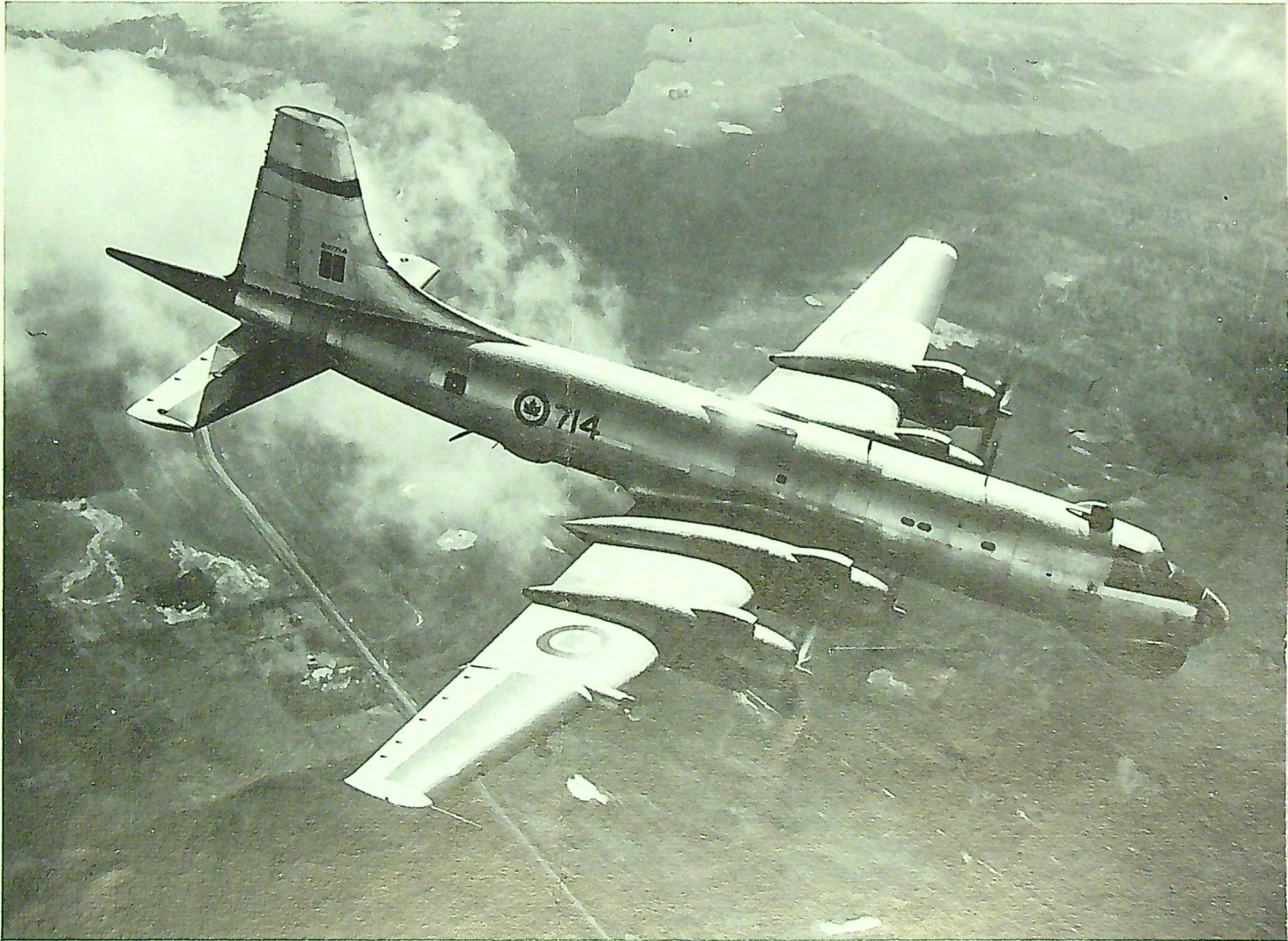


The **C**ROWNDDEL

Vol. 10 No. 4
MAY 1958



ROYAL CANADIAN AIR FORCE

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THIS MONTH'S COVER



In northern Alberta's sunny skies, the Argus undergoes extensive armament trials. Its flights over the Primrose Lake range are only part of the evaluation programme described in this month's lead article.

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**R.C.A.F., Victoria Island,
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ON THE BREAK



MUCH has been written in aviation magazines and newspapers lately about the *Argus*, our newest submarine killer, currently undergoing an extensive test programme before entering regular service in Maritime Air Command. This month the *Argus* is being displayed to two particularly interested groups in widely separated parts of the continent—at R.C.A.F. Station Greenwood, N.S., its first squadron home; and at U.S.N.A.S. Corpus Christi, Texas, where it will be put through its paces for delegates to the annual Aviation Writers' Association convention, meeting at Houston.

On 17 May at Greenwood Air Marshal Hugh

Campbell, Chief of the Air Staff, officially handed over the *Argus* to Air Commodore Martin Costello, A.O.C. Maritime Air Command, at a ceremony attended by prominent service and civilian guests. It was announced at that time that by the end of August the giant aircraft should be in squadron operation, doing reconnaissance patrols far out over the Atlantic.

The story of the development and production of this 75-ton armed guardian is contained in our lead article, beginning on page 2. Mock-German definition: *Der Spookische Earinderwasser Eavenzdripper Lissenenwerke.*

* * *

This month we of the Regular Force welcome back to stations in Canada and overseas hundreds of undergraduates from universities and services' colleges across the country. These young men and women, 1260 strong this year, are members of either the University Reserve Training Plan (U.R.T.P.) or the Regular Officer Training Plan (R.O.T.P.). Most of them are with us on a full-time basis for four months

during the summer, engaged in almost every occupation from aircrew trainee, through the various technical and non-flying list trades.

Summer training for U.R.T.P. members has been going on for ten years, and for R.O.T.P. cadets since that programme was introduced in 1952. Many graduates are now commissioned officers in the R.C.A.F. which, of course, is the prime objective of the plan.

On page 6 we present an article beamed particularly at parents whose sons are finishing high school and may be eligible for such training next fall. "Education for Responsibility" is definitely recommended reading.

* * *

For those who may find the reprint, "A Better Way to Run Your Job" (page 30) a bit on the high level side, we offer another approach to the problem of employment efficiency on page 23. Any comments from the boys in the field?

* * *

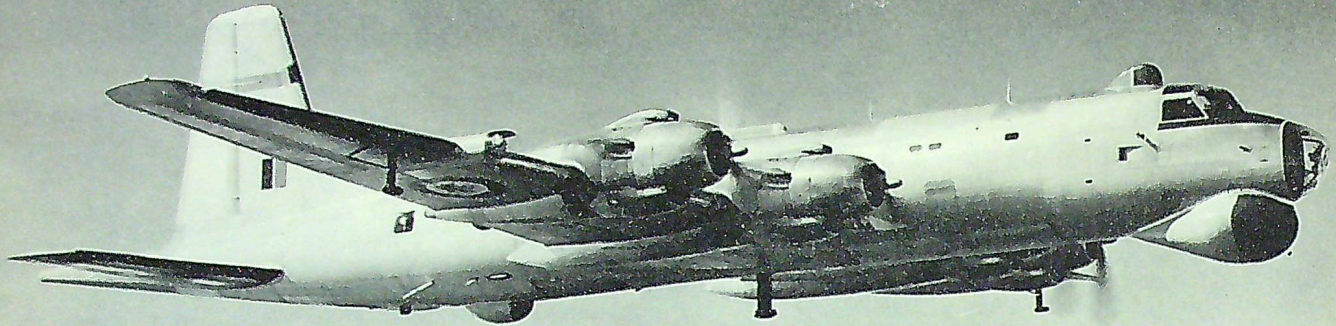
As this issue is being circulated, delegates to the eighth annual convention of the R.C.A.F. Association are preparing to leave for Edmonton—scene of this year's three-day gathering commencing 5 June. We wish them every success in their deliberations.

And, finally, to all our civilian readers: an invitation to visit your closest R.C.A.F. station on Air Force Day, 14 June. The gates of 22 stations across the nation will be thrown open that day to give the public its annual opportunity for first-hand inspection of us at work.

The Editor



EVOLUTION OF THE ARGUS



BY WING COMMANDER W. M. DIGGLE

(For the past five years Wing Commander Diggle has been R.C.A.F. project engineer on the Argus programme, and as such, has worn a deep path between his desk at A.F.H.Q. and the Canadair factory in Montreal. Proof that he is a competent playwright as well as aeronautical engineer is shown in the following article.—Editor.)

THE introduction of the *Argus* long-range maritime patrol aircraft to Maritime Air Command marks a significant milestone in the evolution of anti-submarine warfare. The venerable *Lancaster*, which has done as noble a job in its maritime role as it has in other assignments in past years, had become increasingly difficult to support; in addition, because it is "yesterday's" aircraft, it has become relatively incapable of being adapted to "tomorrow's" missions. The *Neptune*, which also is a worthy opponent of an enemy submarine, fills a necessary place in the medium range missions. However, the satisfaction of R.C.A.F. commitments for maritime patrol at long range devolves upon the *Argus*, the only aircraft in the Western World with such capability.

GENESIS

The development of an aircraft weapons system is an exciting, even dramatic series of events; it could be considered almost analogous to the evolution of a good play, albeit in the more devious traditions of the theatre. So, because all analogies are more or less accurate descriptions, let us unfold the story.

Our playwright has produced a ge(r)m of an idea and, like all true artists with a sense of mission, he feels that his play must be pre-

sented to his audience for the honour of his country and the good of the world, with opening night set for a definite time. It is not that he is lazy or even preoccupied, but rather because of the sense of urgency of his mission, he realizes that he will be unable to write the play, let alone produce it, entirely within his own resources. Therefore, he employs a producer of other successful plays as ghost writer who, he is certain, will be able to put the right words into sentences and scenes, and produce

a play that will correctly and adequately interpret his ideas.

In all fairness to our playwright, it is his primary purpose to convey a message to his audience, rather than to write and produce a play. Therefore, firstly he examines the catalogues to determine whether an existing play could be purchased or produced which would satisfy his mission. It is only when he has determined that no such play does exist that he obtains the financial backing to write and produce his own play.

ENGINEERING DEVELOPMENT

In the case of the *Argus*, the germ of the idea was the Operational Requirement. This was supplemented by a series of engineering studies which determined the optimum course of action to achieve the objective, and by definitive specifications which gave the "ghostwriter" detailed instructions.

The writing of plays probably has an important place for science as well as art—for instance, psychology and effective use of the language. Similarly, given basic parameters such as the number of crew, operational or payload, speed, range and manoeuvrability, it is possible to predict the characteristics of the aircraft which will be required to do a specified job;

characteristics such as wing area, aspect ratio, aircraft size and weight, fuel capacity, and power. At this stage, for the *Argus* it was possible to entertain specific design or procurement proposals, and to measure them against the ideal.

Design proposals were solicited from the leading aircraft manufacturers of the U.S., U.K. and Canada. For the most part, because of the relatively short period of time by which the aircraft would be required in R.C.A.F. service, all but one of the proposals were conversions of aircraft which were either then in service or under development as transports, bombers or maritime aircraft. Of these, the *Britannia* 175 was chosen because it represented the least work, time and cost to complete and to put into efficient service.

The *Britannia* is turbo-propeller powered, whereas, as is constantly being remarked, the *Argus* has reciprocating engines. This is apparently an about-face from the current trend which seems to dictate, at least in the popular conception, that to be modern an aircraft *must* be powered by either turbo-props or turbo-jets. Each of these types of engine, however, has been designed for optimum operation at specific conditions and each is able to perform more efficiently under its relevant conditions than would either of the others. A gas turbine engine is at its best at relatively high altitudes and speeds, but in a low level patrol mission is woefully inefficient and costly, and introduces stiff penalties on endurance. Actually, although it is not generally realized, and although the reciprocating engine is relatively inefficient at higher cruise speeds, the *Argus* is able to cruise at some altitudes at speeds approaching the present turbo-prop *Britannia* normal cruise speed. So much for the advertising!

Although the engines were changed, it was realized that re-

quirements also evolve with the passing of the years, and that at some time it might be necessary for the benefit of some future mission to install turbo-props. Therefore, it was required that the new design should be such as to permit the installation of turbo-prop engines with a minimum of redesign, factory rework and cost.

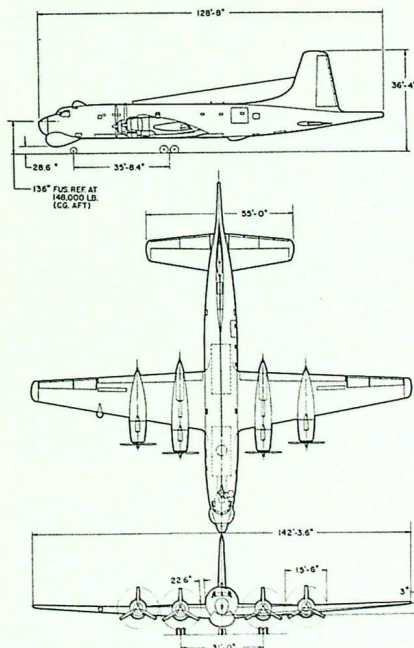
The engine which was chosen after considerable study by Canadair and R.C.A.F. engineers was the turbo-compound Wright 981TC18-EA1, almost the identical engine with which the R.C.A.F. is familiar in the *Neptune*, but with fuel injection carburetion. Fuel injection is expected to make possible a more closely controlled fuel economy. An entirely new power plant was designed, built and tested on an engine stand which, in reality, was a section of the aircraft wing. By these means and some 600 test hours, Canadair was able to ensure adequate airflow, cooling, oil dilution procedures, fire detection, and the successful

elimination of many minor shortcomings which otherwise would have snagged and possibly delayed the aircraft.

* * *

The original wing and tail sections of the basic *Britannia* were used without major modification, except that all fabrication processes and materials were converted to North American standards and to R.C.A.F. design criteria. The fuselage, however, was completely redesigned, in that provision had to be made for two long bomb bays, for ejection of disposable stores and for sundry antennae and radomes. Also, *Britannia* structure to provide for pressurization, since it could only penalize the design mission, was deleted. On the other hand, it was necessary to increase the limiting load factor of 2.5 for the *Britannia* to 3.0 for the *Argus*. This increase in load factor permits two purposes to be served at once—to make the aircraft structurally capable of abrupt manoeuvres, and to allow for considerable growth for development purposes in the life of the aircraft.

