

# *The* ROUNDDEL

R.C.A.F.  
ASSOCIATION



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MARCH 1949

ROYAL CANADIAN AIR FORCE



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VOL. I, No. 5

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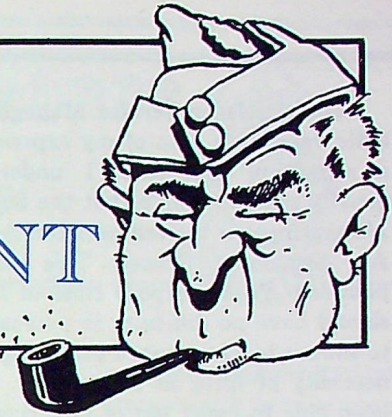
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# A WORD OF ENCOURAGEMENT



"THAT HORRIBLE MAN was here again," remarked Hildegard as I took my seat at the editorial desk after a three-day absence. "He came the morning you left."

My stenographer finds all men either horrible or simply terrific, according to whether she is currently under the influence of "True Confessions" or "Exciting Love." So I merely said "What horrible man?" and began to look through my mail.

"The short wide one," replied Hildegard. She shuddered. "He went all through your copy basket. I told him—"

But I was no longer listening. I was busy reading the first letter I'd opened.

\* \* \*

"Sir:

"I am shaken.

"Generalissimo Mao Tse-Tung is in full flight before the Red armies of Madam Chiang Kai Shek. The world's uranium piles are growing bigger as fast as our physicians can shovel. Millions of military bacteria are being taught to fly in the next war. In a word, as any well-informed student of current affairs can see, the RCAF is tottering.

"Yet despite all this, what did I find when I visited your office yesterday morning? I found nothing but a fat girl getting fatter every minute on pop and hot dogs. Between mouthfuls she advised me that you were on temporary duty in Montreal and that Tracy was away on leave.

"Now, there may (I repeat 'may') have been good reason for your presence in Montreal, and Tracy is obviously entitled to his leave. But that

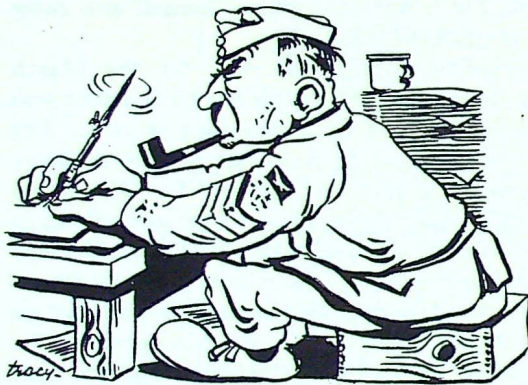
still does not explain why 'The Roundel' should be left to flounder rudderless amid the stormy wastes of Air Force Headquarters, at the mercy of any casual Brass that may wander on board. I don't like it, sir—and neither will the boys in the field. Fate alone has saved us. It was not any casual Brass, but it was Shatterproof himself who came and grasped the helm.

"Glancing through the copy for the March issue, I was pleasantly surprised to find that you need not be quite so embarrassed as usual. The Editorial Committee is at last getting realistic. You have cut out that feature, 'Do You Know Them?' A good move. No one ever knew them or even wanted to know them. Why should they? In twenty-five years I have never had any reason to tell the difference between a DH Yak and an Avro Goblin. On the other hand, a quick eye for stripes, crowns and hooks, has extricated me from more than one difficult situation.



"The article on Service Management, while of little value to a man of my experience, brings up a significant side-issue. I understand from a usually reliable source that the School of Service Management is located near the stop-butts of the Air Armament School. This shows thorough planning. With weapons close at hand, the Staff should have no difficulty in persuading the Brass to submit to education. I have long recognized the necessity of force in this matter. Indeed, had I been able to make use of it during my own long struggle to enlighten them, there would be no need for a Service Management Course today.

"I noticed with considerable interest the invitation to the boys in the field to contribute to the 'RAF Quarterly'. When I came to the sentence about payment for articles, the artist within me



stirred. You may expect something from my pen shortly. It will deal, as requested, with life on an RCAF Station, and it will be called 'Out of the Night that Covers Me'. That is the title of a song which the C.O. always sings at our Annual Concert. Why he sings it, I don't know; for the C.O. is not naturally a gloomy man—particularly on the night of the Annual Concert. I have an idea it must be on account of a line in the second verse which goes 'How charged with punishments the scroll.'

"Speaking of invitations, I think the time has arrived to invite our Air Cadets to write for 'The Roundel'. As everyone knows, the average Air Cadet can pass a Flight Lieutenant's examinations

with one hand while he makes a working model of a Flying Wing with the other. Why do we neglect to draw upon this wealth of talent and knowledge?

"Is the new preface to 'Letters to the Editor' to be taken literally? I mentioned it to LAC Bladder. The boy was much excited, as it seems that he has a plan for the overthrow of the government by violence which he has so far not succeeded in getting published. I am also interested on my own account, however. If you feel you might be able to use it, I shall forward you a copy of a letter that I wrote and sent to the C.O. just before completing my last tour as a Flight Sergeant. It outlines a scheme for the complete reorganization of the RCAF, without WO1 Gallstone.

"It is good to see Air Chief Marshal Breadner back in the RCAF world. He is an old friend of mine, though I doubt if he remembers the occasion of our last—and only—meeting. The Air chief Marshal paid me quite a compliment. He remarked that he had never before seen such a fine head of hair hanging over an airman's collar. We Shatterproofs never forget a courtesy. Will you please welcome him to our pages in my name, and inform him that my advice is his for the asking any time he feels the need of it.

"Someone is knocking at my door, so I must bid you good-night. It is probably Cpl. Spyder, come to report the C.O.'s movements—for I am still lobbying."

"P.S. It was not Cpl. Spyder. It was Sgt. Highball, from the Officers' Mess. He said he proposes to cut out Cpl. Spyder's liver (and mine too) if he ever catches him again snooping through the billiard room windows like a hyena with its eyes too close together."

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# ROYAL CANADIAN AIR FORCE

# Association

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## Initial Organization

AT THE TIME of the Honourable Brooke Claxton's announcement last June, the RCAF Association was just a name on paper. It possessed no staff, no equipment, and no organization. The first step, therefore, was to set up a small staff and local offices; the second, to provide for a Dominion-wide organization.

In September of last year a general organization meeting was held. Invitations were sent to representative ex-Air Force personnel throughout Canada who were known for their long connection and continuing interest in the RCAF, and who, it was hoped, would be in a position to devote some time to the large amount of organization work which would be required in the field. As a result of this meeting, a Dominion Provisional Executive Council was elected comprising the personnel listed below. This Council will carry on until such time as there are sufficient branches to elect a more "democratic" slate.

*Dominion President:* AIR CHIEF MARSHAL L. S. BREADNER.

*Dominion 1st Vice-President:* AIR VICE MARSHAL A. RAYMOND.

*Dominion 2nd Vice-President:* AIR VICE MARSHAL K. G. NAIRN.

*Dominion 3rd Vice-President:* AIR VICE MARSHAL G. V. WALSH.

*Dominion Honourary Treasurer:* FLIGHT LIEUTENANT C. E. WINTER.

*Dominion Chairman:* AIR VICE MARSHAL J. A. SULLY

*Dominion Vice-Chairman:* WING COMMANDER P. PITCHER.

*Legal Advisor:* GROUP CAPTAIN G. G. MORROW.

*Women's Division Representative:* WING OFFICER K. O. WALKER.

In addition, seven Provincial Representatives were appointed, whose function will be to arrange the formation of Provisional Executive Councils until a Provincial Council can be elected.

*Alberta* AIR VICE MARSHAL  
G. R. HOWSAM,  
10224 129th Street,  
Edmonton, Alta.

*British Columbia* AIR COMMODORE  
A. D. BELL-IRVING,  
989 West Hastings Street,  
Vancouver, B.C.

*Saskatchewan* GROUP CAPTAIN  
J. C. MALONE,  
Barrister, Solicitor, Notary,  
712 McCallum Hill Building  
Regina, Sask.

*Manitoba* GROUP CAPTAIN  
W. F. HANNA,  
c/o Dominion Laboratory of  
Plant Pathology,  
University of Manitoba,  
Fort Garry, Man.

*Ontario* AIR COMMODORE  
A. H. K. RUSSELL,  
424 Rosemary Road,  
Toronto, Ontario.

*Quebec* GROUP CAPTAIN  
H. DEM. MOLSON,  
3539 Redpath Street,  
Montreal, P.Q.

*New Brunswick* (To be appointed)

*Nova Scotia* WING COMMANDER  
H. W. ASLIN,  
Nova Scotian Hotel,  
Halifax, N.S.

*P.E.I.* (To be appointed)



*Air Chief Marshal L. S. Breadner, C.B., D.S.C.*

Since the September meeting, the Dominion Headquarters has been occupied in drafting and obtaining approval of a constitution, and the designing and production of application forms, membership cards, official badges, and wing certificates. All this has now been done, and by the time this article is printed, over 150,000 application forms will have been sent to former members of the RCAF. Should any one have been missed, he or she may obtain an application form by writing to Dominion Command Headquarters.

### **Facts About the RCAF Association**

Many queries have been received and answered concerning the RCAF Association. Some of them, however, have been repeated by so many writers that it seems desirable to recapitulate for general information the answers already given to those questions most frequently asked.