The engineering of the airframe involved the successful solution of many problems, using Canadair laboratory facilities, National Research Council and National Aeronautical Establishment facilities, and Defence Research Medical Laboratories. Portions of the proposed structure required testing to qualify the design criteria before fabrication of the airframe and appendages thereto could commence; designs and materials had to be tested for cold weather properties; aerodynamic data were required to establish performance and drag calculations, also that disposable stores would leave the aircraft properly; adequate ditching characteristics of the completed aircraft had to be assured; aerodynamic vibration of the aircraft in its various possible attitudes and



external configurations had to be kept to the absolute minimum; externally excited vibration, and both external and internal noise had to be kept to the feasible minimum limit; and satisfactory antennae radiation patterns had to be established. Most of these tests preceded the relevant portions of the design, and each was necessary to assure the success of the aircraft in its mission: that the "hardware" would function effectively and reliably, and that the aircraft crew could remain efficient in their surroundings for the prolonged mission times of which the aircraft is capable.

Other interesting problems involved fabrication processes. One of the prime rules that was set before Canadair was "no change just for the sake of change". Thus, everything else being equal, it was possible to use both a maximum of Canadair's existing facilities and processes and a maximum of the Bristol *Britannia* design and fabrication methods, which rights were a part of the aircraft licence procured by the Government of Canada. "Everything being equal" was not an entirely valid assumption, so that it was necessary to revise some of the *Argus* fabrication processes. One of the most interesting involved the selection of a bonding process for the wing fabrication—one that would be strong beyond the range of possible conditions of operation of the aircraft, that would involve a minimum of tooling expenditure, that would be relatively easy to control in fabrication, and that would achieve a maximum of reliability in service. In the opinion of R.C.A.F. engineers, Canadair has achieved the optimum balance of these objectives.

Another advance in the art of aircraft fabrication has been in the extensive use of titanium to replace steel. Canadair experience with this light, but heretofore, difficult-to-work metal should be important

both to Canadian industry in fabrication, and to the R.C.A.F. in repair schemes. It is interesting to note that Canadair has been able to avoid a mission penalty of over 900 pounds by their use of this material. Within the all up weight, 900 lbs. could be 900 lbs. of offensive stores or 900 lbs. of fuel; or if the squadron commander required to carry full load of both stores and fuel, it would detract from his range and endurance with a lower factor of safety.

* * *

Since most of the electrical power used by the operational equipments must be 400 cycle 208/120 volt alternating current rather than the once-conventional 28 volt direct current, and since most of the aircraft services can be met as well by AC as DC, it was considered most logical and efficient (in cost, weight, mission effectiveness and reliability) to generate AC, rather than to rectify DC. Thus the primary system consists of four 40KVA alternators which are engine-driven and paralleled through Sundstrand drive constant speed gear boxes. The system provides complete fault protection, load division and automatic paralleling in the event of alternator or engine failure. Emergency services are battery operated, and the necessary DC power is obtained by transformation and rectification. The *Argus* generates sufficient power to satisfy the requirements of approximately 60 average six-room homes. The complete electrical system was proved, functionally tested and "de-bugged" on a full-scale panel installation which faithfully reproduced all the aircraft factors relevant to the system.

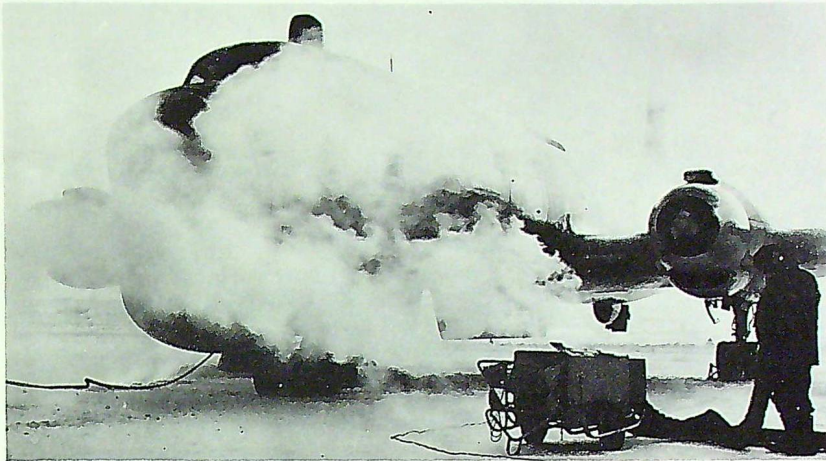
The *Argus* to be effective in its mission must be an all-weather aircraft. Therefore, the wing and control surfaces were designed for thermal anti-icing, and the aircraft and its systems can operate under all conditions down to lows of

-65°F. The necessary heat is provided from four internal combustion heaters with a joint capacity sufficient to serve the needs of about 28 average six-room homes. Thus the cold days have been taken care of; but so have the hot! While there is no air conditioning which will lower the temperature, there is most adequate ventilation with up to 2340 cubic feet of air per minute being drawn into the fuselage and circulated.

FIGHTING EQUIPMENT

The function of detection of the submarine "audience" when it enters the theatre of operations was accorded special attention in the design and qualification of the *Argus*. It must be detected and then pin-pointed, otherwise the "punch lines" are apt to be mis-directed. The most effective devices that can be made available have been installed, covering the complete range of sight, sound, smell, and aura. And the installation of each device has been given the best possible advantages to help make it effective, from the latest in electronic equipment to the reliable "Mark I Eyeball" of international repute in maritime air warfare.

The *Argus*, like any other fighting aircraft, is only effective in its natural environment—the air—and when it is functionally equipped and serviceable. This may seem so obvious as to be axiomatic; however, it bears repeating at periodic intervals, in order that the ground support equipment as an essential part of the weapons system can be accorded the attention which the aircraft's mission deserves. Canadair was delegated weapons system responsibility for the aircraft; and the R.C.A.F. co-operated fully through its Maintenance Appraisal Team and specialist technical officers. In this manner the ground handling equipment, test equipment, and other requirements were designed and developed ensuring maximum compatibility with the



Exhaust vapour from ground handling equipment envelops Argus during engine cold start trials at Churchill. Temperature, 35 degrees below zero.

aircraft, with the anticipated ground environment and R.C.A.F. maintenance practices and capabilities.

Although no new offensive weapons have been developed as a part of this programme, better methods of ejecting armament stores have been evolved and installed. The arsenal of the *Argus* is complete with bombs, torpedoes and mines; each is the best and most appropriate weapon for some phase of anti-submarine warfare; and collectively they cover the operational field as adequately as the state of the art permits.

* * *

The nerve centre of the aircraft weapons system is ANTAC, Air Navigation and Tactical Control System, which was developed primarily for the *Argus*. It consists of 33 "black boxes" which for convenience can be broken down into three sub-systems.

The heart of the system is the Dead Reckoning sub-system. It takes inputs of true airspeed and heading from which it computes the aircraft position in latitude and

longitude, repeating the information to necessary crew positions in the aircraft. The navigator can set in a wind which he has determined himself; or the system will accept drift and groundspeed found by Doppler radar, which improves the accuracy.

The Tactical sub-system takes information on position, direction and speed, and presents it through the Tactical Display Unit as an arrow of light onto a chart, representing the aircraft's position and progress. The arrow can move at four different speeds, corresponding to charts to different scales. The arrow is enclosed in a circle of light with a handle which is controllable in direction by the navigator, or remotely by the radar operator. When a sighting is made the operator turns the handle until the arrow cuts the target, whereupon the direction of the target is transmitted automatically to the pilot.

The pilot steers by the Integrated Destination Indicator which acts as a compass. It allows the pilot to accept steering commands from the

navigator or radar operator, to steer in relation to a TACAN station or either of two ADF stations, or to set his own heading. It also indicates the distance to the selected target.

The system also provides means to check heading by celestial observation, or to steer and compute heading by means of a gyro compass without magnetic monitoring in northern regions.

A most important feature of the system is the automatic transfer of information among the various crew members, each of whom requires immediate and accurate intelligence in a tactical situation in order to perform his job most efficiently. This is ANTAC, the aircraft installation which will enable the aircraft to be fought, flown and navigated more efficiently and effectively than has been feasible in maritime aircraft heretofore.

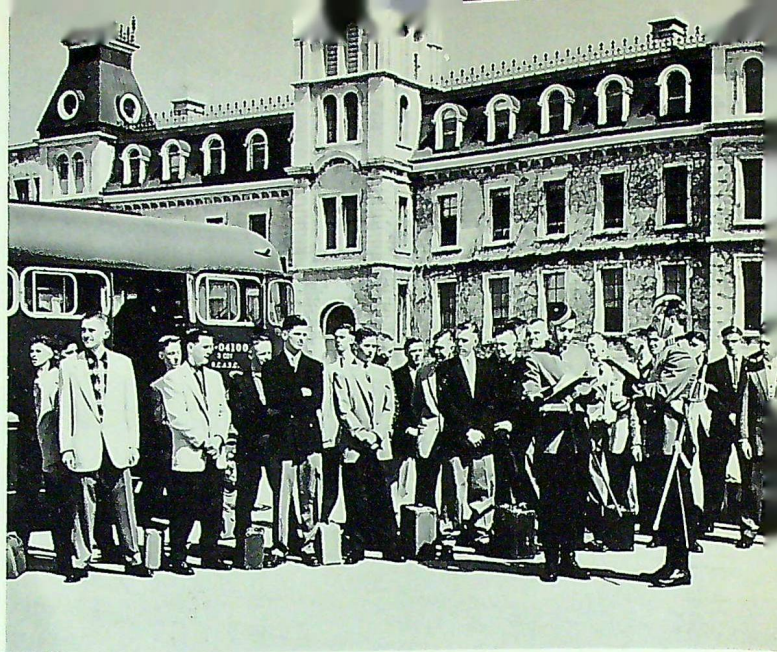
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The contractor's engineering design and development time is estimated to amount to approximately 1100 man-years. If the R.C.A.F. operational and engineering staffs had kept time cards on which to charge time directly to the *Argus*, it would have added to over 44 man-years. The specific tasks itemized on those time cards would have included such responsibilities as: specialist engineering advice and direction to the contractor in the design of the aircraft system and ground support equipment; operational advice in interpretation of the mission and the mission conditions for which the designs would have to qualify; engineering writing or approval of specifications, drawings and reports; maintenance specialist advice to improve the reliability, accessibility and maintainability of the aircraft and its systems; engineering and operational approval of mock-ups and prototypes; approval

(continued on page 32)

EDUCATION FOR RESPONSIBILITY

BY SQUADRON LEADER W. H. CLEAVER



Recruits check in at R.M.C.

(The author is well qualified to write on this subject, having previously served for three years as Air Staff Officer at Royal Military College. He is presently at A.F.H.Q. in the Directorate of Postings and Careers, where he helps administer the Regular Officer Training Plan.—Editor.)

HOW OFTEN have you heard it said, "I wish I could afford to send that boy of mine to College," or, "I want my son to have a commission in the Air Force, but I also want him to complete his education to degree level."?

A plan does exist which is designed specifically to produce, at government expense, well-educated and well-trained junior officers for the Regular Forces. The purpose of this article is to describe the Regular Officer Training Plan (R.O.T.P.), eligibility for the plan, how one applies for entry and what happens to the cadet while he is under training and after graduation.

The R.O.T.P. was introduced in 1952 when the Department of National Defence decided that, in view of the increasing complexity of modern defence and its weapons, there existed an increasingly urgent need for highly qualified officers. Recent technical developments and changes in the defence posture of the country have certainly borne

out the wisdom of that decision. Le College Militaire Royal de Saint-Jean was opened in the fall of 1952, joining the Royal Military College of Canada at Kingston and Royal Roads at Victoria, as the third of the Canadian Services Colleges. At that time, both of the older colleges were filled with young Canadians of reserve status who were eligible for permanent commissions in the Armed Forces upon successful graduation from the four-year course at R.M.C.

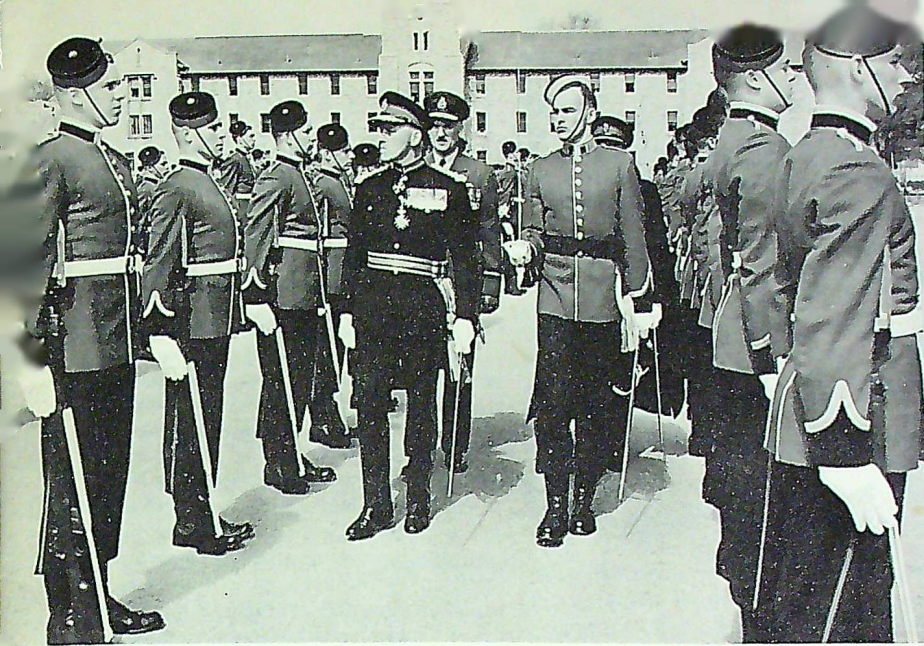
In addition, the University Reserve Training Plan was in existence at a number of Canadian universities whose graduates were also eligible for regular commissions. The introduction of R.O.T.P. enabled suitable candidates for both the Canadian Services Colleges and the universities to obtain their education at government expense under National Defence sponsorship, and assured all successful graduates of permanent commissions in the Canadian Regular Forces. Graduates of the plan are

now serving in the R.C.A.F. at home and abroad in a variety of occupations, and are proving to be excellent examples of the worth of R.O.T.P.

The young man who enrolls in the R.O.T.P. does so on a career basis but, under the plan, he may request his release after completion of three years service beyond the termination of his academic training. His request will be granted provided no national emergency exists. If selected to attend a Canadian Services College, he is fed, clothed and lodged at government expense, his books and instruments are paid for and he receives service medical and dental care. The cadet who is selected for a university has his academic and associated fees paid, is given an allowance for books and instruments, is granted a subsistence allowance and is provided with uniforms for wear on service training, parades and other service occasions. All have the rank of Flight Cadet, that of a subordinate officer under training.

* * *

There are two basic training phases in each calendar year of the four-year course. The first phase is academic—composed of the fall



Inspections are frequent and exacting.

and winter terms at a Canadian Services College or a university. The second is practical—the summer period during which the cadet undertakes training with his chosen service. The award of a permanent commission is dependent upon the successful completion of both academic and service training. Hence, the young man in R.O.T.P. must demonstrate both his ability to absorb “book learning” and the desire and ability to succeed in his particular field of service endeavour. While the training is constant, rigorous and lengthy, the service tries earnestly to give annual leave and periods of special leave during breaks in the academic year, recognizing the worth of the old adage that “all work and no play makes Jack a dull boy”.