1. The RCAF Association is an organization whose membership is composed of former members of His Majesty's Air Forces. Its main purpose is to strive for adequate air power for the defence of our country.
2. The present executive body consists of a Dominion Command and nine Provincial Groups. Local branches are known as Wings.
3. Any person of good character, who voluntarily enlisted or was enrolled for service anywhere in any of His Majesty's Air Forces, is eligible for membership in the Association. Anarchists, Communists, Fascists, or other persons who advocate the destruction of organized government by force, are debarred.
4. Provision has been made for members at large—*i.e.* an individual may still join even though a Wing has not yet been formed in his locality.
5. Serving members of the RCAF may join as Association Members. The dues are the same as for Regular Members.
6. The membership is composed of both officers and enlisted persons. Any Branch may, however, decide to restrict its membership to persons who have seen service in any particular area or capacity, or who have some common interest in civil life.
7. The RCAF association is a civilian organization working on behalf of an adequate and efficient Air Force for Canada. Further, it is democratic, non-sectarian, and shall not be affiliated to, connected directly or indirectly with, any political party or organization.
8. The national membership dues are \$2.00, \$1.00 of which is kept by Dominion Headquarters and \$1.00 forwarded to Group (Provincial) Headquarters. In addition, there is a \$1.00 enrolment fee which is retained by the Wing. Local units or Wings of the Association may assess such additional annual dues as they consider necessary. Life membership has been set at \$25.00.
9. Members at large are required to pay the enrolment fee. This is held in trust for one year by Dominion Command, and should such a member join an RCFA Wing during that time, the enrolment fee is paid to the Wing.
10. In return for the \$2.00 annual dues, a member receives an RCFA membership lapel pin, an attractive membership card, a chance to renew acquaintances, and an opportunity to participate in programmes of the Association, both nationally and locally.
11. The policies of the Association are formulated by the membership, at each national convention. Between the national conventions, they are formulated by the Executive Council elected by the membership.
12. There are no Air Force obligations connected with the organization. Members do not have to drill or attend training meetings. Local meetings are of the same order as any other civic or fraternal organization, and the projects are similar.
13. Local Wings of the Association sponsor Air Cadet Squadrons and Auxiliary Squadrons, assist the RCAF Benevolent Fund, conduct aviation educational programmes, commemorate Air Force Day, and participate in the Armistice Day ceremony.
14. Should an organization which is already functioning join the Association as a body, the enrolment fee (normally mandatory for all members) is waived at the discretion of the local Wing organization.
15. The aims and objects of the Association are:
  - (a) To unite retired, reserve, auxiliary, and former members of the RCAF, and so preserve and foster the spirit of fellowship among all who have

- served in the Royal Canadian Air Force.
- (b) To support the RCAF (Regular, Auxiliary and Reserve), the Air Cadets, and other components of the RCAF which may later be formed.
  - (c) To perpetuate the glorious traditions of the Royal Canadian Air Force.
  - (d) To co-operate with the RCAF Benevolent Fund and any other organization devoted to the welfare of ex-Air Force personnel.
  - (e) To support the maintenance of an adequate and efficient Air Force in Canada for the defence of our country.
  - (f) To sponsor and encourage aeronautics in all its branches, and to provide a means by which ex-Air Force personnel and the public may be kept abreast of the changes in aviation and all that it implies both from the military and civil stand-points.
  - (g) To strive for peace, goodwill, and friendship among all nations.
16. It is hoped that there will be an Association magazine. The cost of such a magazine has not yet been definitely established, but it is unlikely to increase annual dues by more than \$1.50.
17. Application forms or further information may be obtained from any of the following sources:

The Secretary,  
R.C.A.F. Association,  
424 Metcalfe St., Ottawa.

The Provincial President.

The local Wing in the community.

### The Association's First Wings

Although the Association rolls have only recently been opened to membership, a number of Wings have already applied for charters.

Congratulations are extended to the Guelph Wings Club on being the first Wing of the Associa-



tion. This club has been in existence for some time and the action of its members in joining the National Association is indicative of its alert and progressive attitude and its broad national outlook. The second Wing to be formed was the Air Force Club of Kirkland Lake; and the Sarnia Air Force Association is now in the process of being signed up. In Western Canada, Association Wings are in operation at Saskatoon, Regina, and Moose Jaw. Quebec's first Wing has been formed at Granby.

At the time of writing this article, the Provisional Dominion President (Air Chief Marshal Breadner) is about to commence a tour of Western Canada. The report of his trip will be featured in the next issue of "The Roundel."

### WHAT'S LIFE LIKE ON YOUR STATION?

THE EDITOR of "The Royal Air Force Quarterly and Empire Air Forces Journal" is interested in publishing accounts of life on different types of RCAF Stations.

"The RAF Quarterly" is an old and distinguished magazine which has long been a powerful link in the chain which binds our Empire Air Forces together. Why not try your hand at describing life on one of our Stations? "The RAF

Quarterly" can use several such articles from Canada alone.

The scale of payment for articles accepted by "The RAF Quarterly" depends upon the type of the article and its length. It is suggested that you do not exceed 14 pages of double-spaced typescript on 8" x 10" paper.

Send your contribution to the Editor of "The Roundel," who will forward it to England.



*(The articles on the Soviet Air Force which have already appeared in the first four issues of "The Roundel" were not intended to include the latest types of aircraft used by the Russians, and in order to complete the picture as far as possible, "The Aeroplane" has prepared the following description of the latest Soviet fighters.—Editor)*

*(Reprinted by courtesy of "The Aeroplane")*

SOVIET AIRCRAFT and aero engines are designated by an abbreviation of the name of the designer or designing committee, followed by a number which is not always in the correct chronological order. An obvious example is the Yak-3, which was developed from the Yak-9, both designed by Alexander Yakovlev, one of Russia's foremost aeronautical technicians.

#### The Yak Myth

Recent reports of Russian air activity in the Berlin region during the Anglo-American air lift have constantly quoted Yak aircraft as being responsible, but it is apparent that the equipment of the Russian Army Air Fleet in Central Europe is far more up to date. Apart from jet aircraft, the latest Yakovlev fighter to be used in squadron service was the Yak-3. Although Russia has supplied many of this obsolete type to the Air Forces of her satellites, from personal observation we have seen that her own aircraft conform much more closely to contemporary Western ideas and practice.

Another prominent Soviet designer is Sergei Lavochkin, and when in 1942 a new 14-cylinder radial engine (the 1,500 b.h.p. Ash-82, designed by A. D. Shvetsov) appeared in Russia, he produced the La-5, first of a series of low-wing fighters utilizing that power plant. Being mainly a tactical force, the Soviet Army Air Fleet specialized in low level operations, and this engine was rated up to only about 20,000 ft., but its extra

power over the earlier engines gave the aircraft designers the opportunity for which they had been waiting.

From the La-5 was developed the La-7, which had a more powerful 1,800 b.h.p. Ash-82 FNV radial engine, and was generally cleaned-up. The power plant installation on this series of aircraft is most interesting, for in addition to being fan-cooled, the Ash-82 can be fitted with cold-weather shutters (rather like the iris diaphragm of a camera) immediately behind the spinner. Another low-temperature device is the Hucks starter dog, which even now is featured on the spinners of many Russian aircraft. The La-7 is still in service with the Russian Satellite Air Forces, but its successor, the La-9, appears to have replaced it in many Soviet squadrons.

Berlin is garrisoned by several squadrons of the La-9, which appear fairly frequently in the air corridors leading to Gatow. An eye-witness account of their flights over the international city appeared in THE AEROPLANE for July 23, and it seems that they are the so-called Yaks. The La-9 is generally similar to its predecessor, the La-7, but the Ash engine has again been stepped-up in power, and probably now develops more than 2,000 b.h.p. The wings and tail surfaces have been redesigned and present a characteristic square-cut appearance, while the speed has increased to more than 400 m.p.h. Similar in outline to those of the Mustang, the wings of the La-9 have marked taper on the trailing edge and slight taper on the leading edge, the inner portion of which increases in chord to the root to provide a housing for the

forward-set inward-retracting undercarriage. The engine is very closely cowled, and the wing roots also contain the carburetter air intakes. The oil cooler matrix is contained in a ventral fairing beneath the cockpit. Although large, the cockpit canopy has the usual Russian two-piece, backward sliding hood which is not as efficient, either aerodynamically or visually, as the conventional "bubble" type cover.

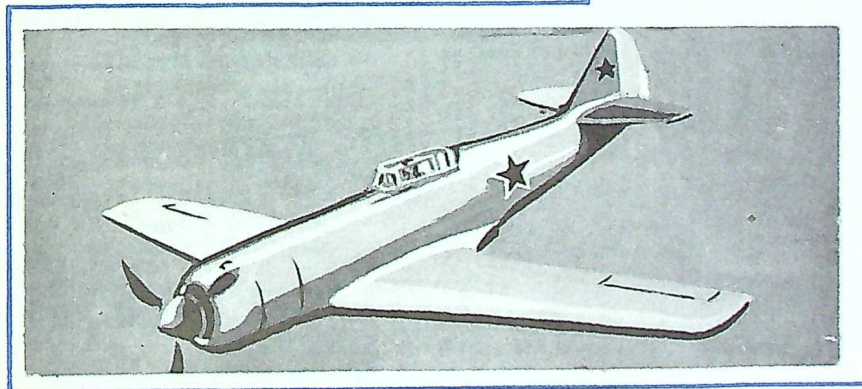
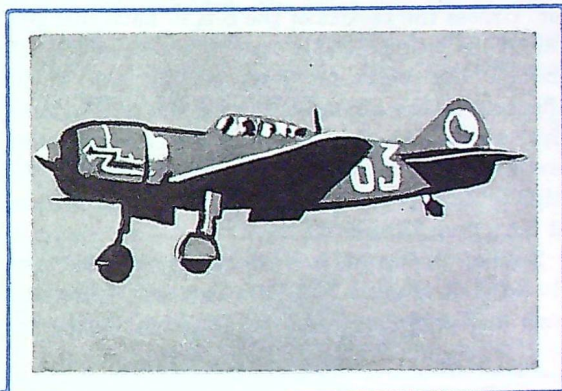
Armament still appears to be two 20-mm. cannon mounted in the engine cowling and synchronized to fire through the airscrew disc, but this may possibly be augmented by wing-mounted cannon; a small bomb-load can be carried beneath the wings. The retractable leading edge slats on the earlier Lavochkin fighters have disappeared and the span has been slightly increased to 34 ft. 9 ins.

The La-9 has been used extensively in experiments with speed boosting, and several have been fitted with an Argus-Rohr impulse-duct unit or a rocket motor beneath each wing, while another variant has a Walter liquid-rocket unit in the rear fuselage, with the exhaust efflux orifice below the modified rudder. So far as can be ascertained, the La-9 was probably the last reciprocating-engined fighter to go into squadron service with the Russian Air Force. Its performance is inferior to its Western contemporaries. But this is probably because the Russians did not concentrate on developing the few potentialities left in the airscrew-fighter and, instead, forced to early fruition the jet aircraft which are steadily re-equipping many of their fighter squadrons.

## Jet Fighter Development

Little is known of the early stages of gas-turbine development in the U.S.S.R., but Russia has never lacked adequate research facilities in the past decade, and it is possible that her claim to have used jet aircraft in the closing stages of the battle for Berlin is justified. Intensive development, however, did not get under way until the Russian Army had overrun Eastern Germany, which was rich in German research centres with their accompanying technicians. Within a year or so from the end of the War, the first confirmed jet fighter was in full squadron service, powered by two BMW 003 axial-flow gas-turbines which had been produced by the Bayerische Motorenwerke, makers of the famous BMW 801 radial engine.

Designed jointly by Mikoyan and Gurevich, this aircraft has been provisionally designated the MiG-9, and with two 1,750-lb. s.t. turbo-jets, has a top speed of about 490 m.p.h. at sea level and



THE OLDER BRIGADE.—Shown in the markings of the Czechoslovakian Air Force, the La-7 (above) is typical of the Soviet design trends prior to the introduction of turbo-jets. Points of interest are the closely cowled engine, and the extended leading-edge slats. Seen frequently over Gatow, the La-9 (left) was developed from the La-7, and is in service in Central Germany. It is this type that is sometimes referred to as a Yak.

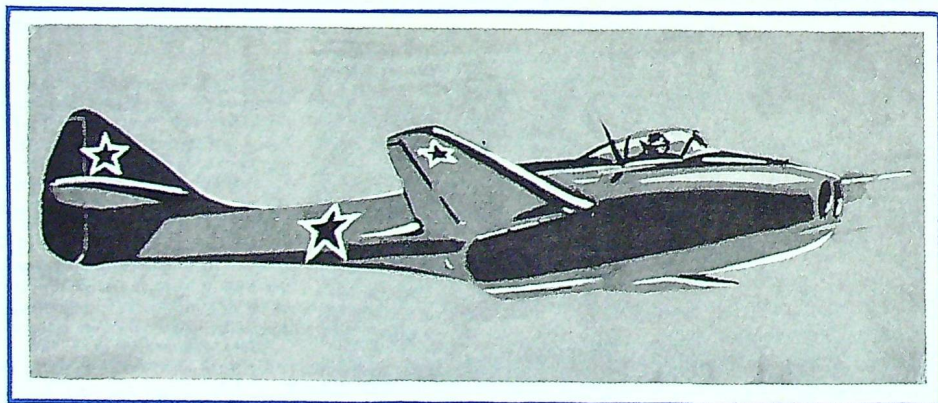
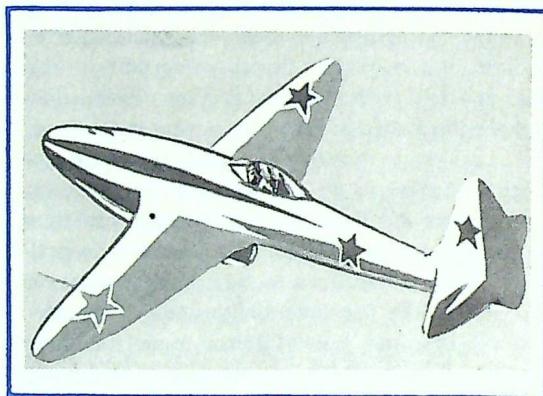
530 m.p.h. at 23,000 ft. From the accompanying illustration some idea of its layout may be obtained. Mounted low in the forward fuselage, the engines have a divided nose intake with a duct to each. The protruding tail cone, which works in conjunction with the throttle to vary the area of the tail pipe and the thrust, is prominent at the rear of each jet unit, which together exhaust past the channelled lower fuselage. The Germans experienced many difficulties with their gas-turbines, mainly because the sands of time were running out and materials and workmanship were poor, but with her vast resources, Russia has undoubtedly overcome most of the teething troubles and even replaced the units with later developments.

The MiG jet fighter has a tricycle undercarriage, the main wheels of which retract inwards into the thin mid-wings, and a large fin-and-rudder with a high-set tailplane. Whether or not the cockpit is pressurized is unknown, but the BMW 003 originally had provision for a bleed from the seven-stage axial compressor for a supply of pressurized air. Unless the tactics of the S.A.F. have changed, the cabin will probably not be supercharged, although the turbo-jet loses almost half of its efficiency at low altitudes. For a given performance, this means almost double the fuel consumption, and a consequent restriction of range. Span of the MiG jet is approximately 40 ft., and the armament at least two 20-mm. cannon.

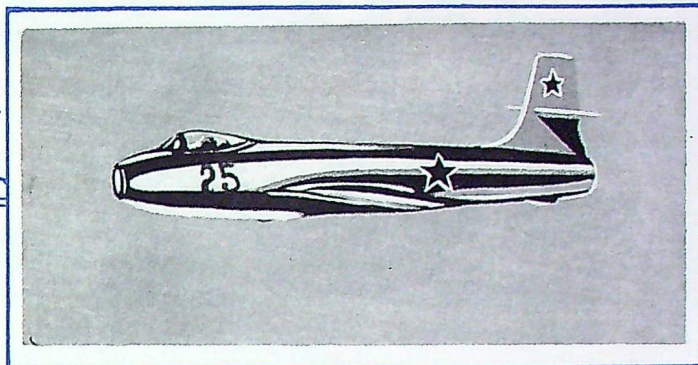
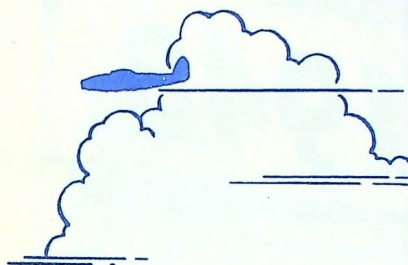
Similar in layout, and perhaps even older than the MiG-9, another Russian single-seat fighter was seen at Tushino aerodrome, Moscow, during the

1947 Soviet Aviation Day celebrations, which may be the Yak-15. The aircraft was certainly designed by Yakovlev for, apart from the modified power plant, it appears to be similar to a standard Yak-3 airframe. A single turbo-jet is mounted below the fuselage, but the inward-retracting tailwheel undercarriage has been retained. Some modification has probably been necessary to give adequate ground clearance, as the tailwheel is now only semi-retractable. The armament appears to have remained as one 20-mm. cannon and two 12.7-mm (0.50-in.) calibre machine-guns. Forward visibility from the cockpit must be about the worst ever. With a span of just over 30 ft., this little fighter is fast and manoeuvrable, but its light construction is not suitable for high-speed combat flying.

Yakovlev, however, must have gained some useful experience from this aircraft, for it has been followed by another single-seat fighter of more modern layout. In the Thunderjet/Attacker class,



**EARLY JET FIGHTERS.**—These two single-seat fighters were first in the Soviet jet aircraft field. (Left) a product of Mikoyan and Gurevich, this type is powered by two BMW003 axial-flow turbo-jets, and has a span of about 40 ft. Above is the Yak-15, adapted from the obsolete Yak-3, with a turbo-jet below the fuselage. It has probably been largely replaced in service.



**SOVIET THUNDERJET.**—One of the latest Russian single-seat fighters; this aeroplane is believed to have been designed by Yakovlev. Reports indicate that it is in squadron service.

this fighter was first illustrated in our French contemporary, "Les Ailes," who attributed it to Yakovlev. As usual, few details of its construction and performance are available, but from its lines it should have a useful performance. It is quite possible that operational research with the recently acquired Rolls-Royce turbo-jets will be continued

with this airframe. A nose-wheel undercarriage is fitted, but the most prominent feature is the very tall fin and rudder and the high-set tailplane. Seated well forward, the pilot has an excellent all-round view from the carefully streamlined "bubble" canopy, particularly over the short nose which houses the air intake.

—J. E. F.



## TWO FOOTNOTES

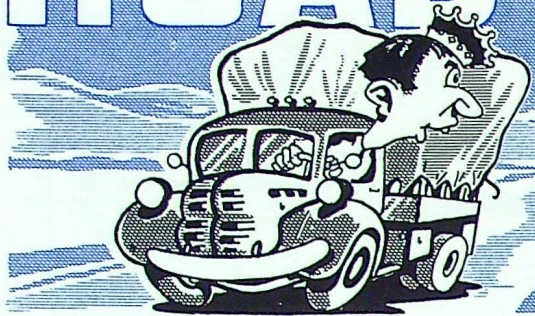
British atomic-research scientists—who have just discovered a vastly superior method of developing certain fissionable material—recently acquired samples of Russian-mined uranium ore. Their verdict is that it is nine times less productive than equivalent British ore.



Fastest "conventional" gas turbine aircraft of the world's leading air powers have, for the moment, similar performances. F86 (fighter, American), S.A.A.B. J-29 (research, destined fighter, Swedish), and D.H.108 (research, possible fighter, British) are all capable of around 650-680 m.p.h. In rocket aircraft, however, America is far ahead.

(*"Air Reserve Gazette"*)

# ROAD KINGS



of 1948

by SQUADRON LEADER R. A. SKUCE, M.B.E.

THE SECOND CANADIAN TRUCK ROADEO, sponsored by the Automotive Transport Association of Ontario Inc., was held at Toronto on December 6th, 1948.

The "Roadeo" was conceived and instituted in 1947 to promote safe and skilful driving in Canada. Thanks to the tireless efforts of the Automotive Transport Association of Ontario Inc., and the close co-operation of the American Trucking Association, Ontario Department of Highways, Ontario Safety League (Division of Public Safety), University of Toronto, and the Toronto Traffic Safety Council, there is emerging out of the careless and costly past a new safety-conscious legion of drivers who believe accidents can be prevented if drivers use their heads instead of their feet. Public interest is well evidenced by the fact that more than 7,000 spectators witnessed the recent championship tests. It is anticipated that these contests will do much to promote road courtesy, safe driving, and adherence to traffic regulations—thus helping to reduce the number of highway accidents and the staggering annual death toll resulting from them.

The competition was originally intended for civilian operators only. However, in 1948, National Defence Headquarters, on the invitation of the ATA Roadeo Committee, agreed to a proposal that an Armed Forces Division of the Roadeo be established.

It was arranged that the Armed Forces Division would put into the field six entrants—three drivers from the Army and three from the RCAF. These drivers qualified for the coveted honour of representing their respective units and Services by means of coast-to-coast elimination contests conducted in accordance with ATA Roadeo Rules and Regulations.



*The truck driven by the three winning contestants*



(Centre) Cpl. R. D. Pettinger, (left) LAC L. N. Bishop (right) LAC F. J. Cormier.

These Rules and Regulations stipulated that, in order to be eligible, all contestants must have an accident-free record for at least twelve months prior to the date of entry and that they must have been employed continuously as drivers by the entering employer during the year.