To be eligible for the R.O.T.P. the candidate must be medically fit to service standards for the list and branch for which he is selected. Generally, it is desirable that he be physically able to undergo aircrew training. If he is not aircrew fit, this will not necessarily preclude him from entry. He should, preferably, have completed a recognized senior matriculation, or he may be considered for entry in a preparatory year at Le College Militaire Royal de Saint-Jean or a university

if he has passed his junior matriculation and has a good standing in certain required subjects at that level. In the case of junior matriculants, the academic training covers a period of five years. The applicant for R.O.T.P. must be a Canadian citizen or a British subject resident in Canada with the status of a landed immigrant. He must be single and must remain single until he has completed his academic training. A junior matriculant must have reached his 16th but not his 20th birthday on the first day of January preceding his entrance. For the senior matriculant, the upper age limit is 21.

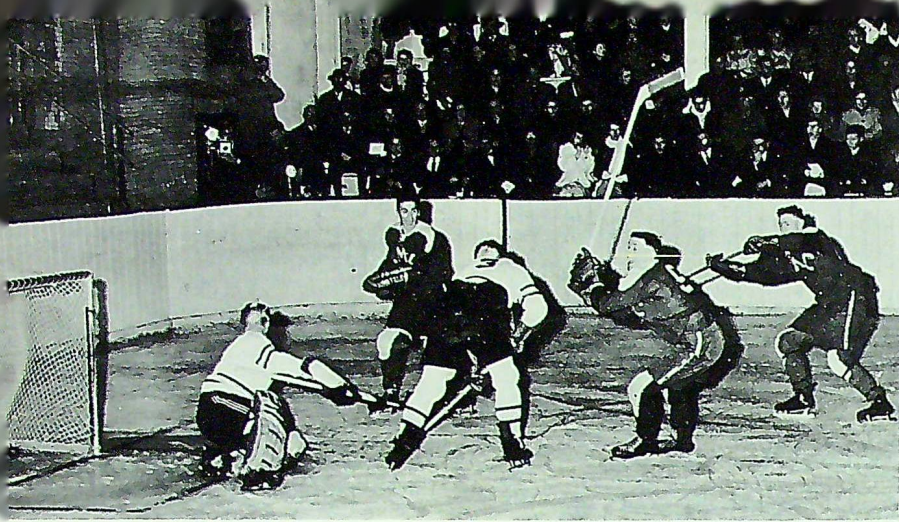
Applications should be made as early as possible in the calendar year, certainly not later than 1 July. They must be accompanied by a birth certificate and certificates of educational achievement. Any of the Registrars of the three Canadian Services Colleges, the Commanding Officer of any service Recruiting Unit, or the Chairman of the R.O.T.P. Selection Board at National Defence Headquarters in Ottawa will supply detailed information and application forms on request. After completed applications are received and have been given preliminary screening, the eligible candidates are told where

their medical examinations; interviews and selection tests are to be held. Transportation and living expenses for the trip are provided by the service. Notification of acceptance and subsequent joining instructions are sent to successful candidates by the Final Board of Selection in the latter part of August, and they make a well-directed start upon a service career early in September.

* * *

When a cadet enters the R.O.T.P. at either a Canadian Services College or a university, he begins an entirely new life. He continues a training in manhood which he began in high school but, for the first time in most cases, he is on his own and must stand or fall on the basis of his own desire and achievement. For the first time in his young life he lives and works with others who are keenly in pursuit of the same objective. He will survive to graduate only if he devotes himself entirely to the achievement of his aim. Competition is most keen among the sons of men now serving in the R.C.A.F. Family names well-known in the Air Force are represented both at the Services Colleges and the universities, and the urge to do as well or better than dad is strong in the youngsters.

At the Canadian Services Colleges the cadet's day is very full. He is, in every sense, a subordinate officer in the regular force who rises at the crack of dawn and is kept busy until the lights go out at night. Professional military training is a 24-hour a day business and it seems pretty rugged at first. However, it becomes a way of living, develops self-reliance and integrity and builds the finest of young men. Participation in all sports is encouraged and the team spirit which is engendered and nurtured at the Colleges remains with a man for the rest of his life. The coaches and instructors are regular officers and non-commis-



R.M.C. versus West Point is an annual hockey tradition.

sioned officers, hand-picked for their jobs and able to give cadets individual attention. They are professionally dedicated men whose experience has given them the uncanny knack of moulding youth and producing men.

For some seasons past, the football players at R.M.C. have been coached by Squadron Leader "Tony" Golab, whose name is well-known to all followers of Canadian football as that of one of the greatest Canadian Big Four stars of a few years back. His teams have won two recent Ottawa-St. Lawrence Conference Inter-collegiate championships and are noted for their clean play and sound knowledge of football fundamentals. Hockey teams have

been coached in recent years by Major "Pete" Carr-Harris, whose name will be recognized by many and whose teams always give a good account of themselves. Cadets from all three colleges have done well in swimming, tennis, skiing, fencing, basketball and shooting. Sports facilities are of the best and are always in use.

The academic burden is a heavy one, but nowhere in Canada is there finer laboratory equipment, better facility for study or a better qualified and more helpful faculty. All faculty members have had some service experience and many of them are serving officers. A few are actually graduates of R.O.T.P. who have returned to teach. They are never too busy to give individual attention to the cadet who is having trouble, or to advise a cadet as to the academic route he should follow.

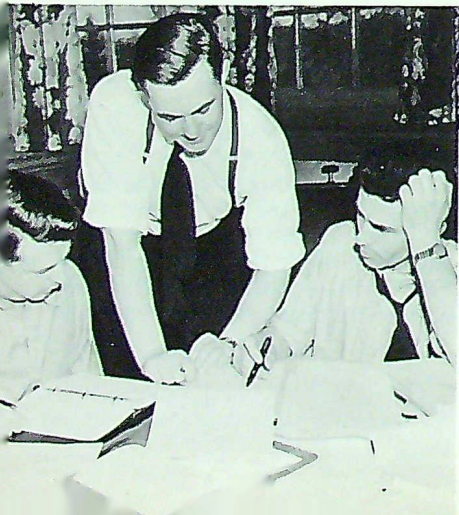
The cadet wing organization at the Colleges encourages the development of leadership qualities, produces a supervised self government and fathers the acceptance of responsibility. Senior cadets are appointed to positions of trust and command, and, with the guidance supplied by the Squadron Commanders from the three services, control and operate their own military formation. Numerous social activities also contribute much to the cadet's development of

character, adult behaviour and self-reliance.

* * *

The R.O.T.P. cadet who goes to a Canadian university becomes a member of the university squadron and trains with it in the course of the academic year. He is paid at the same rate as the cadet who attends a Canadian Services College, but he receives a cash subsistence allowance for his board and lodging. His academic responsibility is that of any university student, requiring the maintenance of a high standard in a society where competition is keen. Because the university R.O.T.P. student is not as closely supervised and does not live in the same close-knit military atmosphere as his Military College brother, he is possibly required to be even more self-reliant. He must budget his time and his money, choose his own social and athletic activities to a large extent and set his own rules for personal behaviour. The university squadron is the cadet's link with the Air Force while he is in university and that squadron has its own social activities on the campus and is recognized as a bona fide university organization. It gives the R.O.T.P. cadet his winter professional training and attends to his service needs. Summer training is carried out with all other R.O.T.P. cadets at Regular Force units and academic training parallels that of the Military College cadet.

Courses at the Canadian Services Colleges provide a balanced and liberal education in arts and sciences combined with military studies. The first two years' instruction in all three colleges is similar. The third and fourth years of a general course or an engineering course are taken at R.M.C., with specialization beginning in the third year. On graduation, cadets are commissioned and may be selected to take their final degree year at a



Burning the midnight oil.

university at government expense. The junior matriculant follows the same course on completion of the preparatory year at College Militaire Royal de Saint-Jean. Most Canadian universities provide courses which are acceptable for subsidization under R.O.T.P. and at present there are 38 universities and affiliated colleges which offer the fields of study required of R.O.T.P. cadets.

Since the greatest need is for technically trained officers, the majority of selected candidates are trained in Engineering or Applied Science, but applications for general or honours courses in Arts, Science, Commerce and Business Administration will also be considered. Thus, the field of endeavour for the cadet is broad and he has a wide choice of career.

* * *

Summer training for the technical student is given at R.C.A.F. technical training schools and, in most of the technical professions, takes three summers to complete. Non-technical officer cadets receive their training at service establishments with courses usually of two summers' duration. The third summer in this case is spent in "on-the-job" training at a regular force unit. There are some professions, such as Construction Engineering and Mobile Equipment Engineering, where no formal courses are available and trainees in such professions are employed in a practical manner for three summers at R.C.A.F. units. Each cadet is given the opportunity to work with and learn from the officers with whom he will be associated in his future career. His tasks are challenging, interesting and complementary to his academic studies.

Aircrew cadets commence their flying training in their first summer. Observers usually complete such training to "wings" standard by the end of their third summer.

Pilots, on the other hand, take four summers of training to completion of Advanced Flying School and their wings, so they are usually in training for one summer beyond graduation from a university or a military college. Learning to fly and being paid to do so while on summer "vacation" has a tremendous appeal for the cadet. He gets his first chance to travel and to live in the Air Force. While the cadet is in summer training, the professional status of the service officer is emphasized and the happy union of academic and practical education is the objective.

Upon successful completion of service training and graduation from R.M.C. or a university, the cadet is commissioned in the rank of Flying Officer and commences his duties with the R.C.A.F. Because of his academic qualification, his thorough service training and his education for leadership in his chosen field, the door is open to him for a successful and rewarding career. He has been trained and conditioned to accept responsibility and is mentally and physically equipped to render the best



In summer, it's out of school and into the sky.

possible service to the R.C.A.F. and to Canada. His most formative years have been spent with comrades who shared his successes and defeats, with whom he has worked, played and, sometimes, fought and from whom he will never be far removed for the rest of his days. Truly, the Regular Officer Training Plan gives the young Canadian with ambition and stamina an education for responsibility.

Proud graduation moment: a diploma and the Sword of Honour, too.



THE MID-CANADA LINE

PART TWO

BY FLYING OFFICER S. G. FRENCH



MCL mess building at night.

DETAILED DESIGN AND SPECIFICATION

THE Mid-Canada Line's basic system had been envisioned in the study and report of the R.C.A.F.'s Systems Engineering Group. The approval of their Final Report placed the S.E.G. in a design role. Its primary task was to produce a system specification for implementation by the Management Contractor and to approve the specifications for the components of the system. In the winter of 1954-55 the detailed engineering was started, and the preparation of specifications and drawings for buildings and equipments got underway. At the same time, base camps were established, and tractor trains and airlift started the supply of basic materials to caches and lake-heads.

The Mid-Canada Line, or McGill Fence, is an application of the doppler principle for the detection of aircraft. A transmitter and receiver are separated by several miles, with their antennae directed toward one another. The transmitter sends out an unmodulated continuous-wave signal which arrives at the receiver by the

normal process of propagation. In addition to the direct signal, the receiver also collects energy originating from the transmitter which has been scattered from fixed and moving objects in the beam. The phase of this scattered energy generally differs from the phase of the direct signal which is used for reference. A sufficiently rapid variation of this phase difference, such as would be caused by the rapid motion of the scattering object, can be detected as a beat frequency in the receiver output and used to actuate indicating devices.

* * *

The Line consists of a series of Detection Stations designed to be unattended, several Section Control Stations, a few designated "MIDIZ" Clearance Aerodromes, and a group of Communications Sites associated with the Main Line.

At the Detection Sites, the doppler equipment and the radio relay equipment are duplicated with automatic standby. Thus, operation is sustained in case of

failure of the main equipment. These duplications ensure the time that a portion of the line is un-serviceable will be kept to a minimum. In addition, it provides for alternate rearward communications in case of communication failure either on one of the rearward circuits or along the Line.

Integration of all air defence systems in North America is naturally a basic requirement. In fact, it is now possible for operational information from any of the three Lines—D.E.W., Mid-Canada or Pinetree—to be passed immediately from one to the other, to NORAD Headquarters at Colorado Springs or to any of its Air Defence subordinate headquarters.

Communication between the D.E.W. and Mid-Canada Lines and communication southward, is based on a new kind of microwave transmission known as "ionospheric" and "tropospheric scatter". Giant antennae, bearing a close resemblance to "flying saucers", gather in the tiny microwaves. Before the development of this new type of over-the-horizon transmission, microwave towers had to be fairly close together because the microwaves could not be made to follow

the earth's curvature, bouncing out into space instead. The new installation has its antennae many times as far apart, because engineers found that, using sufficient power, the microwaves will bounce back to earth again in little pieces and the "flying saucers" can collect enough of these pieces to produce an effective signal, thus the name "scatter". The voice channels used in tropospheric scatter are of such good quality that it is possible for two people separated by 1000 miles to communicate as though they were in the same room.

In order to meet the identification specifications, the designing authorities tied the Line into the Department of Transport's A.M.I.S. (Air Movements Identification Service) net. The Line and the area it covers has been designated as "MIDIZ". Flight plans must be filed and clearance obtained for every aircraft that wishes to cross the Line. Aircraft operated from a point not in the A.M.I.S. net must land at one of the Line's designated Clearance Aerodromes and obtain clearance before proceeding. The surveillance radars on the Line were positioned at points where traffic is very heavy. These radars permit the operators to track aircraft for identification purposes, as opposed to the general use of radar for detection.

The designers had to provide equipment which would enable most stations to be left unattended except for periodic checks and maintenance visits. They had to design so that the effects of jamming, and the opportunities to jam the system, were negligible. They had to make certain that birds and other airborne objects could be differentiated from aircraft by the different characteristics that they produce on the display equipment in the operations rooms. There is very little possibility a flock of birds would trigger that type of alarm which

would summon interceptor forces into action.

Since most of the stations were to be left unattended, a fault alarm and supervisory control system had to be designed and incorporated into the Line. One of these systems is located at each Control Station and is capable of controlling a number of On/Off functions at each of several Detection Sites and also of reporting their condition. In addition, there is an annunciator at each Control Station which continuously monitors conditions at each of the Detection Sites and reports an On/Off indication.

Every Detection Site has a fault alarm indicator designed to annunciate the condition of many items and a master alarm which indicates if any one of the items is not functioning correctly. Even if a complete Detection Site failed to operate for one reason or another, no hole would result in the Line. The fact that double sensing lines

have been employed ensures continuous detection coverage. Even if two adjacent stations failed, the staggered arrangement of the stations would reduce the hole to a minimum. There is only a slight statistical probability that two adjacent stations will fail contemporaneously.