The Rules and Regulations, which were strictly adhered to throughout the entire proceedings, afforded a possible total of 350 points for each driver. The driving test over the field layout (see diagram) was accomplished in the amazing average time of 5 minutes 4 seconds. Points were awarded as follows:

Personal Appearance . . .	10
Safety Rules (oral exam.)	25
Fire Fighting Rules (oral exam.) . . . . .	15
Equipment Defects (oral exam.) . . . . .	10
Lapsed Time . . . . .	25
Total Driving . . . . .	265
	<hr/>
TOTAL . . . . .	350

Preliminary contests were held within all Air Commands, and the two best drivers from each

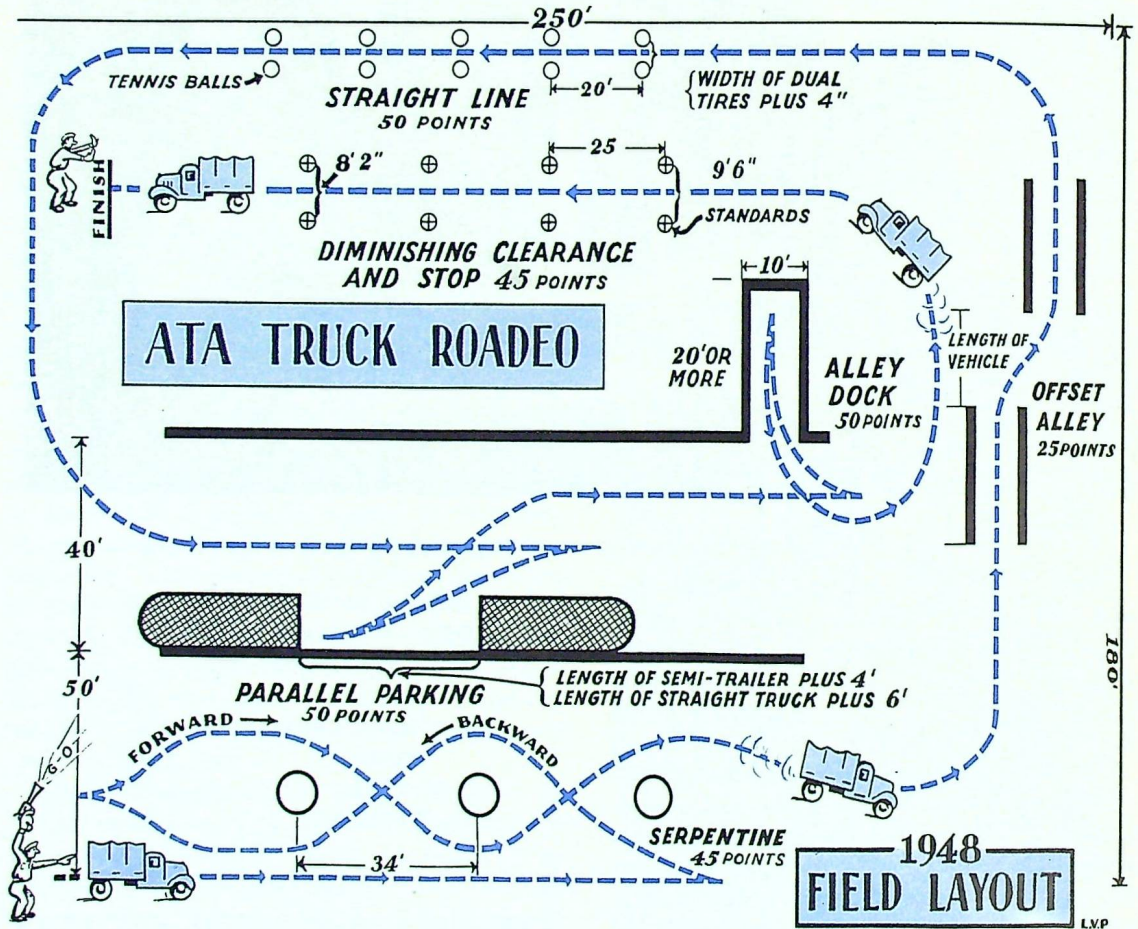
# The Roundel

Command were selected to compete in the inter-Command finals at Camp Borden on the 30th of November 1948. The Judges for this event were Air Commodore J. G. Kerr, C.B.E., A.F.C., and Wing Commander H. L. Taylor (both from AFHQ, Ottawa), Flying Officer W. A. Wheeler (CAC), Flying Officer F. G. Durrant (NWAC), Flying Officer F. A. Bourne (MCHQ), and Warrant Officer S. Awcock (ATC). The following airmen obtained the highest number of points respectively, thus qualifying as RCAF representatives for the Armed Forces Division finals at the Rodeo in Toronto:

LAC L. N. BISHOP (CAC)..... 296 points  
No. 2 Vehicle School, Camp Borden

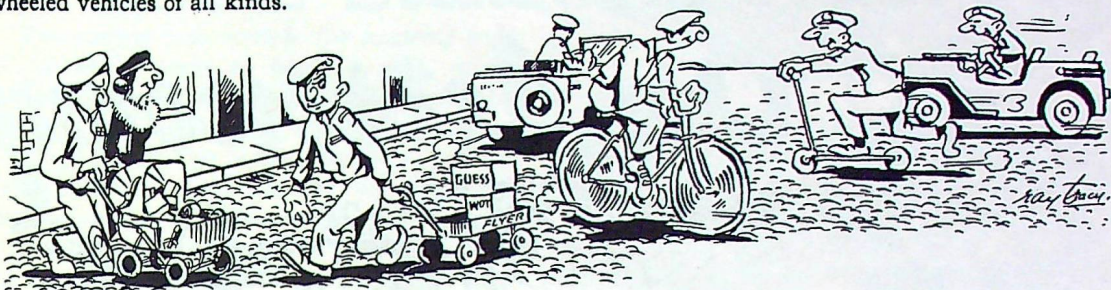
CPL. R. J. WALDEN (CAC)..... 295.6 points  
No. 2 Vehicle School, Camp Borden  
LAC F. J. CORMIER (MCHQ)..... 264.6 points  
6 RD, Trenton

Nervous and emotional tension plays a dominant role in sport as in war. Many apparently certain winners often run up as favourites only to be beaten at the tape by others who stand up better under the terrific strain that invariably accompanies all competitive endeavour. Nerves must have indeed been strung to the breaking point as these lads turned out, flawlessly dressed and groomed, for the finals on December 6th at Toronto. And well they might be, for they were to pit their skill against the best drivers of the Army,



# The Roundel

which has long been famous for its prowess with wheeled vehicles of all kinds.



Imagine yourself in their place behind the wheel of a loaded and tarpaulined three-ton truck, waiting your turn before a critical gallery of 7,000 people among whom were hundreds of veteran drivers and many high-ranking officers of the Services. Most of us would require ten or fifteen minutes on the same layout, without the spectators and driving our own car, to negotiate the problems and obstacles presented—and even then we might not be very proud of our score or our fenders when we finished.

It is most gratifying to our Service, which is usually associated with the air, to know that in our midst (and very much on the ground) we have such capable and highly skilled specialists as those airmen whose names appear below as winners in the Armed Forces Division of the 1948 Truck Rodeo:

- 1st (Army)—CPL. R. D. PETTINGER (No. 23 TPT Coy., RCASC, Camp Borden)
- 2nd (RCAF)—LAC. L. N. BISHOP (No. 2 Vehicle School, Camp Borden)
- 3rd (RCAF)—LAC F. J. CORMIER (No. 6 Repair Depot, Trenton)

- 4th { (RCAF)—CPL. R. J. WALDEN (No. 2 Vehicle School, Camp Borden)
- (ARMY)—CPL. J. EICHLER (No. 1 Coy, RCASC, London)

The winners received handsome miniature trophies and very substantial cash awards which were presented to the Army winners by Air Commodore W. W. Brown of CAC and to the RCAF winners by Major-General C. Vokes, C.B., CBE., D.S.O., GOC Central Army Command, at a dinner held at the Royal York Hotel by the Rodeo Committee on the 7th of December.

Great credit goes to all Air Command personnel and to the RCAF final competition officials of Central Air Command Headquarters, and in particular to Flight Lieutenant F. Benson, Officer Commanding No. 2 Vehicle School, Camp Borden, for their splendid efforts in making this competition a definite success.

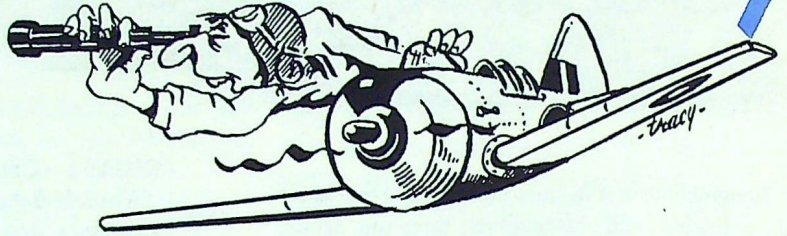
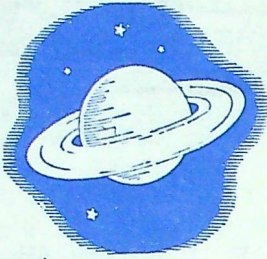
The well-earned trophies held by the happy "Road Kings" pictured in our photograph stand as a challenge to all aspirants to the 1949 Rodeo crown. Plans are presently being made by both Services to make this year's competition the transport drivers' event of the year.

## REMINDER TO ALL DRIVERS

In order to qualify, you must have a clean accident record for the year. So drive safely and make sure of your chance at the laurels and the pot of gold that lie at the end of the road.

# IT'S FUN LOOKING BACK

## On Astronomy



(Reprinted by courtesy of "Air Clues")

THIS MONTH we thought we'd tackle the subject of astronomy, so, full of good intentions, we surrounded ourself with an impressive array of history books and commenced to imbibe therefrom the knowledge of the ages.

"Looking up into the skies from the time when we were little children," we read, "and seeing the awe-inspiring beauty of the universe around us, we have often been unmindful of the fact that the sun and stars are more than mere adornments for the Earth's ceiling. . . ."

We skipped that page, and turned on a bit further.

"No heart is stout enough," said the book, "to contemplate more than symbolically the fiery masses of gas which are the stars, or the unbelievable aridity of interstellar space. From his tiny planet home that infinitesimal creature, man, gazes out into the burning sky of midday and the black spangled sky of night, discovering that the Earth is an interesting place, after all, for the little man with the telescope."

Telescope or no telescope, this little man's heart was definitely not stout enough to contemplate, even symbolically, any more of this, so we laid aside the books, donned our hat, and went in search of our old friend the historian. We never were much good at book-learning, anyway.

We found him, as you may have guessed, in his corner of the bar, his shoulders hunched and his moustaches even more dispirited than usual. We saw at once the reason for this dejection . . . and hastened to refill his glass. At that, his face brightened perceptibly. Settled comfortably on our stool, pencil and notebook poised, we said at once:

"Well, this month it's astronomy. Tell us about the awe-inspiring beauty of the universe, the unbelievable aridity of interstellar space, and all the other things that make this earth such an interesting place for a little man with a telescope."

"You should write a book," said the historian. "You've got just the right turn of phrase for it there."

We smiled but made no comment.

### Unearthly Theories

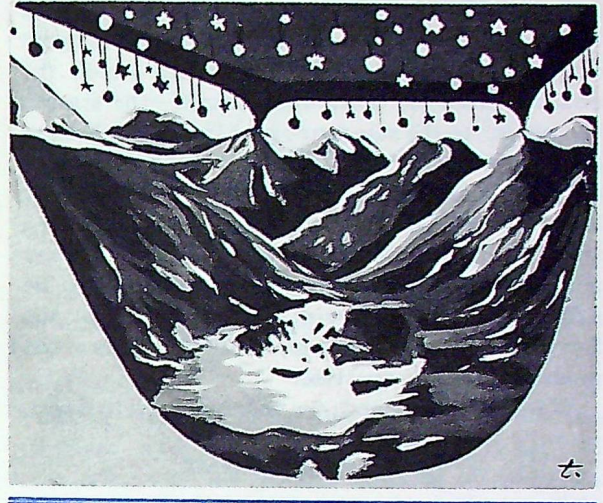
"Well, as you've asked me," he continued, "I supposed I'd better tell you what I can. And I must start off by saying that astronomy was one of the first sciences ever studied by mankind and its history therefore goes back quite a long way. In fact, the records of almost every nation give some indication of attention being paid to the heavens, and of rough attempts being made to sort out some kind of law and order for the periodical happenings in the sky, such as the

risings and settings of the sun and moon and their eclipses.