* * *

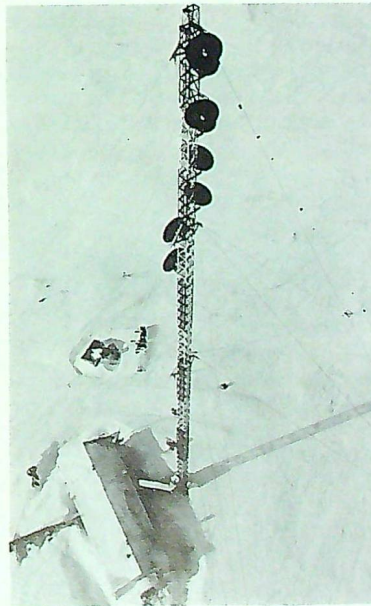
By October 1954, the R.C.A.F. design authorities had determined siting requirements sufficiently to send the first siting teams, composed of propagation and construction engineers, into the field. Location of the Control Stations was to a large extent governed by logistic requirements. With the use of all available R.C.A.F. helicopters and the loan of six U.S.A.F. helicopters, siting engineers flew all along the Line during the summer of 1955, and by September of that year, Management Contractor and R.C.A.F. engineers, assisted by provincial land surveyors, had fixed all the sites across the country. Electronic path loss checks on certain doubtful paths followed, along with the necessary detailed field survey work.

As Design Authority, the R.C.A.F. produced the overall systems specification, and monitored the project to insure that the full intent of the specifications was carried out and that progress scheduling met the various completion dates that had been stipulated. The R.C.A.F. and the Management Contractor maintained a close liaison, exchanging information and advice on all design matters in order to ensure that the intent of the Design Authority was fully carried out.

PROCUREMENT

Detailed engineering continued in the summer of 1955. Meanwhile, procurement problems hit their peak with the target date for deliveries being the winter tractor train and airlift operation. Equip-

Typical 300-foot microwave tower.





Bombardier tractors hauled equipment from lakehead landing sites to construction points.

ment procurement, a good example of the complexity of the task, involved about 15 major suppliers and well over 70 smaller suppliers. Contemplate the immensity of the task of collating, packaging, and following through on literally thousands of items, emanating from plants scattered from Germany or Manchester to Los Angeles, so that they would arrive on the 55th parallel on schedule for assembling!

The work of procurement was done by the Project Agent through the Department of Defence Production. D.D.P. carried out its normal procurement function in connection with this contract. Its functions included calling tenders where possible, negotiating and awarding contracts, supervising production, and such special expediting as was required to ensure satisfactory completion of contracts to meet delivery schedules. It was responsible for placing certain engineering contracts, including the main management contract. The Department was also responsible for the procurement of equipment incidental to the operation of the project, and for placing the major installation contracts. It also procured general supplies such as fuel, barrack stores, etc., required throughout the construction period.

It was agreed that, where applicable, a clause would be placed in contracts negotiated by D.D.P. for this project to the effect that the Management Contractor would act as an agent of Her Majesty in respect of that contract and would be responsible to the D.D.P. for such scheduling, expediting, verification of invoices and progress claims, marshalling and transporting of materials, components and equipment as might be required in connection with the contract in relation to the overall project.

Before purchasing action was taken, the Management Contractor was consulted in the preparation of source lists where his knowledge of available sources of equipment, materials and services would be of benefit. On receipt of tenders he and the R.C.A.F.'s Design Authority assisted the D.D.P. in its assessment. On any procurement case, however small, if D.D.P. felt that a recommendation of the Management Contractor was questionable, the matter was invariably referred to National Defence for concurrence.

TRANSPORTATION

Over 200,000 tons of materials—tractors, vehicles, steel, lumber, construction materials, electronic

equipment, camp gear, fuel, food and men—had to be transported to the Line. In a country, most of which is paralyzed for two months in the fall during the freeze up, and for one month during the spring thaw, inter-timing of procurement, transportation, and construction was of vital importance.

The first step in the overall transportation planning—one of the tasks of the Project Agent—was to establish marshalling areas at ends-of-steel, or on major roads running north. One of the main aims of the planners was to keep down the tonnage moved through any one point, and reduce the ton-mileage for lateral movement along the Line. In the west, this was relatively easy with points such as Dawson Creek, Slave Lake, Anzac, The Pas, and Gillam being served by rail, and other settlements such as Fort Black and Lac Laronge located on substantial roads. In the east, possible marshalling areas were fewer—Moosonee, Timmins, Val d'Or, Montreal, Seven Islands and Knob Lake being the only ones available.

An integral element in the success of all supply operations was the communications system created especially for this purpose. This system contained a complete network of temporary radio communications connecting all sites. This network was tied in with the tractor trains when they were in operation during the winter months. A basic teletype network connected the various zone headquarters with Montreal, from which emanated the overall control.

Transportation from the sources of supply to the marshalling areas was generally performed in common carriers over established routes. Canada's railways run east and west, with only a few north-south feeders. The main problem that arose when dealing with these common carriers was that which evolved from the routing of "rush"

and "special" cargoes over lines having normally thin schedules.

In the west, country roads and trails were extended giving access to most sites in B.C. and Alberta. Nearly 200 miles of construction roads were built in the fall of 1955. One of the transportation problems encountered in the west was that involving R.C.A.F. Station Stoney Mountain, Alberta. It seems that some of the equipment destined for this spot arrived only after having passed through Manitoba's Stoney Mountain Penitentiary!

Eastward, in Saskatchewan and Manitoba, a wide assortment of modes of transportation was employed. From marshalling areas such as those at Fort Black and Slave Lake, trans-shipment was made from railway and truck convoys to barges, boats, muskeg tractors, and float-planes or ski-planes, with helicopters generally called upon to make the final lifts into the sites. During the winter of 1955-56 about 11,000 tons of material were moved into this central area by tractor train. At their peak, these trains running out of Gillam, Man., and Moosonee, Ont., used over 400 sleds and over 40 heavy tractors. A piece of masonite destined for northern Saskatchewan might go by rail to Meadow Lake, then by truck to Fort Black, by barge to a lakehead, and finally by helicopter to a site.

* * *

The Hudson Bay littoral consists of desolate muskeg on the west, and desolate sand on the east. The main route used to supply this area was the sea. In 1955, 17,000 tons were brought in from Montreal by ship. In 1956 the total was approximately 41,000 tons.

During the 1956 navigation season, there were 49 commercial freighters and tankers operating in and out of the Hudson Bay area, engaged in Government work connected with D.E.W. Line and Mid-Canada Line construction. Five

Department of Transport ice-breakers and supply ships were engaged in assisting navigation in these waters as well as transporting large quantities of supplies to inaccessible spots. Some 40 smaller departmental craft assisted in landing the cargo in ship-to-shore operations at various points. (All these operations were in addition to the regular grain shipping out of the Port of Churchill, which reached a new high record of 48 grain ships during the 1956 season.) A total of nearly 150 ships and smaller craft operated in these waters at one time.

The year 1956 not only saw more traffic in Hudson Bay than ever before, but the season was extended nearly six weeks beyond the accepted closing day of navigation, 15 October, when commercial insurance ceased on the commercial route to the Port of Churchill. The D.O.T.'s icebreaker "N.B. McLean", which every year patrols the Hudson Bay and Hudson Strait during navigation season, left Quebec City for her northern assignment on 26 June and did not return to her home port until exactly five months later on 26 November, after travelling some 13,000 miles.

Most of the shipping operated

regularly in the Mid-Canada project was purchased by the Department of National Defence out of Mid-Canada funds and operated by D.O.T. personnel. Some of the L.C.M.'s and barges were obtained on loan from the U.S. Navy. Included in the craft engaged in ship-to-shore operations were two heavy L.C.T. landing craft of 600-ton capacity each, 14 L.C.M. medium landing craft of 35-ton capacity, ten 7-ton barges, four pontoon barges of 85-ton capacity, and two tugs engaged in towing "dumb" barges ranging in capacity from 50 to 500 tons. The two 600-ton L.C.T. landing craft had been acquired in the United Kingdom and had crossed the Atlantic under tow. After being converted in a Canadian shipyard, these two craft proceeded to the Hudson Bay early in the summer of 1956 and returned to the St. Lawrence River under their own power at the close of the season. All the other ship-to-shore craft were hauled up on shore for wintering at their various ports of operation. Two commercial cargo vessels, the "Eskimo" and the "Steve Ahern" also wintered in the Hudson Bay.

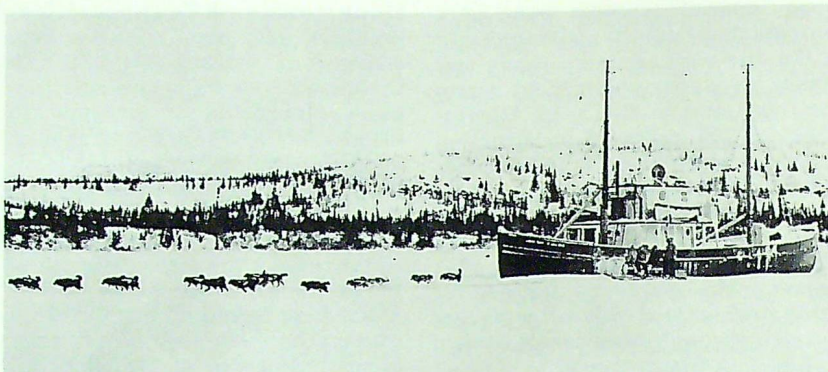
The large barges were towed to the area by the "N.B. McLean", "d'Iberville" and the "Sorel" early

Hearty appetites and happy faces characterized MCL construction workers.



in the season. The smaller craft were carried on the decks of both D.O.T. and commercial ships. However, before any of the commercial ships could come near their respective destinations or the ship-to-shore flotilla start operations, the "Edward Cornwallis" had to place some 15 tons of special aids to navigation in these Hudson Bay waters, including anchor buoys, channel markers and radar reflectors.

The Bay is so shallow on its west side, 2,000-ton steamers have to stand off eight to ten miles. At Winisk a large breakwater and turning basin was built to accommodate unloading. This was designed by Wing Commander J. D. Shannon of the R.C.A.F. and proved invaluable in the hazardous off-loading operations. Captain D. S. Scott, Northern Transportation Officer, D.O.T. Marine Services, was in charge of the whole operation; Captain H. S. Oldford was beachmaster at Winisk and Captain A. R. Lang filled the same function at Great Whale River. In the final stages of the year's undertaking, the "d'Iberville" and the



Tug, used in summer to haul loaded barges from offshore freighters, sits in icebound immobility near Great Whale River.

"C.D. Howe" made special voyages with cargoes aggregating 1,635 tons before winter closed the waterways. Their helicopters and special ship-to-shore landing gear proved invaluable in the quick despatch of their freight in the round-the-clock supply operations. The weather was so rough at times that for periods of several days it was impossible to have the landing craft alongside the cargo ships.

This operation of transferring cargo in rough seas was a very

rugged undertaking and it was fortunate there were not more casualties. Some stevedoring was done by Eskimos, who were not good swimmers and invariably wore life jackets while on board ship or lighter.

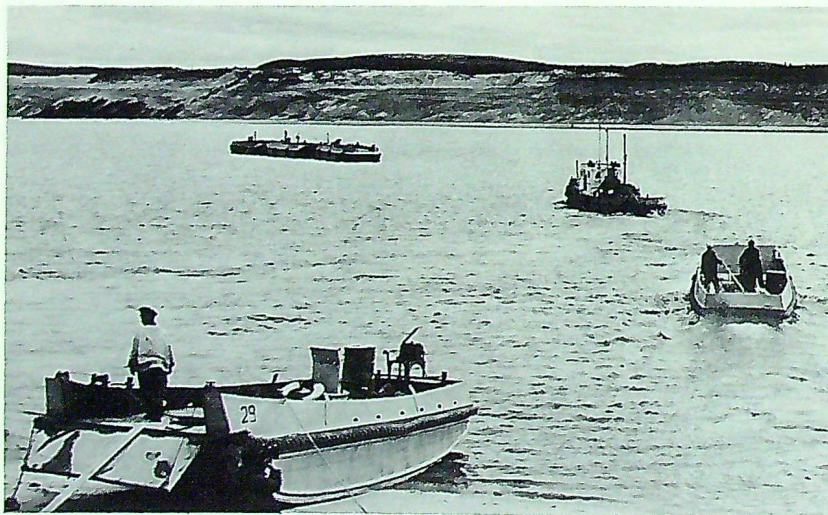
AIR TRANSPORT

Although air transport was employed throughout the Line, in Northern Quebec and Labrador it was the prime vehicle of transport. The use of aircraft speeded the construction of the Line by many years.

Some 25,000 tons of material were airlifted by Commercial Air Carriers during this phase of development. The commercial airlift out of Knob Lake to the lakeheads across northern Quebec is a saga in itself, which for nearly two years employed most of the civilian-owned *Cansos* and ski-equipped *Dakotas* in Canada. During the winter of 1955-56, 135 Dorman diesel engines were airlifted from the United Kingdom to Mid-Canada Line sites in a joint civilian-R.C.A.F. operation which immeasurably expedited heavy construction.

Air Transport Command played an important role in the building of the project. Aerial photographs and radar contours resulting from

Barges being unloaded at Great Whale River.



A.T.C.'s operations enabled the Canadian Army to produce the contour maps vitally needed for preliminary siting. This Command

L.A.C. P. Fitzpatrick admires Eskimo P. Cookie's art work.



also provided invaluable assistance in helicopter siting operations, the location of lakeheads in Quebec and Labrador, and with the airlift of over 400 tons of construction material into Great Whale River.

In the east, goods were taken by boat and train to Knob Lake, or by aircraft to Goose Bay, then by fixed-wing aircraft to lakeheads near the Detection Sites for transshipment. Finally, the helicopters

lifted them to the hilltops where the sites were located. An allotment of tower steel, for example, would originate in Windsor, Ont., move by rail to Montreal, thence by ship to Seven Islands, up to Knob Lake on the railroad, by fixed-wing aircraft (*Canso* in the summer, ski-equipped *Dakota* in the winter) to a lakehead, with the last lap made in a helicopter to a hilltop site for erection.

(In the final instalment next month: the story of 108 Comm. Flight—first R.C.A.F. unit to be equipped exclusively with helicopters; construction and electronic installation along the Line; and a postscript on the operation as it stands today—an integral and functioning part of North America's air defence system.—Editor.)



Old Airmen Never Die...

FROM Miss Mary Mark of Woodstock, Ont. comes the sobering news that ex-A.C.2 Jones, in the twilight of his career, is spending increasingly more of his time around the well supplied liquor cabinet in the basement of his home.

It will be recalled by some of our readers ("The Roundel", Jan.-Feb. 1956) that ex-A.C.2 Jones was born under the Airmen's Mess at No. 4 Reserve Equipment Maintenance Unit, Brantford, towards the end of the war. He was brought into service by Miss Mark, a former W.D. officer, and after a short but meritorious career was discharged to civilian life in 1946. Mr. Jones seriously considered re-enlisting in 1955, but after pondering the matter for several weeks decided to spend the remainder of his days in



a more relaxed and less regimented form of life.