"Yes, starting from scratch, the Ancients had all manner of things to find out, and, quite naturally, their first interest was in the Earth itself—and they certainly developed some pretty rum ideas on that. One of them, so old that we've almost forgotten who started it, was that the Earth was shaped like a disc and floated on a sort of universal water. According to this theory, the sun disappeared into the water each night and



Mars seen from its further satellite, Deimos.  
(From a painting by Howard Russell Butler).



Early Egyptian concept of the Universe, showing stars hung from metal sky ceiling and Sun-God sailing on celestial river. (From Maspero's *Dawn of Civilization*).

occupied its time during the hours of darkness by swimming madly back again to be in time and position for its rising the next day.

"Hot on the heels of this theory was another put forward by the Vedic priests of India who pooh-pooed the 'universal water' idea as being quite ridiculous and substituted instead the dogma that the Earth was supported on twelve massive pillars and lay flat on these as it would on a table. In this way, only the upper side was habitable, the sun passing over its face during the day and finding its way back between the twelve pillars on the underside at night."

"That must have been a great improvement," we observed.

### The Too Modest Egyptians

"Oh, yes," said the Old Man, "that was really considered advanced thinking in those days. But even bigger and better theories were to come. The Egyptians, for example, thought that the Earth was four-sided—with Egypt in the middle. To them, Egypt lay in the middle of a flat plain surrounded by tremendously high mountains, with four higher mountain peaks at the corners to

indicate the cardinal points and to hold up the dome of the sky. The sky was an enormous great iron ceiling, with holes in it through which the obliging Gods let down their lamps—the stars—on cables, for the sole purpose of furnishing beauty and illumination for Egypt. In the interests of celestial economy the Gods would pull up their lamps during the day-time because they considered that the light from the Sun-God, as he navigated the celestial river in his Nile barque, would be sufficient even for Egypt. The trouble with the Egyptians was, of course, that they were too modest about themselves.”

We nodded our head: we, too, had been to Cairo.

## “Music of the Spheres”

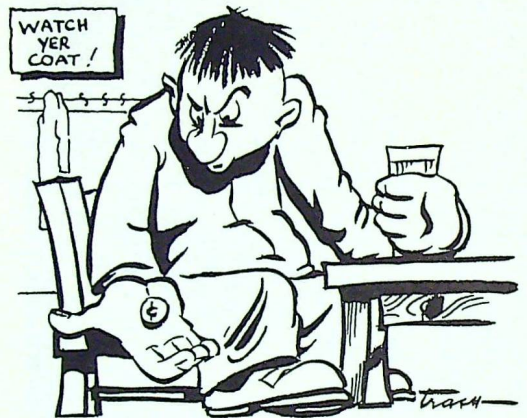
“But perhaps the strangest theory of all,” went on the Old Man, “came from our old friend, Pythagoras, of right-angled fame. He maintained that the intervals between musical notes corresponded exactly to the distances between the planets. The five planets with the sun and moon made a perfect musical scale, and these, with the celestial sphere, a perfect cosmic octave. Each heavenly body had a musical note of its own, and as all these bodies moved in their respective orbits their notes combined to produce what has often been referred to in literature as ‘The Music of the spheres’.”

We made a mental note never to tell this to our wireless operator; he didn’t need any excuses to listen to the dance music on the B.B.C.



“Well, now,” continued the Old Man, “as soon as people had sorted themselves out from this mass of conflicting theories, they began to notice things, in connexion with the sun, moon, and stars. They noticed, for instance, that the risings and settings of the sun heralded days and nights; that at various times of the year the sun was always in the same position. They noticed, as well, the odd thing or two about the distribution and movements of the stars. And from that day on you can say the science of astronomy was born.”

He gazed reflectively at his empty glass. We fumbled with our loose change.



## Priestly Watch

“Well,” we said, “that’s all very well, but who were these people with all the time to spare for star-gazing? Didn’t they have any direction of labour in those days?”

“As a matter of fact they didn’t,” was the reply, “and the people with all the time to spare—as you call them—were, without a doubt, the priests of Babylon and Chaldea who kept, as part of their duties, a twenty-four hour watch on the risings and settings of certain heavenly bodies. They watched the changing aspects of the sky for signs which foretold such things as changes of seasons, the time for planting the crops, the coming of the floods, and other things which affected the daily life of the community. The earliest use of astronomy, then, was for time determination. Your naval readers might be interested to know, for instance, that their four-hourly watch-keeping

system was first invented by the Babylonians who divided each day and night into three watches of four hours.

"On the subject of time we owe quite a lot to those early astronomers who first discovered that the stars rose approximately four minutes earlier each day, because they were well on the way to sorting out the year as we know it. Considering their primitive methods of measuring time, their four minutes compares very favourably with the more correct time of 3 minutes 56 seconds which we now generally accept. Having measured this time, they then worked out that the stars would



travel through a twenty-four hour cycle and come back to their starting point in 360 days, which must therefore be the normal year. As it happened, this fitted in very nicely with the ideas they already had on lunar months, which were supposed to consist of 30 days each. So there were exactly 12 months in a year. But, as always, the odd snag or two began to crop up, in that the seasons began to break away from the year and the number of applications for summer leave at Christmas time became quite alarming. Obviously, something had to be done about it.

"And the first people to tackle the job were the Egyptians, who, in about 2000 B.C., fixed their year at 365 days, using a time-cycle based on the rising of the dog-star, Sirius. To avoid any bother they stuck to the old system of twelve months of 30 days each, and merely added on the extra five days at the end of the year, calling them the

'added' days. This, of course, was a great step forward, and their calendar lasted right up until the reform of the Roman calendar by our noble friend, Julius Caesar, in 46 B.C. He was responsible for inserting the extra day in every fourth year, much to the delight of spinsters and the disgust of those whose birthday happened to fall on that day. His Julian Calendar, as it was called, lasted until 1582."

He paused and disappeared momentarily behind his tankard.

"And by that time everyone else was taking summer leave at Christmas?" we ventured.

## Nationalizing the Calendar

"Well, not exactly," said the historian. "This time it was Easter that got out of hand, and Pope Gregory sorted it out by persuading all the Roman Catholic countries to push on their calendars ten days. England, however, as usual was obstinate. She waited almost two centuries before altering her calendar, by which time the discrepancy had grown to eleven days, so that September 2nd, 1752, was succeeded by September 14th, 1752. The common people—as they were then called—aghast at this nationalization of the calendar and, as usual, fearing the worst, thought they'd been swindled out of eleven days of their lives. Minor riots broke out with the war-cry: 'Give us back our eleven days'. However, I'm assured that the people soon quietened down when it was explained that as there were eleven days less in the year they would have that much less income-tax to pay.

The calendar, of course, was adopted and is in use to this day."

"How about telling us something of the famous names in the astronomical world?" we asked.

He sipped his beer meditatively.

## Stars Among the Astronomers

"Famous names," the Old Man mused. "It's rather difficult to know where to start. So many people, you see, have contributed indirectly to the science of astronomy that almost all the old philosophers and mathematicians can be said to have had some sort of finger in the pie. So perhaps I'll just tell you about some of the very famous ones.

"The first of these was friend Thales of Miletus, a Greek astronomer who lived about 700 B.C. He taught some quite amazing theories for that time, asserting that the stars shone by their own light, that the moon shone by reflected sunlight, that the Earth was round, and that the year contained 365 days. His greatest achievement, however, was predicting an eclipse of the sun which occurred in 610 B.C., although we probably wouldn't consider it very remarkable since he predicted only the year and not the month or day. Still, it was quite



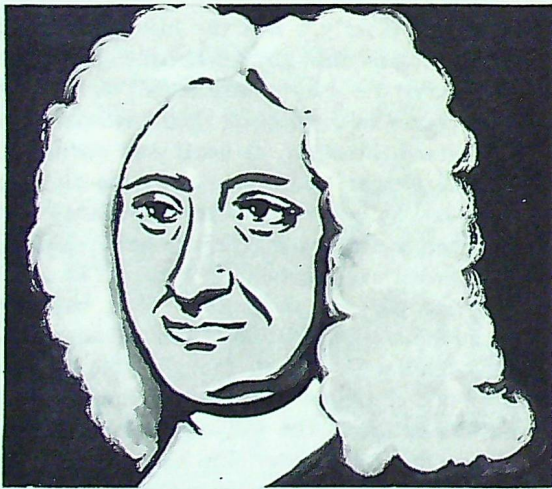
the thing in those days and everyone thought he was very bright—which, of course, he undoubtedly was.

"Then there was Eratosthenes, who not only measured the circumference of the Earth, but constructed what he called an 'armillary sphere' by which he could measure the positions of celestial bodies with reference to the horizon, ecliptic, or equator. Using this little gadget he was able to measure, in about 230 B.C., the obliquity of the ecliptic—or the angle between the sun's path and the celestial equator. And, as usual with friend Eratosthenes, he wasn't far out in his measurements."

He paused. "What about Pythagoras?" we queried. "Wasn't he mixed up in all this?"

## Copernicus Branches Out

"I'm coming to him," said the Old Man. "He was very much 'mixed up in all this', as you so nicely put it. He was the first man to advance the theory that the Earth went round the sun instead of vice-versa and he taught this to all his followers. And if it hadn't been for the old midwife's friend, Aristotle, people might have progressed quite nicely on those lines to their mutual advantage and enlightenment. But Aristotle discarded the theory, and the influence of his teachings was so strong that it remained buried until A.D. 1543, when a Polish monk, Nicolas Copernicus, revived it under the name of the 'heliocentric theory'.



Edmund Halley.

"Now Copernicus was quite a character; he must have been to have cut himself away from all the old theories which had held good for so many years, and branch out on his own, so to speak. He had no proofs of his theory but he certainly had an acute observing sense and great imagination. He wrote a book on the subject; but so little notice was taken of it that it was 75 years before it was even banned, and by that time the truth was too widespread for even the Church to stifle."

"But why should the Church want to stifle the heliocentric theory?" we asked.

### Galileo Up Against the Church

"Ah! well, there's a thing," said the Old man. "You see, in those days the Church had a pretty big hold over everybody, and so, although the Pope and various other dignitaries accepted the Copernican theory in private, they disavowed it in public because they were afraid that the mass of the people, faced with the vastly increased marvels and wonders of the universe which were offered to them by Copernicus, would lose their faith in religion. Typical of their attitude was the case of Galileo, who, apart from inventing the telescope and one or two other odd things in his spare time, also wrote a book, in 1632, in which he supported the heliocentric theory of Copernicus.