Now 13 years of age, and in comparative time-scale well over the normal human span, the old gladiator has been living it up in

a manner somewhat becoming to his early service days. The photo shows the gallant chevalier peering around the corner of his liquor room, preparatory to spending another evening relaxing against the bar.



Flight Lieutenant B. Inrig and "friend" at Comox.

out of hand, 409 was glad to bid the vicious eight-month old kitten farewell as he emplaned for the 3000-mile trip to Bagotville. His arrival occasioned a special ceremony—christening, being presented with pilots' wings, granted an honorary commission, and officially installed as 432 Sqn. mascot. Following these celebrations, Flying Officer Canuck was guest of honour at a christening tea given by the squadron's Ladies Auxiliary—which he nonchalantly observed from the confines of a strong collar and chain.

Flying Officer Thomas Sylvestre Canuck

IN THE comparative quiet of his new home, Flying Officer T. S. Canuck still ponders the events which have taken place in his young life during the past few months—a series of journeys that have whisked him from the forests of Vancouver Island, via R.C.A.F. Stations Comox and Bagotville, to the Quebec zoo. Along the way, he made many new friends, particularly in No.'s 409 (Night Hawk) and 432 (Cougar) all-weather fighter squadrons.

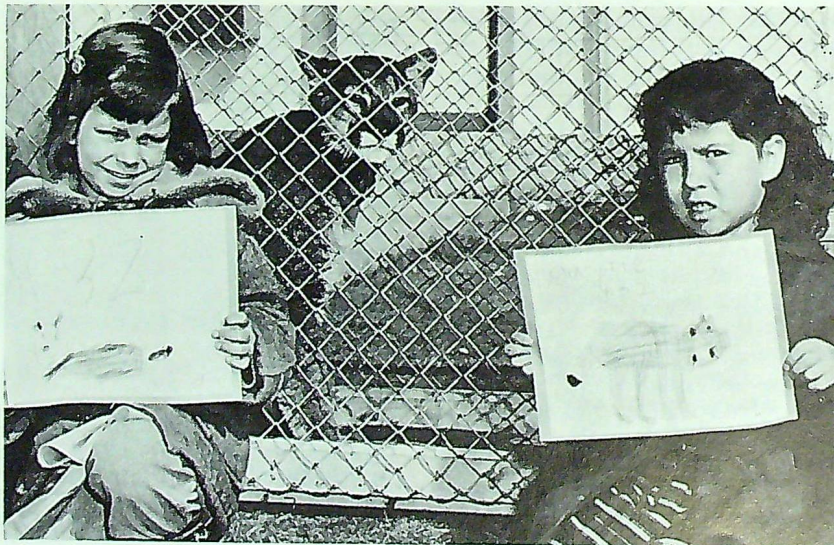
Early this year, the Comox-based members of 409 Sqn. decided to present their friendly rivals of 432 Sqn. at Bagotville with a real live mascot. Flight Lieutenant B. Inrig, a former member of the B.C. Fisheries Department, enlisted the help of professional cougar hunter Aubrey Hames, who eventually captured Flying Officer Canuck. Near the site of the famous Ripple Rock explosion, Mr. Hames located three cougar kittens and, after a three-hour chase, cornered one up a tree.

Spitting and snarling, the 70-pound mountain lion was finally lassoed, demobilized and delivered to R.C.A.F. Station Comox, where Flt. Lt. Inrig had the job of feeding and exercising him until arrangements for his shipment across the country to Bagotville were made. (Live chickens, apparently, are his favourite delicacy.)

Cost of cougar upkeep getting

A round of public appearances, including posing for his portrait by children at the two R.C.A.F. schools on the station, preceded his final journey to the Quebec zoo—to which his fellow-officers have bequeathed him.

They, meantime, are out looking for a live night hawk to present to the 409 gang who started this whole story.



At Bagotville, Flying Officer T. S. Canuck poses for Bonnie Kenkins and Colleen Allen.

HOW PARLIAMENT WORKS

PART FOUR

BY E. RUSSELL HOPKINS

THE COMMITTEE SYSTEM

IT REMAINS to consider the various stages through which bills, including "money bills", must pass before they become law. Since at some stage bills and resolutions preceding bills must be considered "in committee", it is necessary in the first place to discuss the committee system. It has already been mentioned that the substantial and largely quasi-judicial work of the Senate is accomplished through its several standing committees. However, because of its primary role in respect of financial legislation the committee system in the Commons is more complicated and deserving of special attention. Committees in the Commons are of three main kinds; standing committees, special committees and committees of the whole House. The standing committees, permanently provided for in the Standing Orders, are set up at the commencement of each session of Parliament: there are, for instance, standing committees on banking and commerce, external affairs, privileges and elections, public accounts, railways and miscellaneous private bills. They are restricted in their membership, which traditionally reflects in composition the membership in the House itself. In addition to the standing committees, special committees are often set up, by government motion, to consider and report upon particular bills or upon special subjects such as

atomic energy, social security and veterans' affairs.

Committees "of the whole House"—which include all the Members—form an integral and important part of the procedural system of the Commons (though the Senate seldom resolves itself into committee of the whole, relying almost exclusively on its standing committees for examination and report). There are three committees of the whole House in the Commons: the Committee of Supply, the Committee of Ways and Means and the Committee of the Whole. All of these have something in common and yet each has a separate purpose which will be discussed hereunder. In each case, a motion is moved by the appropriate Minister that the House "resolve itself" into the appropriate committee. When the motion carries, the Speaker leaves the chair and the Chairman of Committees takes over as presiding officer at the Table. The proceedings in any committee of the whole House are considerably less formal than the proceedings in the House itself and are designed to facilitate the informal discussion of bills and resolutions. In committee, any Member may speak any number of times, though for only thirty minutes at any one time, and there is ordinarily a constant exchange of comment from all sides of the House centring around the Minister who is sponsoring a bill or resolution or explaining the estimates of his department.



The Peace Tower.

The Committee of Supply

The importance of the Committee of Supply lies in the fact that it is the main instrument through which the House of Commons exercises control over the annual expenditures proposed by the Government. It is required to be set up in each session immediately on the conclusion of the debate on the Address.

Payment of the sums required to defray the expenses of the public service of Canada during each fiscal year, which commences 1 April annually, is authorized by an Appropriation Act or Acts. As "money" bills, their introduction must be preceded by resolutions considered in committee and, since their purpose is the appropriation of money to meet estimated expenditures, the particular resolutions concerned are in the form of "estimates". The estimates set forth specifically, and item by item, the sums required by each department of the public service for the

defrayment of its expenses during the next fiscal year. They are first drafted by the individual departments, and then subjected to a rigorous process of revision by a committee of the cabinet, the Treasury Board. When finally approved, they are printed in a "Blue Book" prepared by the Minister of Finance. However, before an appropriation bill may be introduced the estimates must first be approved by the Committee of Supply. The procedure is as follows.

On a Wednesday, Thursday or Friday the Government may call the order for "supply". On these days, the Speaker leaves the Chair "without question put" and the House is automatically resolved into Committee of Supply. However, on such occasions the Committee may consider the estimates of a department only if they have been "entered for consideration" on a previous Monday or Tuesday following a motion by the Minister of Finance that "the House resolve itself into Committee of Supply". As mentioned, each item of the estimates is technically a resolution and the estimates of a department are not considered as having been "entered for consideration" until the Leader of the House, in the Committee of Supply, has called the first or "general administration" item of the estimates of that department. This is tantamount to moving that the item be carried.

Prior to 1955, the estimates of one department only could be "entered for consideration" following a motion to go into supply (in the absence of an inter-party agreement). This meant that a separate motion to go into supply had to be moved in respect of each of more than twenty departments. Moreover, one amendment and one sub-amendment could be moved to each such motion. Not only were all of these fully debatable, but any Member was entitled to raise any grievance without

regard to the usual requirement of relevancy. This practice of course dates from the time when the House of Commons first established its right to claim the redress of its grievances before granting supply to the Crown and is still regarded as a useful restraint upon the Government. However, it imposed formidable impediments to the early and orderly consideration of the details of the estimates on Wednesdays, Thursdays and Fridays. Almost invariably, on each motion, the opposition parties have moved an amendment and a sub-amendment voicing want of confidence in the Government and often many days of debate were consumed before the motion to go into supply came to a vote.

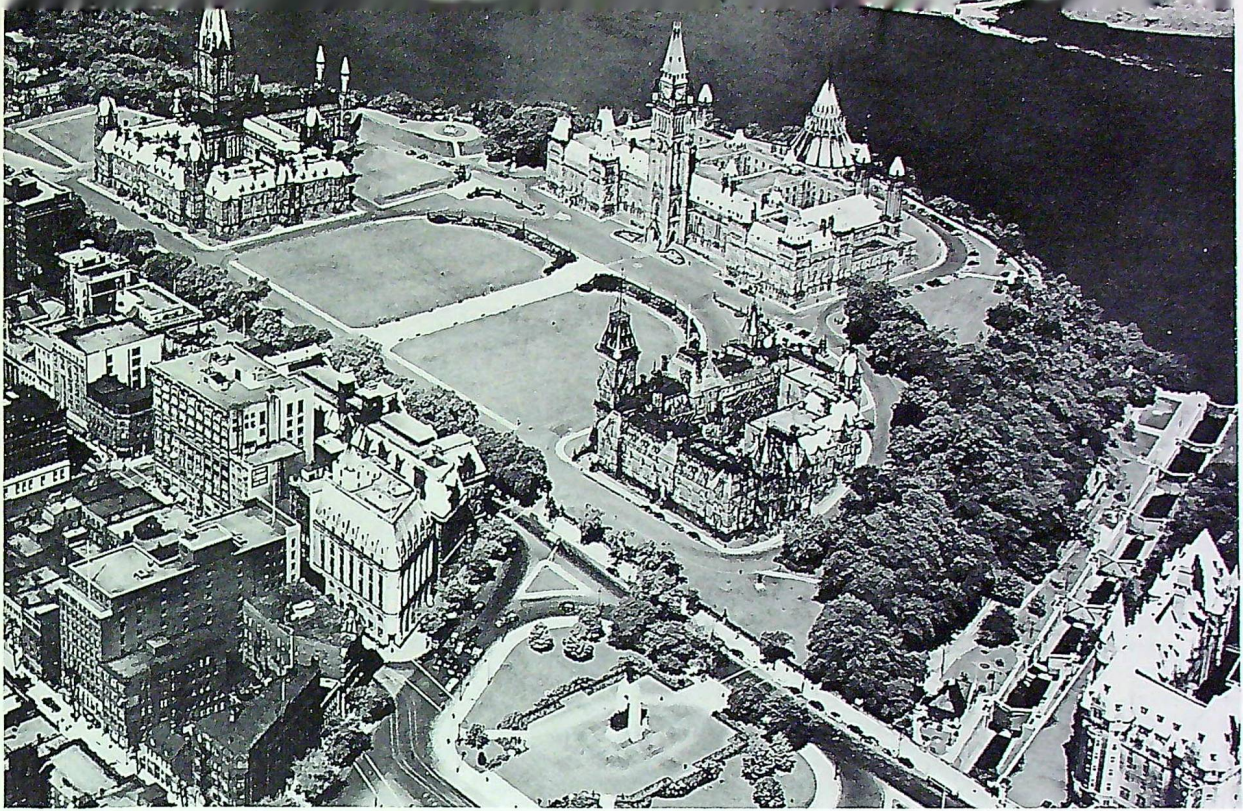
Certain reforms designed to expedite and regularize the process of "going into supply" were introduced in 1955. It was then formally provided that there need be no more than six motions to go into supply: that only two days of debate would be permitted on any such motion (including any amendment and sub-amendment thereto); and that the estimates of six departments, to be named by the Government, could be "entered for consideration" when the first of the six motions is carried, the estimates of three departments on each of the next four occasions, and the estimates of any remaining departments on the final occasion.

These reforms were introduced in an effort to improve the method of dealing with the estimates which had often been severely criticized because of the perennial situation in which, on the eve of the prorogation of a session, millions of dollars were voted in undue haste and without adequate consideration. The recent reforms afforded some relief, but there still remain formidable obstacles to the regular and orderly consideration of the items of the estimates, which is the justification and *raison d'être* of the Committee of Supply.

There are no rules limiting debate on the estimates in the Committee of Supply itself. As in other committees of the whole House, debate is unrestricted and any Member may speak any number of times on any item, and may move amendments to reduce, though not to increase, the amount of each estimate. In the absence of closure, the estimates of any department could be held up indefinitely and the consideration of the estimates of other departments neglected. The problem is essentially one of apportioning time and is accentuated by a practice which has arisen since the second World War whereby, as an exception to the rule that discussions in committee must be strictly relevant to the item under consideration, a general discussion of the affairs of a department is permitted on the first item of that department's estimates. This general discussion of course further delays consideration of the details of the estimates. It seems evident that if there is to be a substantial improvement in future, some provision will have to be made for the better apportionment of the time of the Committee of Supply, either by informal inter-party arrangement or by a formal revision of the rules.

Ways and Means

In addition to estimating the expenditures required for the public service in each fiscal year, the Government must obviously devise ways and means of raising the necessary moneys through taxes, customs and excise duties and other imposts and must prepare, annually, amendments to the relevant statutes. The amending bills are of course "money bills" whose introduction must be preceded by resolutions considered in committee—in this case in the Committee of Ways and Means. Accordingly, in March or April of each year, the Minister of Finance moves "that



Parliament Hill, showing Confederation Square in the foreground and the Ottawa River in the background.

the House resolve itself into Committee of Ways and Means” to consider the so-called “budget resolutions” which are anticipatory of the bills the Government intends to introduce. To this motion, one amendment and one sub-amendment may be moved.

The motion of the Minister of Finance precipitates the traditional “budget debate” and provides him with an opportunity to make a full statement on economic and financial conditions in the previous fiscal year, to review the Government’s financial operations and to indicate the changes in financial policy deemed necessary in the light of estimated expenditures, potential revenues and expected economic trends. His speech also acquaints parliament and the public with the Government’s financial program, including any anticipated surplus or deficit, and provides Members with an opportunity to raise any financial, economic or other issue

of concern to any part of Canada. During the course of the debate, the parties in opposition traditionally move an amendment and a sub-amendment voicing want of confidence in the Government’s financial policies.