"This public embracement of a new-fangled theory was social death for Galileo. In no time at all, he was summoned to Rome where he was thrown into prison and probably tortured, the judgment against him being that: 'To assert that the sun, immobile and without local movement,



Sir Isaac Newton.

occupies the centre of the world is an absurd proposition, false in philosophy and moreover, heretical, since it is contrary to the testimony of the Scriptures'. In the end, he recanted, and, after signing a paper that he 'abjured, cursed and detested said errors and heresies', was allowed to go and live in his own home, where he promptly started work on another book on the same subject. He died at the age of 78, blind, in disgrace, and in great poverty. The wretched shack to which he was driven by the hounds of the Church can still be seen at Arceati, near the capital of Tuscany.

"Unfortunately, Copernicus, Galileo, and the rest were still working on the assumption that planets moved around in circles and, consequently, their work was metaphorically going round in circles, too. That's where another character called Kepler came in. He'd spent a long time studying the planet Mars, trying to find out why it moved around its orbit in such an erratic manner, when all of a sudden it dawned on him that it wasn't

moving in an erratic manner at all: it was merely moving in an ellipse instead of a circle. From then on, he never looked back, and his *Laws of Planetary Motion* hold good to this day.

“While Kepler found out that the planets moved in ellipses, it was left to Isaac Newton to explain why—which he did in the most casual manner. The Royal Society had been formed in 1660 and one of its first problems was to investigate the nature of gravity. Robert Hooke started research with the help of Sir Christopher Wren and Edmund Halley, all of whom knew such a force existed; but what they really wanted to know was whether it would explain the elliptical orbits of the planets. One day Halley took the problem to Newton, who was at that time a professor at Cambridge. Newton calmly told him that he’d worked the whole thing out twenty years previously, but never bothered to publish it: whereupon he produced his mathematical proofs. And that was another problem solved. Newton lost his reason during the middle part of his life, so perhaps the apple which reputedly fell on his head did more than instruct him in the elements of gravity.”



The Old Man stopped, cleared his throat, and gazed through the bottom of his tankard, looking much as Galileo must have done with his telescope, and twice as thirsty. We knew the signs and took the necessary action.

### More Old-timers and Some Present-day Probers

“Yes,” he reflected, after we had ordered a refill, “I could go on for quite a long time about these oldtimers; there are plenty of them besides those I’ve already mentioned. There was Cassini, for instance, who, besides inventing his famous map projection, also made the first genuine recorded observations of Earth to sun distance. There was Bradley, who first discovered the phenomenon of aberration from watching the behaviour of the weather-vane on his friend’s sailing-boat. There was Euler, one of the most prolific mathematicians of all time, who first put into use the calculus which is used to this day. Then there were Herschel, the oboe player’s son and amateur astronomer, who discovered the planet Uranus, Flamsteed, the first Astronomer Royal, and many others whose names have perhaps been forgotten, but whose work lives on in the knowledge which they gave mankind.

“And to those, of course, we must add all the others who, profiting by the mistakes of their forebears, are probing even more deeply into the secrets of the Universe. Take our Dutch-born friend, Gerard Kruiper, for instance. He spent the last week of February this year in looking down the hypothetical throats of the Martians, with the aid of a brand-new, super-sensitive, infra-red spectrometer. And because Mars was on one of its periodic close visits to Earth—a mere 63,000,000 miles away—he found out quite a lot. He found that the famous Martian ice-cap was composed of ordinary snow and ice and not, as had previously been imagined, of solid carbon dioxide. He also found that on Mars there was no vegetation as we know it but only a lichen-like growth of low order. He found out quite a lot of other things, too, which will perhaps be of value to us if ever we manage to reach the other planets.

“Mind you, I’m not saying that we ever shall reach the other planets. In fact, if the theory of

Edwin Hubble is correct, we shall be all on our own in space very shortly. He believes that the whole Universe is exploding and all the bodies in it are moving apart at an enormous rate, like dots on the surface of an expanding balloon. He's merely waiting for his new 200-inch telescope to be completed in about two years' time at Mount Palomar, in America, to confirm his verdict. And if he's right, things will look a bit bleak in a few million years' time on this Earth of ours. Not that they don't look pretty bleak at the moment, with bigger and better atom bombs being developed

right and left and everybody just waiting for an opportunity to use them. So there you are."

"Talking of atom bombs," we said, "do you think they'll ever invent an atom bomb powerful enough to blow up the whole Earth?"

The Old Man smiled, the pitying smile of one who is forever amazed at the foolishness of the young.

"Well, what if they do?" he replied. "It's not as if it were a major planet, is it?"

To which, of course, there just wasn't an answer.

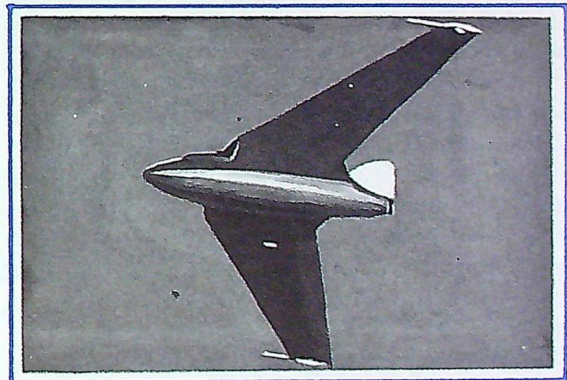
## MACH PLUS

PROBABLY THE FIRST practical aeroplane to exceed the speed of sound, the D.H.108, piloted by Mr. John Derry, achieved this feat on 6th September 1948. The D.H.108s—three were built—have been used for sonic-range research for over two years, and during this summer one has been used for flights at Mach numbers in excess of 0.9. In one of these the machine was put into a dive near Farnborough at 40,000 ft., and when the pilot levelled out at 25,000 ft., he had exceeded a Mach number of 1.0, giving a true air-speed of almost 700 m.p.h. The engine is the special de Havilland Goblin, of over 3,000 lb. thrust, used when the same aeroplane, VW120, set up the 100-km. speed record of 605.230 m.p.h. last April. Unfortunately, the engine is not powerful enough to obtain sonic speed in level flight, and the de Havilland research programme is already full, so that it will not be possible to divert the effort to install a Ghost in the D.H.108.

However, these flights are of the very greatest importance, since they do provide data on the "unknowns" of the sonic range, where loads change suddenly and violently, due to the aeroplane "catching up" with its own sound (pressure) waves. The wind tunnel is unreliable at this speed, because of general interference causing instability in the tunnel airflow, and so far we only have a general picture of what happens—exact data are lacking. From the flights of the D.H.108 British engineers should learn much; already they know that a conventional aeroplane (*i.e.* without special wedge-type aerofoils) can enter the difficult

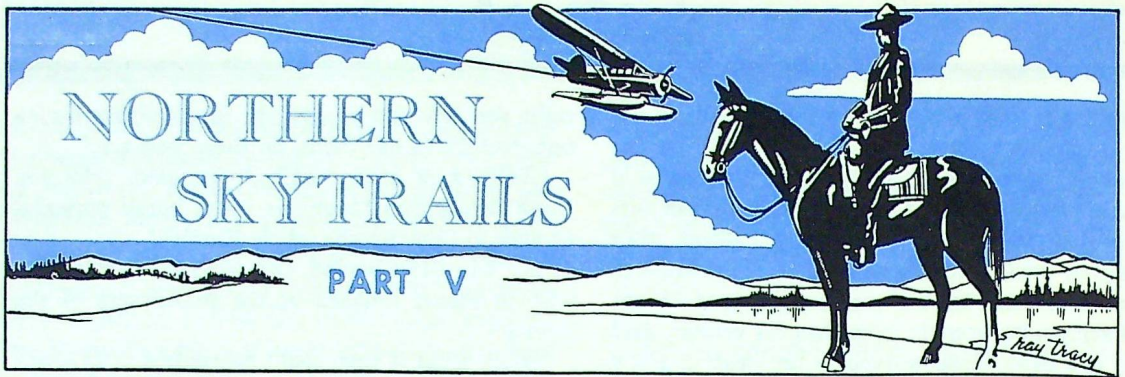
range and recover with the help of power-boosted controls and dive-recovery brakes. Heavy control forces were required, but otherwise there was no evidence of excessive g loads or reversal of lift.

In passing, we might mention that the supersonic flights of the Bell XS-1 were made vertically *upward* in order to avoid or reduce the control problems, which are much less when the wings are not being used as lift sources. That is, the stability problems are similar to those the Germans solved for the V-2. The Bell could achieve its high speeds in this way by virtue of its rockets, being independent of atmosphere, and by the reduction in weight as fuel was used while it climbed into the thinner and less resistant air of the upper atmosphere.



The D.H. 108, VW 120, that, together with its pilot, Mr. John Derry, holds the 100-km. speed record at 605 m.p.h. and has the distinction of being the first British aircraft to exceed the speed of sound.

(Courtesy of the "Air Reserve Gazette")



### THE RCAF IN THE SUB-ARCTIC: 1927-1939 (Continued)

*(The February issue of "The Roundel" described, in Air Commodore R. C. Gordon's own words, some of his sub-arctic experiences up to and including the year 1935. This month we continue with an account of his last northern operation prior to the outbreak of war.—Editor.)*

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

#### Operation "R.C.M.P. Post"

"THIS OPERATION," continues Air Commodore Gordon, "which was carried out in 1936 in a Fairchild 51 single-engine floatplane, was believed to have been the longest single journey ever made by air in Canada at that time. The trip covered approximately 11,000 miles, starting from Ottawa on July 5th and returning on August 3rd. The passenger carried was Major General Sir James MacBrien, Commissioner of the Royal Canadian Mounted Police. I functioned as pilot and navigator, and Sgt. Pritchard (now Squadron Leader retired) was the engine mechanic. The flight was arranged in order that Sir James might inspect R.C.M.P. Detachments in the Prairie Provinces and the North West Territories. The route followed is outlined in the accompanying map, although numerous other stops were made for inspection of Detachments at points not noted on it.

"The flights that interested me most were those made over territory I had never seen before—Great Bear Lake to Cambridge Bay, Aklavik to Fort Yukon, Whitehorse and Simpson, and Reliance to Chesterfield Inlet and down to Churchill. On these particular flights, I was still using the 35-mile-to-the-inch map of the Territories plus some strip maps taken in previous years by the RCAF. All prominent landmarks were viewed with considerable interest, and when landmarks did not show up at the time when they

were anticipated some concern was experienced! The problem of refuelling the aircraft in isolated locations required considerable effort in rolling gasoline drums and using wobble-pumps. However, these problems were overcome by complete co-operation among passenger, crewman and pilot.

"The flight from Cameron Bay to Coppermine was started late in the evening owing to the prevalence of fog conditions at the latter place. The route flown was over almost barren, rocky, and marshy wastes. Very few accurately mapped landmarks were in evidence until we reached Coppermine River and Bloody Falls. These rapids received their name from the massacre of a group of Eskimos by Indians in the early history of the North. Our arrival at Coppermine was not any too soon, as the fog was just rolling in over the settlement.

"Our departure from Coppermine next day was marked by patches of fog which became unbroken after we had proceeded a short distance. This necessitated flying above the fog on a magnetic course for approximately seventy miles before the fog cleared away and we found ourselves over solid ice which had not yet broken up in Coronation Gulf. The situation was a bit alarming because a floatplane, in the event of a forced landing, is not designed for landing on ice. However, we were not confronted with such an exigency, and we reached Cambridge Bay without mishap. On our arrival there, we found the

R.C.M.P. vessel "St. Roch" riding at anchor in full dress, awaiting Sir James' inspection. Sufficient open water was available in the Bay for a landing, but I had doubts (needless, as it proved later) as to whether it would be enough for a takeoff.

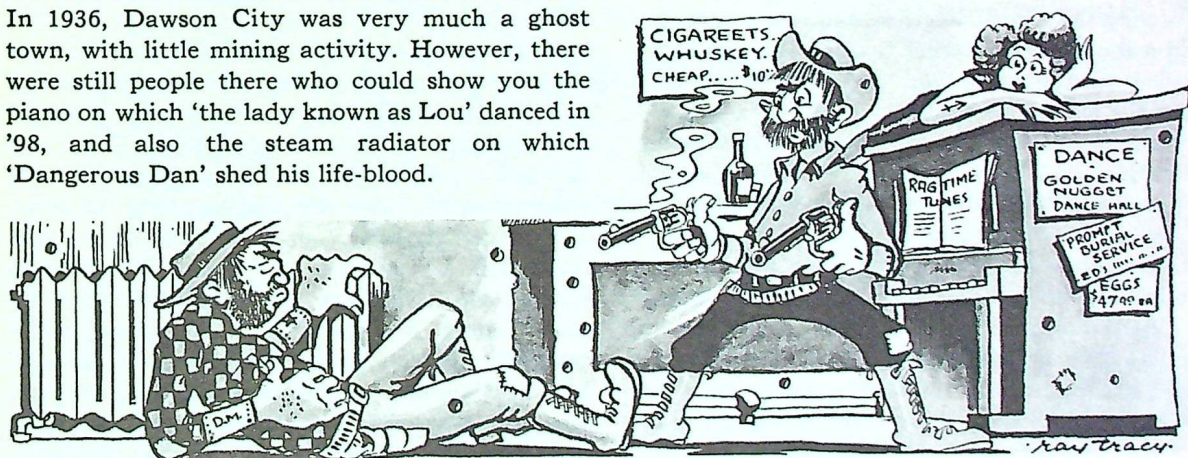
"Our departure from Cambridge Bay was made in the evening. The return flight was carried out under ideal weather conditions until we neared our refuelling point at Coppermine. There we found that the fog had again settled down, making it necessary to continue on to Cameron Bay on Great Bear Lake. From Cambridge to Coppermine, we had an excellent opportunity to view the coast on the mainland. Most of it is low, with gradual sandy or gravel slopes, and with occasional outcroppings of rock rising in some instances for two or three hundred feet. There are some trading-posts along this stretch which are only operated at certain periods of the year. In addition, there are occasional Eskimo villages or camping grounds.

"We reached Cameron Bay at midnight after a four-hour flight. The Bay was like a millpond and, to complicate matters further, the high hills surrounding it were faultlessly reflected in the water. On the power approach for the landing, considerable concentration was necessary to determine which was 'up'.

"After a stay at Aklavik, during which we visited the large reindeer herd on Richards Island, we went on to Fort Yukon and thence to Dawson. In 1936, Dawson City was very much a ghost town, with little mining activity. However, there were still people there who could show you the piano on which 'the lady known as Lou' danced in '98, and also the steam radiator on which 'Dangerous Dan' shed his life-blood.

"Our arrival at Whitehorse was marked by an unpleasantly exciting landing below the famous Whitehorse Rapids. The current here runs at approximately 12 knots, and landing with the current under slight wind conditions in the narrow channel really caused my feet to dance on the rudder bar. The surface of the water was like velvet, and what with the wind and the eddies, the aircraft seemed to be on dull skates. There were many moments when the wings of the Fairchild came terribly close to the river banks. The take-off was equally bad. Trying to get a single-engined aircraft turned downstream in such a current presents a problem. The first take-off attempt was a failure, but we managed to get airborne on the second, and proceeded on our way to Carcross.

"The trip from Carcross to Simpson via Lower Post, Yukon Territory, was undertaken with a certain amount of trepidation, as I had very little knowledge of the route. The distance involved was approximately 700 miles, with only one refuelling possibility, namely Lower Post. In addition, there was a mountain range at the eastern end before reaching the Mackenzie River at Simpson. However, we flew out of Carcross at 4 a.m. and landed at Lower Post at 7 a.m. Once clear of the mountains around Carcross and Teslin Lake, and after picking up the headwaters of the Liard River, the navigation problem became quite simple.





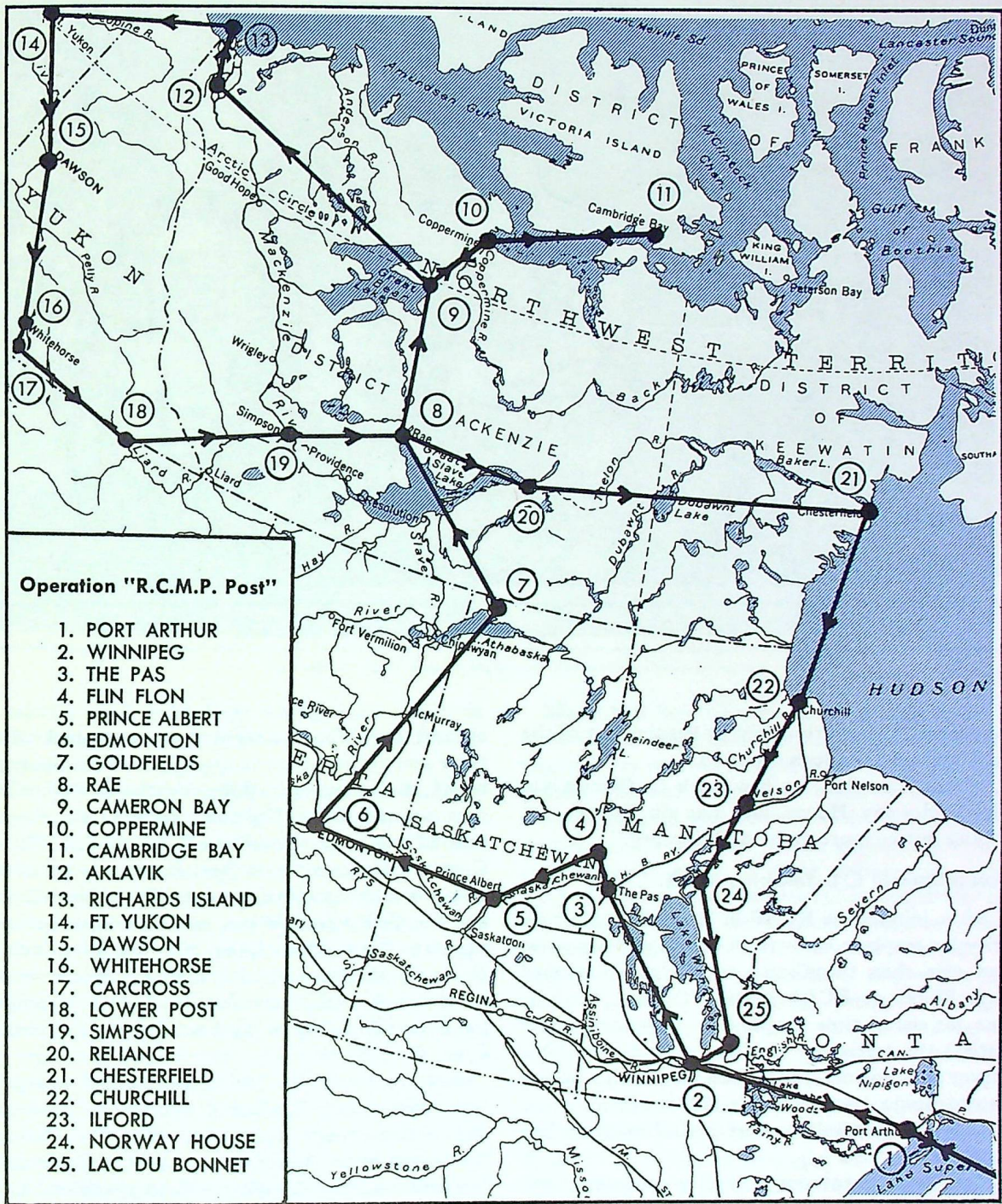
Fort Reliance

"The flight from Lower Post to Simpson was not so comfortable. Bad weather was encountered around Hell's Gate, and our flight along the canyon under low clouds was in pretty rough air. Shortly after reaching the Mackenzie valley, still following the Liard River, we ran into severe rain and a snow storm. Rather than fly through it, we landed on the Liard and flew on into Simpson after the storm had passed.

"The country east of Fort Reliance to Chesterfield Inlet and down the coast to Fort Churchill is practically all barren waste, with the exception of the area to the north of Reliance through the Thelon Game Reserve. I was using a strip map, made a few years earlier, which carried on through to Chesterfield; but once we got off the strip map, navigation was somewhat confusing on account of the great number of unmapped lakes and other waterways. It was along this route that the Hornby Expedition perished in 1926.

"While crossing a section of a game reserve about thirty miles east of Beverley Lake, we observed a herd of musk-ox. We flew low over it and managed to take some good photographs of the animals standing in their typical defensive formation.

"Our departure from Chesterfield Inlet was made as the fog off the Bay was beginning to roll in over the settlement—a normal occurrence at this time of year. The first part of our flight was over the top of the fog, which continued for some distance south. After breaking out into the clear, navigation consisted of merely following the coast line. A number of Eskimo villages were spotted along the coast, which was free of ice for some distance into the Bay. We saw many white whales in the bays along the coast and in the harbour at Churchill. Indeed, our landing at Churchill was livened up considerably by their presence, as they kept surfacing in the landing area. However,





Fort Reliance

they were particularly adept at keeping out of the way, and no casualties occurred.

"From Churchill we flew back to Ottawa via Ilford, Norway House, and Lac du Bonnet, re-joining our outward route at Winnipeg."

#### **Group Captain C. L. Trecarten, O.B.E.**

After joining the RCAF in 1928, this officer received a seaplane conversion course at Vancouver and was then transferred to the newly formed Test Flight at RCAF Station, Ottawa. Here he was for some time employed on (among other duties) the testing of geodetic and photographic survey instruments. Finally, he was given a proper photographic course and, in 1934, appointed as O.C. No. 2 General Purpose Detachment at Lac du Bonnet.