Since the policies declared by the Minister will affect the economic well-being of every person in Canada, this traditional debate is usually one of the most interesting debates in any session. However, prior to 1955, there was no limitation on the length of the debate, which often consumed a month of parliamentary time late in a session when other urgent matters were also in need of attention. In that year, in an effort to apportion its time, the House imposed an overall limit of eight days. Under the new rules, the budget debate concludes on the eighth day after its commencement, provision being made for the disposal of any amendment or sub-amendment at

stated intervals prior to the eighth day. Accordingly, there is now an over-all limitation of time on each of the so-called traditional debates —on the motion for an Address in Reply, on the six motions to go into Committee of Supply and on the motion to go into Committee of Ways and Means to consider the budget resolutions. Needless to say, once the budget resolutions have been approved in Committee, the bills based thereon are introduced and dealt with in the same way as any other public bills.

Procedure on Public Bills

It remains to consider the stages through which public bills must pass. As mentioned, a special preliminary procedure is necessary in respect of “money bills”. In this context, a “money bill” is one which in whole or in part appropriates any part of the public revenue or imposes any tax or impost. The special procedures

provided for the appropriation bills based on the estimates, and for the taxing measures based on the budget resolutions, have already been described. The procedure in respect of other money bills is similar except that the preliminary resolutions are referred to the Committee of the Whole and not to the Committee of Supply or Ways and Means.

Sections 53 and 54 of the British North America Act provide in effect that money bills must originate in the Commons and that their purpose must be recommended to the House by the Governor General—in other words they must be government bills introduced by a Minister of the Crown. In addition, the Standing Orders of the House require that a resolution setting forth the scope and purpose of a money bill must, after notice, be referred to and approved by the Committee of the Whole before the bill is introduced in the House.

It may be helpful to consider, chronologically, the various stages through which the resolution and the bill must pass before the latter becomes an Act of Parliament.

(1) The resolution is approved by the Government, initialled by the Prime Minister and transmitted to the Clerk of the House, who has it placed in an appendix to Votes and Proceedings (a formal record of what is done in the House each day) where it stands as a notice for forty-eight hours, after which it will appear on the Order Paper.

(2) When the resolution is on the Order Paper, the Speaker announces that its subject-matter has been recommended to the House by the Governor General and the Minister then moves that the House resolve itself into Committee of the Whole “at the next sitting” to consider the resolution. “The next sitting” does not necessarily mean the next calendar day: it means the next Government day

on which the Leader of the House calls the appropriate order. The motion is not debatable, but the Speaker must put the question.

(3) When the Leader of the House on a subsequent day calls the order “House in Committee of the Whole on the resolution”, the Speaker leaves the Chair. The question must be put and a vote taken if required, but the Standing Orders allow no debate or amendment at this stage.

(4) The committee discusses the resolution and (if such is the case) reports to the House that it has agreed to the resolution.

(5) In the House, the Minister moves that the resolution be concurred in. This motion is debatable. When the House adopts the motion, the resolution has the approval of the House and the way is clear for the introduction of a bill based on the resolution. The procedure henceforward is the same for all public bills.

(6) The Minister moves for leave to introduce a bill based on the resolution. This motion is not debatable, but the question must be put.

(7) If leave is granted, the Minister immediately moves that the bill be read a first time. There is no debate at this stage, but once the motion carries, the bill is printed and distributed so that Members may acquaint themselves with its provisions prior to the debate on second reading. The bill is automatically ordered for second reading “at the next sitting”. The order will appear on the Order Paper under Government Orders as follows: “Second Reading of Bill No. 7”. Here again, “the next sitting” means any subsequent Government Day on which the Leader of the House calls the appropriate order.

(8) On a subsequent day, the Minister moves that the bill be read a second time. On this motion, the principle of the bill, though not its

specific provisions, is fully debatable. Moreover, on such a motion, amendments may be moved in opposition to the principle of the bill, though they must be relevant and may not introduce an entirely different proposal or subject-matter. It is also in order to move in amendment that the bill be not read a second time, but that its subject-matter be referred to a committee of the House, or that it be “not now read a second time but on a day six months’ hence” (the so-called “six months’ hoist”). The adoption of any such motion would defeat the bill, and often when the parties in opposition contest the principle of a bill, a series of amendments is moved. However, once the motion for second reading is carried, the principle of the bill has been approved by the House and thenceforward discussion is limited to its specific provisions.

(9) Following second reading, the Minister moves that the House resolve itself into Committee of the Whole to consider the terms of the bill. This motion is not debatable. The bill is then considered clause by clause in committee. Discussion must strictly relate to the clause under consideration, except that on the first clause a general discussion of the provisions of the bill as a whole (though not on the principle thereof) is traditionally permitted. Each clause of the bill, its title and the preamble (if any) must be separately carried. [Sometimes, on special motion, a bill is referred to a special or standing committee prior to being considered in Committee of the Whole.]

(10) Amendments are often moved and carried in committee, though any money bill must conform to the resolution on which it was based and no amendment which would increase any tax or appropriation may be moved without the recommendation of the Governor General. If the bill is reported with amendments, these must be concurred in by the

House on the motion of the Minister.

(11) If there are no amendments, the committee's report is received by the House and the Minister immediately moves that the bill be read a third time (though if there are amendments, the motion for third reading is usually withheld until a future day). This motion is debatable and the same kind of amendments which may be moved on second reading may be moved except that they must now relate to the actual provisions of the bill and not to its principle or to anything extraneous to the bill. Thus, "the six months' hoist" may be moved or it may be moved that the bill be not now read the third time, but that it be referred back to the Committee of the Whole for the purpose of reconsidering it in any particular.

(12) Following third reading, the Minister moves that "the bill do pass and the title be as on the Order Paper". This motion is not debatable, but the question must be put.

(13) The bill, as passed by the House of Commons, is transmitted to the Senate. As in the Commons, each bill receives three readings in the Senate. Its clauses are not normally considered in Committee of the Whole. However, following second reading, important bills are usually referred to one of the Senate's standing committees for examination and report.

(14) The Governor General, in the Queen's name, gives the Royal Assent to the bill. The bill comes

into force on the day on which it receives the Royal Assent, unless some other day, or mode of coming into force, is specified in the body of the bill.

Procedure on Private Bills

At each session, about 400 private bills are processed by the Parliament of Canada, the great bulk of them being bills of divorce to dissolve on the ground of adultery the marriages of persons domiciled in Newfoundland or Quebec (where there are no divorce courts). Included are bills to incorporate banks, railway companies, pipe line companies, insurance companies, trust companies, small loan companies and charitable and religious bodies. There are divers reasons why private Acts of Parliament are sought. Some kinds of companies, for example extra-provincial pipe line companies, are required by law to be incorporated by private Act. In addition, the finality and prestige of an Act of Parliament are often desired, especially by charitable and religious bodies seeking incorporation. Moreover, the procurement of an Act of Parliament is often the only way in which a particular problem can be resolved; as in the case of the divorce of persons domiciled in Newfoundland or Quebec. Since the enactment of the Companies Act, which provides for the federal incorporation of companies otherwise than by Act of Parliament, there has been a substantial reduction in the number of private Acts passed in each session. Nevertheless, there are

still between thirty and forty private bills (in addition to the divorce bills) introduced annually.

In practice, all private bills commence with a petition filed with the Clerk of the Senate and also with the Clerk of the House. Certain fees are payable by the petitioner on filing a petition and other fees following the second reading of the bill. [A private bill may, as mentioned above, originate in the Commons, but if so, much higher fees are payable. Accordingly, in practice, private bills originate in the Senate.] Petitions for private bills must be filed within the first six weeks of each session (though the Senate sometimes extends the time), must be printed in the Canada Gazette, and any persons who might be affected by the passage of the proposed bill must be notified directly or by advertisement. Elaborate precautions are taken to ensure that all persons who might be affected by the bill are notified and given an opportunity to support or oppose it. For example, in the case of petitions for bills of divorce not only the respondent but any person or persons with whom it is alleged that a matrimonial offence has been committed must be notified.

The procedure on private bills is roughly comparable to the procedure on public bills, but there are some important differences. Each private bill must be sponsored by a private Member, which means that the promoters of a private bill must solicit and obtain the consent of a Senator to sponsor the bill in the

The real art of conversation is not only to say the right thing in the right place, but to leave unsaid the wrong thing at the tempting moment.

Senate and a Member to do so in the Commons. Each private bill is given three readings in the Senate, but following second reading it is referred to the appropriate standing committee for examination and report. In committee, the petitioners and their advisers are heard in support of the bill and any opponents are heard in opposition. The committee carefully considers whether the facts are as alleged and whether a good case has been made out for the passage of the bill, and in particular whether

- (a) the bill is within the competence of Parliament to enact,
- (b) any other private interests will be adversely and unfairly affected, and
- (c) the bill is in accordance with sound public policy.

Following the hearing, the committee reports the bill to the Senate, with or without amendments. If there are no amendments, the bill is usually given third reading forthwith, but if there are amendments, third reading is usually deferred for forty-eight hours. Following third reading, the bill is referred to the House of Commons.

In the Commons, the bill is also given three readings and considered clause by clause in Committee of the Whole. Moreover, following second reading the bill is immediately referred to the Standing Committee on Miscellaneous Private Bills (or some other appropriate standing committee) for examination and report prior to consideration in Committee of the Whole. A public bill is based primarily on considerations of public policy. Accordingly, the House in agreeing to its second reading accepts and affirms those considerations. However, a private bill is principally founded on allegations of fact and in agreeing to second reading the House affirms the principle of the bill conditionally, subject to proof of the allegations before the standing committee. [Of course, if, notwithstanding the facts alleged, the principle of the bill is still objectionable, the House may not agree to second reading.]

In steering private bills through the Commons, the promoters usually procure the services of a "parliamentary agent" sanctioned by the Speaker. A "parliamentary agent" must be registered as such, pay a fee of twenty-five dollars for

each session and be actually employed in promoting or opposing a private bill or petition pending in Parliament during the session.

As in the case of public bills, a private bill comes into force on the day on which it receives the Royal Assent, unless some other day, or mode of coming into force, is specified in the body of the bill.

Conclusion

The foregoing cannot serve as more than an introduction to a study of the processes of the Parliament of Canada. If such a study is to be further pursued, the reader will have to examine the relevant statutes of the Canadian and Imperial Parliaments, the Debates, Journals and Standing Orders of the two Houses and of their counterparts in the United Kingdom, as well as the writings of such constitutional and parliamentary authorities as Bourinot, Beauchesne, Campion, May and Dawson. Moreover, since these parliamentary processes are dynamic, the pursuit will have to be as continuous as it is unrelenting.

(The End)

Mess Dinner in Germany

R.C.A.F. Corporals and Airmen stationed at N.A.T.O.'s 4th Allied Tactical Air Force Headquarters

in Trier, Germany, held their first mess dinner recently. The successful event took place in the

"Weisshaus", a hilltop restaurant overlooking the city and the Mosel River Valley.



At the head table, left to right: Corporal W. D. Doucette, social club vice-president; Leading Aircraftman B. Fraser, executive member; Squadron Leader H. Vincent, D.F.C., O.C. support unit; Wing Commander D. L. Ramsay, commanding officer; guest speaker Group Captain G. G. Diamond, A.F.C., deputy chief of staff (operations), 4th A.T.A.F.; Wing Cdr. E. S. Light, 1 Air Div. chaplain; Warrant Officer 1 H. Harley, senior R.C.A.F. N.C.O. at Trier; Cpl. P. H. MacKay, executive member; Cpl. F. C. Pyke, club president.



L.A.C. Jekyll and A/Nothin' Hyde

(Reprinted by courtesy of the U.S.A.F.'s "Aircraft Accident and Maintenance Review", this stirring tale is equally applicable to the R.C.A.F. Only the names and ranks have been changed to protect the innocent.—Editor.)

THEY were both average.

The two of them, Jekyll and Hyde, were average. No more, no less. Jekyll, an average, alert, intelligent and conscientious airman. An AE/Tech. Hyde, an average—well, any harsh adjective you care to apply. His AFTC said "AE/Tech." But what's in a name? A dolt by any other name will louse up the detail as well.

"The moving finger writes; and having writ,
Moves on: nor all your piety nor wit,
Shall lure it back to cancel half a line,
Nor all your tears wash out a word of it."

Omar's lines could very well apply to an aircraft accident. To a situation that involves people like Jekyll and Hyde. For Jekyll was always good and Hyde was never good. And when bad is mixed with good, accidents will sometimes happen. But neither could change. They were as they were, long before they ever enlisted in the R.C.A.F. The Air Force is a better organization because of men like Jekyll. It protects itself against the Hydys with supervisors.

Jekyll and Hyde had a supervisor. A Sergeant with years of experience. Of course the Sergeant had a supervisor too. And the Sergeant's supervisor had a supervisor, *ad infinitum*. But we concern ourselves here with the grass roots or "skinned knuckle" school of

supervision. So back to the flight line.

Jekyll regarded the Sergeant as he really was. As his superior. Superior not only as regards age and rank, but, above all, his superior in knowledge as it concerned the job. In other words Jekyll did his work to the best of his ability. When a problem beyond his experience arose, his supervisor was there to instruct and assist. Jekyll and the Sergeant got along as a supervisor and a subordinate should. They worked well together and there was mutual respect. Jekyll regarded the Sergeant as he really was: An associate of superior knowledge and experience who was there to see that the job was done right.

* * *

Now a good supervisor must be all things to all men. So Hyde also regarded the Sergeant as he really was. Hyde regarded the Sergeant as a monster. As a fiend from the pit whose mission was to hound and chew and rend and rent and persecute and make life in general and life on the job, in particular, as miserable as possible for good old Number One.

"That heel of a Sergeant my superior? Negative! So he's got three stripes and top trade group-
ing. So he knows more about a CF-100 than an Avro Tech Rep. So what? If it makes him happy,

let him chew! I've been chewed by experts. That's the story of my life. One long chewin'. Up hill and down dale, fair weather or foul. You name it and I'll recite chapter and verse. I know more about chewing than Mr. Wrigley."

You are aware that Hyde regards his superior with a jaundiced eye. Tit for tat, friend. The Sergeant can out-jaundice Hyde any day. He's an expert in the jaundiced eye department. That's why he's a supervisor. Now a good supervisor must be all things to all men. Hyde needs a monster? He's got a monster.

Hyde's definition of a supervisor was simple. A person with superior eyesight, he insisted. Webster says a supervisor is an overseer or superintendent. But Hyde's description is apt, too. Who else but a person with super vision could spot the places of concealment that Hyde would frequent? For when Hyde hid, he knew how to hide. Protective colouration and all that. He would festoon himself with cotter pins and curl up in some out-of-the-way parts bin. Or make like an instrument panel and disappear into a vacant cockpit. Or . . . but why continue? You get the idea. The point is, it never worked. Hyde's nemesis, the supervisor with the super-vision, would ferret him out with unerring skill.

* * *

The days slipped by and the weeks. And the Sergeant became more monstrous and Hyde's outlook became exceedingly bitter. He wasn't much use to anything.

The Suggestion Box

Not to himself. Not to his associates. And certainly not to the Air Force. Virtue may be its own reward, but most people would rather be promoted. If the Air Force had no use for Hyde, his colleague, Jekyll, could boast of the contrary. Jekyll advanced while Hyde hid.

Inevitably it happened. Or to be precise, it almost happened. Hyde very nearly demolished a chunk of the inventory, all by himself. No need for details, and besides it only nearly happened. The Sergeant knew his man and, like any good supervisor, had eyes in the back of his head. He sensed the deed and believed his senses. When Hyde's aircraft finally did take off, the L 14 was signed off by Jekyll. L.A.C. Jekyll that is.

Rank has its privileges and one of them is standing at the head of the line. But this time, first is last and last was first.

We've heard about supervision from the viewpoint of those who are supervised. What does it mean to the supervisor himself? Is supervision merely a matter of encouraging the Jekylls and keeping on guard against the Hydes? Of merely seeing to it that the job is done correctly and safely and on time? That's a big part of it, of course, but it goes beyond that.

A supervisor is a man with a trust. Through his efforts and the efforts of his subordinates on the line, an aircraft is ready to fly or it isn't. The Air Force can perform its mission or it can't. The Nation is protected, or it is not.

"Gentlemen may cry 'Peace' but there is no peace..." And the supervisor knows it and is ready. And the Nation is ready. A supervisor is certainly a man with a trust.

The Air Force is a better organization because of men like Jekyll. It protects itself against the Hydes—with supervisors.

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

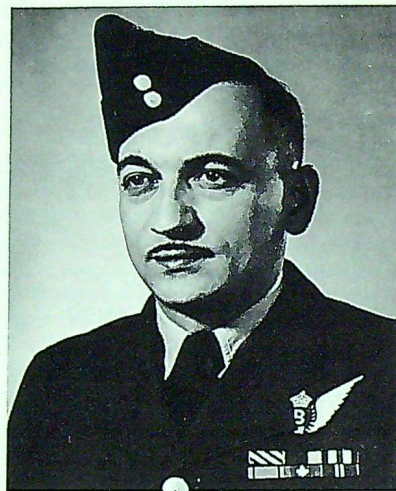
W.O.1 A. G. Swartz, of A.M.C.H.Q., devised an improved storage for radio crystals and also a rapid test method for V.H.F. radio communications equipment. (In the Jan.-Feb. issue, "The Roundel" noted W.O.1 Swartz had developed a V.H.F. bail-out warning signal. He has, therefore, received three cash awards for original suggestions within the past few months.)



Flt. Lt. A. S. Short, of R.C.A.F. Station Cold Lake, suggested improvements for displaying weather charts and entering forecasts on the weather briefing board.



Sgt. A. Stadnyk, of R.C.A.F. Station Cold Lake, has had two suggestions adopted. He incorporated a locking device in the D.C. Comparator zero adjust control for the improvement of checking Flight Data Computers. He also put forward a modification which prevents overheating of Klystron tables in R.F. test sets.



Cpl. D. V. Hutchings, of 6 R.D. Trenton, suggested an improvement of machine and operation instructions of the Greer hydraulic test stand.



Pin-Points in the Past

TWENTY years have slipped by since these pictures were taken. They depict life at Camp Shilo, Man., during the summer training programme of No. 112 (Army Co-operation) Squadron of the R.C.A.F. Auxiliary, and provide a striking contrast to the conditions under which present day Auxiliary units operate at summer camps.

We are indebted to Squadron Leader R. E. Brisco, retired, for the photos which may ring a nostalgic bell from pre-war summer campers. The aircraft used were *Avro Tutors*. Obviously, these were the days before quonset huts and prefabbed steelox barracks, as the picture in the extreme right hand corner illustrates!



The camp — after a big wind blew.



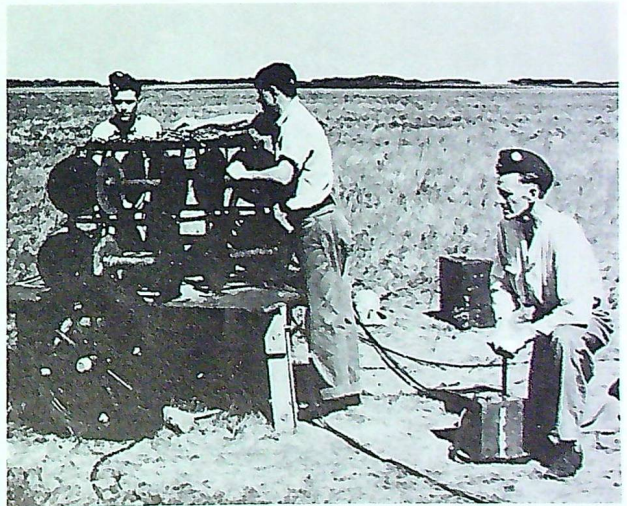
Aerial gunnery practice.



Bombing troops with bags of flour.

Group Capt. G. O. Johnson (Air Marshal, ret.), officer commanding Western Air Command, and Flt. Lt. E. H. Evans (Group Capt.), O.C. permanent force detachment.

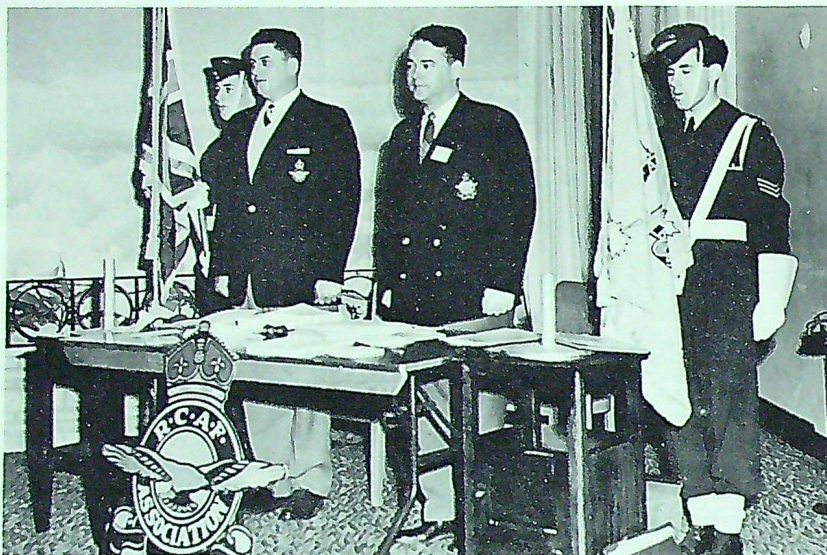
Exploding puff-targets for army co-operation target practice.



R.C.A.F. Association



(This section of "The Roundel" is prepared by R.C.A.F. Association Headquarters, 424 Metcalfe St., Ottawa, Ont.)



Ontario Group Convention opening ceremony at North Bay, left to right: Cadet Flt. Sgt. R. McLeod, Vice-President R. Swartz (404 Wing), President G. Penfold (437 Wing), Cadet Sgt. P. Cutsey.

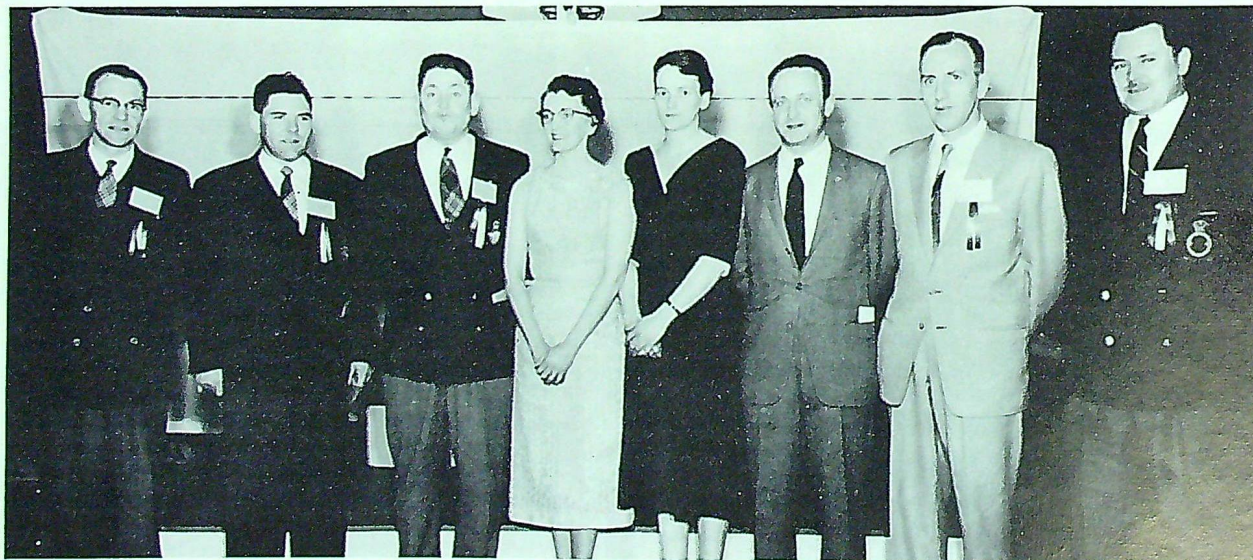
THE COMING YEAR

Plans and programmes for the 1958-59 year have been considered at all levels in the Association during the past few months. The Wings have, in most cases, held their annual elections; the Groups have been busy with annual conventions terminating in the election of new officers, as the accompanying photos illustrate; while the National Committees have been preparing reports and recommendations.

Culmination of all this activity will be reached in Edmonton, during the first week in June when Wing and Group delegates meet for the Association's Eighth National Convention.

The hosts, No. 700 (Edmonton) Wing, have adopted the slogan "National is in the West—Let's make it the best". Through their enthusiastic efforts and with the growing strength of the Association, this could well be the case.

Maritime Group Executive Council at Sydney, N.S., left to right: J. P. Magee, P. F. Connell, President H. Roberts, Mrs. A. Gould, Miss F. Day, Vice-Presidents A. Tunis (N.B.), S. MacLeod (P.E.I.), M. Byrne (Nfld.). Missing: Vice-President A. Wigglesworth (N.S.).



HONORARY CHAPLAIN APPOINTED

The Rt. Rev. I. A. Norris, D.D., Bishop of Brandon, has accepted the appointment of Honorary Chaplain (Protestant) of the R.C.A.F. Association. The announcement was made in Ottawa by the National President, Air Vice-Marshal F. G. Wait.

Bishop Norris began his service with the R.C.A.F. in January 1941 as a Chaplain at No. 2 Manning Depot, Brandon. A year later he was transferred to 1 Manning Depot, Toronto, and shortly thereafter went overseas. He was on the staff of 6 Group Headquarters where he was Senior District Chaplain until his return to Canada in October 1944. For the past several years he has been a member of the Supplementary Reserve of the R.C.A.F. and has held the appointment of Military Bishop (Anglican) since 1953.

TEST PILOT AT OSHAWA

The complexity of problems encountered in the flying of supersonic aircraft was outlined in interesting fashion to members of 420 (Oshawa) Wing at their annual mess dinner in March. The speaker was W. J. Potocki, a Polish Air Force veteran who is senior assistant experimental test pilot with A. V. Roe, (Canada), Limited. Since coming to Canada, Mr. Potocki has worked on development of the CF 100 and the CF 105 which made its initial flight a few days after the Oshawa meeting. Early test flights have been flown by Avro's chief test pilot, Jan Zurakowski.

Mr. Potocki described some of the flying characteristics of delta-wing aircraft and commented on some of the ground-test procedures for the Arrow prior to beginning the exacting flight tests.



At the Quebec Group Convention in Montreal, left to right: M. Simon, President L. E. Fulton, Miss M. Pineo, Mrs. Bradshaw, Air Cdre. D. A. R. Bradshaw, Mrs. Ault, G. Ault, J. Ritchie, Vice-President F. G. Michalak, G. Ellis.



No. 404 (Kitchener-Waterloo) Wing 1958-59 executive, front row (l. to r.): D. Melchin, J. Roe, S. Elnaugh (second term president), R. Mills, S. Adamson; centre row (l. to r.): J. Playford, E. Harris, K. Ruppel, E. Dolan, M. Yule; back row (l. to r.): D. Gillies, R. Swartz, R. Bast.



No. 602 (Saskatoon) Wing 1958-59 executive, front row (l. to r.): D. Trapp (past president), F. Jack, C. Glauser, L. Hoskins (president), D. Hyde, R. Coulter; back row (l. to r.): L. Holmes, A. Atwood, M. Graham, E. Docking, Wing Cdr. E. B. Van Slyck (C.O. 23 Wing), Flt. Lt. W. G. Chapman.



No. 80 Kitchener Waterloo Air Cadet Squadron, sponsored by 404 K-W Wing of the R.C.A.F. Association, held a successful father and son banquet last month. Guest speaker was Mr. J. B. Smith, Ontario Chairman of the Air Cadet League of Canada.

Impressive Driving Record in Europe

R.C.A.F. airmen of the International Support Unit Motor Pool at the headquarters of Fourth Allied Tactical Air Force in Trier, Germany, have logged an impressive accident-free driving record. In the course of fourteen months (as of 1 April 1958) the Canadians,

who work with American and French airmen at the international N.A.T.O. unit, have collectively, driven their military vehicles more than 25,000 miles per month in three countries—France, Germany and Luxembourg.

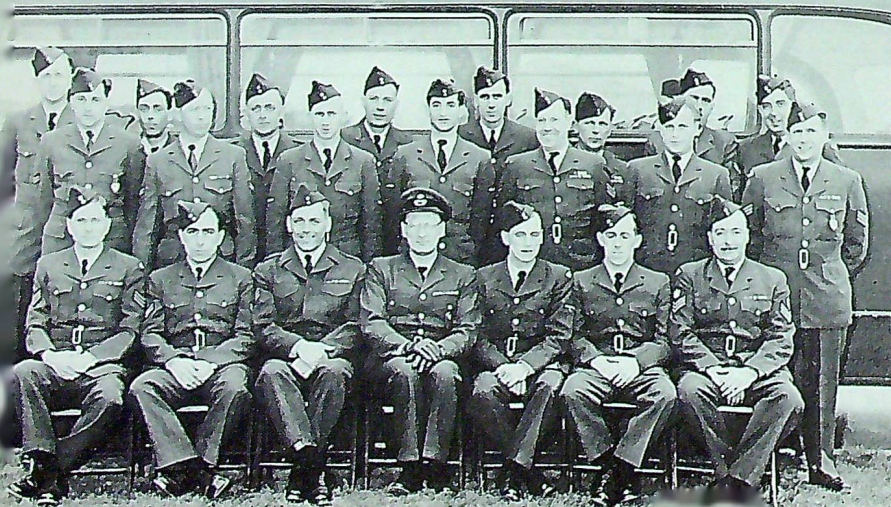
In addition, they chalked up another 18,000 miles of accident-free driving in two ten-day periods of manoeuvres. They operate about 85 vehicles including staff cars, trucks up to five tons, semi-trailers up to 16 tons and passenger busses.

*Front row (l. to r.): Sgt. (now Flt. Sgt.) W. T. Bull, Cpl. H. R. Cleveland, Flt. Sgt. D. Easton, F/O J. A. Bancroft (section o/c), L.A.C. R. E. Lang, L.A.C. B. S. Fraser, Flt. Sgt. J. T. Ellison (Operations NCO).
Second row: Cpl. H. D. Dessario, Cpl. G. E. Organ, L.A.C. (now Cpl.) G. S. Crouch, L.A.C. J. P. Gauthier, Sgt. A. E. Bernard, L.A.C. G. A. Palser, Sgt. R. P. Burke.
Third row: Cpl. K. Wiebe, L.A.C. J. A. Deschambault, L.A.C. J. W. R. Roberge, Cpl. J. H. Gibbs, Cpl. A. S. Teal, L.A.C. A. Kuchma, Cpl. R. E. Moreau, Cpl. A. W. Smith.*

European Sports Note

The R.C.A.F. Flyers hockey team of No. 3 Wing at Zweibrucken, Germany, has won the Peter Cunningham Memorial Trophy for the 1957-58 season. Flyers posted 32 wins, four ties and six losses in winning the award—the best record in four years of European competition.

During the past season, the Flyers played national teams from Sweden, Holland, Switzerland, France, Italy, Scotland and Germany. They also played two games against the world-champion Whitby Dunlops, helping that team become familiar with European rules before entering the world tournament at Oslo, Norway.



BLOOD TRANSFUSION SERVICE

FREE blood transfusions for service personnel and their dependents are available in practically every hospital in Canada as a result of the generous blood donations made by members of the armed forces to the Red Cross Blood Transfusion Service.

Arranged through the Canadian Red Cross Society, these free transfusions are given in every hospital which will accept Red Cross blood. Practically all hospitals in Canada will accept Red Cross blood as replacement or for use immediately.

Reciprocal arrangements for blood replacements are also in effect between the American Red Cross and the Canadian Society to provide free blood transfusions to servicemen and their dependents. Servicemen or their dependents requiring blood while in the United States should communicate with the Headquarters of the Canadian Red Cross Blood Transfusion Service in Toronto and usually a replacement can be arranged free of charge.

National Headquarters of the Canadian Red Cross Blood Transfusion Service is located at 95 Wellesley Street, Toronto. In each case of a serviceman or his dependents requiring a transfusion, Headquarters must be notified by the serviceman's unit S.M.O.

In hospitals which will not accept Red Cross blood, dependents of servicemen are required to pay the full cost of the blood transfusion service. Regarding servicemen, the hospital will include the cost of the transfusion on the patients' accounts which will be paid by the Department of National Defence.

Over the years, members of the armed services have been a leading source for the supply of blood to the Red Cross. It is in appreciation of these contributions that the Red Cross has arranged for the free blood transfusions. Servicemen are urged to continue their practice of supplying blood to the Red Cross when the occasion arises.



C.G.S. Visits Rivers

Lieutenant General H. D. Graham, C.B.E., D.S.O., Chief of the General Staff, chats with Corporal J. B. Lake, during his inspection of a tri-service guard at C.J.A.T.C., Rivers, Man. The C.G.S. recently toured Prairie Command establishments.

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

Royal Dinner on 40th Anniversary

To mark the 40th anniversary of the Royal Air Force, Her Majesty the Queen and other members of the Royal Family attended the birthday dinner held in the officers' mess at Bentley Priory, Stanmore, Middlesex, the Headquarters of Fighter Command.



Left to right: H.R.H. Princess Margaret; Marshal of the R.A.F. Lord Newall; H.R.H. Prince Philip; the Rt. Hon. George Ward, Secretary of State for Air; H.M. the Queen; Marshal of the R.A.F. Sir Dermot Boyle, Chief of Air Staff; H.M. the Queen Mother; and Marshal of the R.A.F. Sir John Salmond.



A Better Way To Run Your Job

Reprinted from "Factory Management and Maintenance", Nov. 1955.

(The following article is an adaptation of a chapter of Auren Uris' book, "Developing Your Executive Skills".* It applies no less to the Service executive than to his civilian counterpart.—Editor.)

HERE'S A PICTURE of you at work: No matter how good an executive you are, your responsibilities will always be greater than your capacity to carry them out.

That's not a criticism. It's an accepted fact. No one expects the company president personally to produce, package, and sell his product. No one, that is, except an occasional overburdened company president himself.

The encircled man above shows the situation graphically.

Outer circle represents the limit of your responsibility; inner circle, the boundary of your capacity. White area represents work you must delegate to others—your secretary, assistants, subordinates.

Occasionally, you'll find a man who refuses to accept this simple fact of executive life. He won't delegate. He'll strive with all his might to push the inner ring outward in an attempt to make the two circles coincide. And he'll complain:

... "I have to be in three places at once."

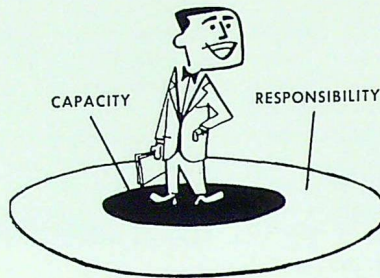
... "I don't dare take a day off."

... "I've got ulcers."

You'll also find executives who head for trouble in the opposite direction. They over-delegate. You've heard their cry:

"Why doesn't somebody tell me these things!"

The trick of delegation is to concentrate the most important matters within the circle of things you handle yourself. The less important details can be left to others while you give the weightier



problems the attention they deserve.

Delegation is a sanity-saver for several reasons. It gives you freedom of action, allows you to turn your attention to the areas of your job that need it most. It gives you more time to spend on important long-range planning.

How Delegation Builds a Team

But greater efficiency isn't the only motive for delegating a part of your job. Enlargement of a subordinate's job can produce three other important results for him.

Develop his sense of responsibility. You may want to make an assignment purely in the interest of increasing his ability and value to your activity as a whole.

Enlarge his general understanding. For instance, the best way to stress the importance of customer relations for one of your assistants might be to ask him to take over customers' complaints.

Increase his job satisfaction. Some subordinates thrive on varied assignments. Their interest in the job increases along with its responsibility. Delegation of small projects helps maintain their effectiveness as team members.

Used in these ways, delegation is another means of getting employee co-operation.

Properly handled, delegation guarantees that your overall job will remain in control and that the people working under you will keep moving in the right direction. But there are hazards.

You'd be wrong, for example, to assume that delegation is a one-shot affair. You can't delegate and forget. Chief reason is that your responsibilities change. New problems come up, make fresh demands on your time. You must be ready to review past delegations. You may have to make corresponding changes in tasks you've assigned to others.

When To Delegate

There are specific occasions in the course of your work when delegation is called for. Here, for example, are three instances:

When you're overburdened. It's a safe general rule that you simply can't handle all your responsibilities and still do a good job on the important ones.

In emergencies. Your first thought may be to let everything else drop. Yet the temporary suspension of even a routine matter may leave you with too big a backlog when the crisis is over.

In your absence. It might be a two-week vacation—or a series of conferences. But someone will have to provide minimum authority while you're gone.

As a starter, check up on the time you spend now in: (a) filling out routine reports, requisitions, etc., (b) making calculations and entries, (c) checking materials and supplies, (d) running your own errands, (e) engaging repeatedly in certain simple, mechanical tasks.

If you can reduce any of these tasks to a matter of final O.K., a signature, or dispatch of a messenger, consider handing them over to some subordinate.

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When Not To Delegate

There's another side to the delegation coin. Just as there are situations for which delegation is a solution, there are circumstances that make it inadvisable.

Delegation can cause trouble if you hand over the wrong duties. Some of your responsibilities are yours for keeps:

Power to discipline. It's the backbone of executive authority.

Responsibility for maintaining morale. You may call upon others to help carry out assignments that will improve morale. You cannot ask anybody else to maintain it.

Overall control. No matter how extensive the delegations, responsibility for final performance rests on your shoulders.

The hot potato. Don't ever make the mistake of passing one along just to take yourself off the spot.

You must retain some jobs. It's best to hang on to them, if . . .

They are too technical. Computing a floor load or projecting a cost estimate may be routine for you—but may be completely beyond a subordinate's skill.

The duty involves a trust or confidence. For instance, handling confidential cost data, dealing with the personal affairs of one or your people.

To keep things moving at full blast, you may find it necessary at times to delegate duties involving initiative, judgment, and decision. But consider these factors: (a) the duty to be delegated, (b) the ability of the person it will go to, (c) your ability to keep control—that is, to keep posted on progress.

How To Delegate

To get the most from delegation, tell your delegate . . .

The facts. Give him a clear picture of what he's to do, how to do it, and how much authority he

has with which to get it done. "You never told me" is the sorry epitaph on many a well-meant delegation.

The relative importance of the job. You know how important a job is because you see it in the setting of your whole responsibility. Your delegate can't make the necessary adjustments when he runs into trouble unless you have given him the complete background.

Whom he must deal with. If the assignment will bring him into contact with new people—for instance, men in other departments—introduce him in these places yourself. And be sure you let everybody involved know that they're to deal with your subordinate.

Why you picked him. In other words, prepare him psychologically. He may feel an excessive weight of responsibility. Lessen the tension by removing his sense of crisis. Show your confidence in his ability—that's why you picked him. Reassure him from time to time. And emphasize your availability whenever he's in doubt.

Get others to co-operate. Often the responsibility you assign does require a certain amount of authority over others. It may be minor, but even a clerk—trying to collect figures for a report you want to make—is likely to find people with their backs up, slow to co-operate.

To avoid conflict, follow these simple rules:

Define scope. Specify the exact nature of the duties and authority you are delegating. That's essential to keep your delegate on the right track. He may think you're handing over your job unless you tell him what's what.

Tell the others. Define clearly and publicly the limits of the authority you delegate. And take care of complaints about overstepped boundaries promptly.

Set harmony as a goal. Reserve the right to discipline. Don't let your delegate try to enforce co-op-

eration. Impress him with the importance of working harmoniously with other members of your team. Sell your people on the need for delegating the job.

Keep control. When you delegate, you don't really get rid of responsibility. You must still keep control. You'll need it in order to get co-ordination—to make sure the assigned task ties in with other objectives you have in view.

Your instructions must include a standard operating procedure—actual rules by which the subordinate can handle the situations that constantly recur. Examination of the results is the easiest kind of control you can exercise. You simply look at the completed performance.

It's a sort of "hands off, men working" policy, used where your assistant is highly capable or where the task is largely mechanical.

Follow-up. Often it isn't wise to wait until performance is complete. Errors may be too expensive, too hard to correct. You may want to check progress by inspecting, sampling, spot-checking. This is especially good where responsibility is new, large, or hard to handle.

Progress reports. For a variety of reasons—time element, location, etc.—you may prefer to have your subordinate report on how he is making out. Such a report may be frequent or infrequent, written or oral, in person or by telephone. You must decide what will be adequate under the circumstances involved in each case.

Checklist For Delegation

Occasionally you may find yourself too wound up in controls, too badly snarled in red tape. Ask yourself these questions:

Have I delegated duties I can more efficiently handle myself? When you have to follow up with constant observation, the game of delegation isn't worth the candle.

Are my delegations boom-eranging? When you pass a

EVOLUTION OF THE ARGUS

(continued from page 5)

sizable task to a worker, you may have to give him an understudy. Otherwise, when he's absent, the delegated duty comes home to roost.

Have I set up the right controls? Ability to make controls work effectively is the real test of executive leadership. Measure any questionable control by these tests:

Duplication. Is this control necessary? Do you get the same information elsewhere?

Reports. Are you getting long, rambling, time-consuming reports?

Delayed control. Are you relying on "control by result" in a delegation where damage can be done before you can act?

Frequency. Are you checking too often on unimportant matters? Facing a pile of progress reports you just can't read?

Be Prepared For Trouble

Delegation is no bed of roses. So prepare yourself for trouble. It'll range from the trouble that makes you shrug to the trouble that makes you shudder.

If a man buys an article for \$7.75 and sells it for \$9.25, does he gain or lose? You remember the school-boy's answer to this question: "He loses on the cents, but gains on the dollars." Frequently, with delegation, you face a similar situation. You lose on the cents (short-range) but the gain on the dollars (long-range) makes it worth while.

Face it. The man you delegate won't do the job the way you would. Even if you've given complete instructions, don't be surprised if many a delegated assignment ends up in unexpected fashion. If you're inclined to throw up your hands, don't. It's probably time for you to reassess your delegation procedures.

To have been first merely proves antiquity. To have become first proves merit.

and monitoring of test programmes; and, last but not least, the important functions of planning, expediting and corresponding.

TEST PROGRAMME

The R.C.A.F. maintains an efficient Quality Control organization and staff to ensure that individual parts and the complete aircraft are being fabricated to specification. However, the final "proof of the pudding" for the *Argus*, short of the operational record which will be established throughout its service life, is the Development Test Programme. This consists of eight phases covering the complete qualification of the aircraft and its systems, operating through the entire range of conditions for which the aircraft was designed or which it is likely to encounter. It will take approximately two years to complete, utilizing nine aircraft and the resources of Canadair, R.C.A.F. Central Experimental Establishment in three units and four bases, and Maritime Air Command. This programme will obtain the exact measure of worth of the weapons system which is being turned over to the operating squadron.

FUTURE DEVELOPMENT

The term "development" is a loose coverall which may describe everything from engineering changes to improve reliability, or minor installations to improve operational capability, through extensive conversions which change the Mark or role of the aircraft, to the complete design and preproduction of a new aircraft. This last stage represents the work between basic research and production, and does not apply to the *Argus* after the completion of the present test programme.

Development of the first category will be progressive from this time forward in a continuous effort to make the weapons system more reliable and more effective. The test programme already is indicating the necessity for such development, and also at least some of the ways that the improvements can be effected.

Development of the second category is periodic as the operational requirements substantiate the change, and as the state of the art permits it. Such development of the *Argus* also is under way, in that the Mark 2 will be turned over to Maritime squadrons within this year, to offer their crews improved search devices and even better range endurance and cruise speed. Although the specific next step in this category of development of the *Argus* may not be indicated now, undoubtedly it will come at some time in the future, either as possible increases in an enemy's capabilities or as our own requirements to do a better job force the issue.

CONCLUSION

When the *Argus* began its life in 1954 it was known by the non-revealing title of "CL-28", which is the Canadair project number. Subsequently, the R.C.A.F. gave it a development designation "CP-107". Then at the time of first flight early in 1957, the R.C.A.F. approved the name "*Argus*", after the Greek mythological giant with a hundred eyes. It is a most appropriate name for today's outstanding maritime patrol aircraft.

The most completely lost of all days is that on which one has not laughed. (Chamfort).

THE R.C.A.F. BENEVOLENT FUND

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

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

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

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

Edmond Cloutier

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