The Detachment was primarily concerned with photographic and geodetic survey. The Bellanca

aircraft used for the work were equipped with three rear-facing aerial cameras for oblique photography, and their operations covered an extensive area around Lake Nipigon. As the winter retreated north, the Detachment followed it. From Cameron Bay, on Great Bear Lake, a large territory was photographed between Great Bear Lake and the Yellowknife River, and a tie-in was made between Great Bear Lake and the MacKenzie River for the purpose of finding a suitable road-route which would enable water-borne supplies for Eldorado Mine to by-pass the rapids in the Great Bear River.

After finishing this operation, the Detachment was ordered into the Rocky Mountains between the North West Territories and the Yukon Territories to carry out photographic work around the head waters of the South Nahanni River. The reason behind this assignment had a somewhat



South Nahanni River

romantic and legendary background which is interesting enough to warrant a brief digression from our main theme.

In 1906 two brothers by the name of McLeod were found murdered on the South Nahanni River in the vicinity of Dead Man's Valley. The circumstances surrounding their death were rather mysterious in that the whereabouts of an English mining engineer, who was known to have been with them, could not be ascertained. After many years of searching he was located in Vancouver, where he had deposited a considerable sum of placer gold with one of the banks. None the less, he was never apprehended, and it is thought that, when he discovered his whereabouts to be known, he went back into the Nahanni country. This fact, combined with the knowledge of the value of the gold deposited by him, immediately started a legend woven around the so-called Lost Placer Gold Mine of the McLeod brothers.

Many half-hearted attempts had been made to discover the mine, and in about 1932 considerable interest was revived in that area by certain prospectors who had been in there and returned with samples of gold and stories of the possibility of untold wealth. This, of course, resulted in a rush of prospectors eager to stake claims—but, since most of these claims were staked in the winter by men who had been flown in, many of the claimstakers did not return over the difficult terrain to work their claims. The revival of interest in the South Nahanni immediately brought to light various alleged mysterious disappearances of prospectors and trappers in the area and also the finding of the odd individual who had died in unusual circumstances. The bodies lacked heads. Although, as R.C.M.P. records show, the number of such cases was exceedingly small, the valley soon came to be popularly referred to as "Headless Valley."



South Nahanni River

It is the writer's personal opinion that both the disappearances and the decapitations can be explained very simply. The disappearances can in all probability be attributed to the fact that there are in those regions certain hot springs (whence, no doubt, the old legend of the Lost Tropical Valley), the warm water from which naturally makes the ice very unsafe, so that unwary travellers who might blunder on to the dangerous patches would speedily and irrecoverably vanish and be swept away beneath the ice. As for the headless bodies, the most logical explanation is perhaps the prevalence in those regions of that unpredictable and almost indestructible animal, the grizzly bear.

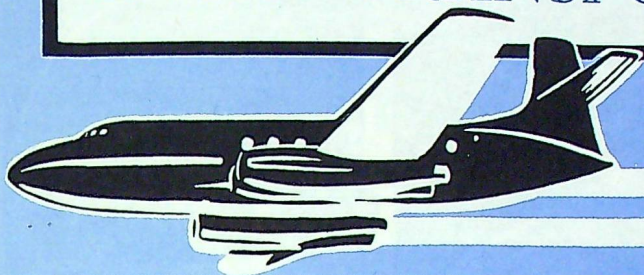
No. 2 General Purpose Detachment was, needless to say, concerned less with ghost-hunting than with the taking of photographs for mapping purposes. Vertical and oblique photographs were taken along the South Nahanni and along the Flat and Caribou Rivers, to tie in with previous survey work done by the RCAF along the Liard River up to the point where the South Nahanni flows into it.

The whole operation was conducted merely with the assistance of a sketch map prepared from information procured from Indians, trappers, and the odd government party who had made short overland traverses of some of the more easterly areas. Oddly enough, this map proved to be surprisingly accurate, and as the weather was fair enough to permit Mr. Fry (the Lands and Mines representative who accompanied the Detachment) to take adequate star observations, the work progressed satisfactorily. Subsequent plotting of the photographs enabled the Topographical Survey Branch to produce a reasonable map of that part of the world which will allow accurate definition of any mineral claims that may later be recorded there.

It might be added as a note of interest that no major find of placer gold has been made as yet, although there is evidence that such exists. Group Captain Trecarten himself panned for gold on non-photographic days—and actually succeeded in obtaining a fair showing.

(To be continued)

# AVRO TRANSPORT XC-102



(Condensed by Wing Commander R. H. Bray, RCAF, from an article by Charles W. Cain in "Aviation Week")

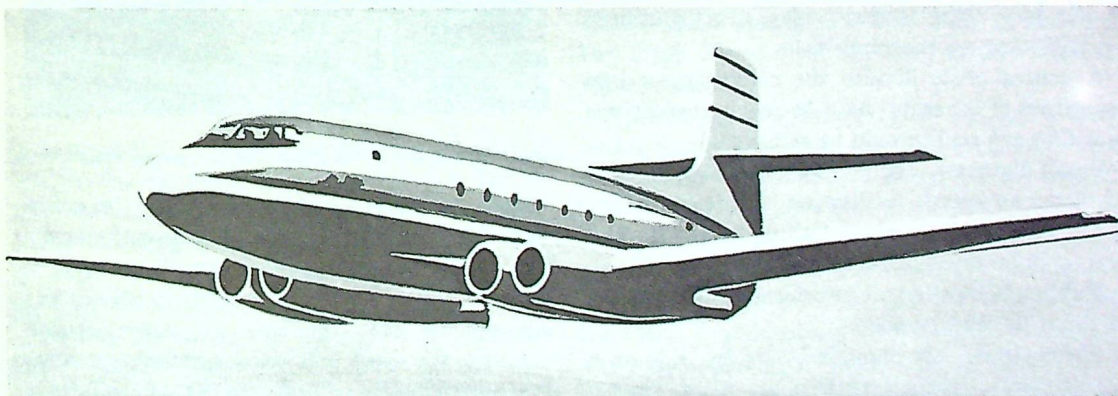
IN THE AVRO XC-102 the Dominion of Canada has something brand new in the commercial transport field—a 100% jet-powered design with an economical cruising speed 100 m.p.h. faster than the newest American types.

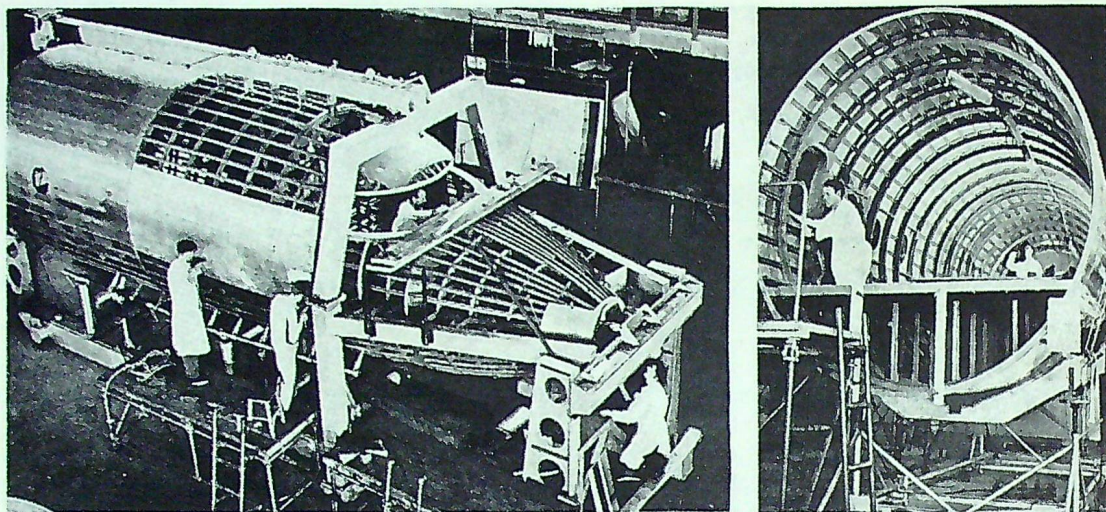
According to estimated performance figures just released, the XC-102 should have a maximum cruising speed of 417 m.p.h. at between 30,000 and 35,000 feet, with an all-up weight of 55,000 lbs. Under these conditions the aircraft will carry a maximum payload of 12,700 lbs. The internal layout can be arranged to seat either 36 or 40 passengers, depending upon the ratio of passenger to cargo space that may be required by any one

individual operator. The aircraft, which is to be named the JETLINER, will have a still air range of 1,200 miles.

Developed especially for inter-city work on trans-continental air lines, where it should establish new standards of speed and operational altitude, the XC-102 is fully pressurized and air conditioned. A tricycle undercarriage is fitted with twin wheels on both main and nose units, and in the basic design great attention has been paid to safety features. The aircraft is powered by four Rolls Royce "Derwent V" turbine engines, but later production models will probably be fitted with Canadian-built engines.

The aeroplane is a low-wing monoplane with a span of approximately 98 ft. and an overall length of approximately 82½ ft. The airframe is of metal construction throughout. The fuselage is of cir-





Avro XC-102 nose section (left) and rear center fuselage section reveal strength of structure required for high cabin pressurization.

cular section and is built in four main units:

1. Nose, embodying the step-down cockpit and nose wheel gear installation.
2. Pressurization gear, baggage and mail compartments and forward entry hatch.
3. Forty seat passenger compartment, and rear entry hatch (port).
4. Tail section, housing the rear baggage compartment and entry hatch (starboard).

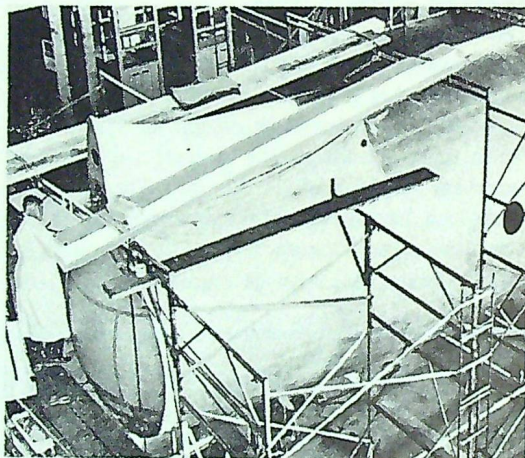
Crew will consist of pilot, co-pilot (handling radio and radar equipment), and stewardess. A spare seat is situated behind co-pilot's seat for use of a trainee. Wire-sandwich glass is being utilized for anti-icing on the windshield.

A central aisle divides the compartment into twin lines of 20 seats. As a 36-seat transport, the four forward seats would be removed.

Small diameter, double thickness, porthole-type windows are used, facilitating the design of the cabin for pressurization. Cabin accessories and seats will be manufactured in Canada.

Rubber boot thermal anti-icing is incorporated in the wing leading edge.

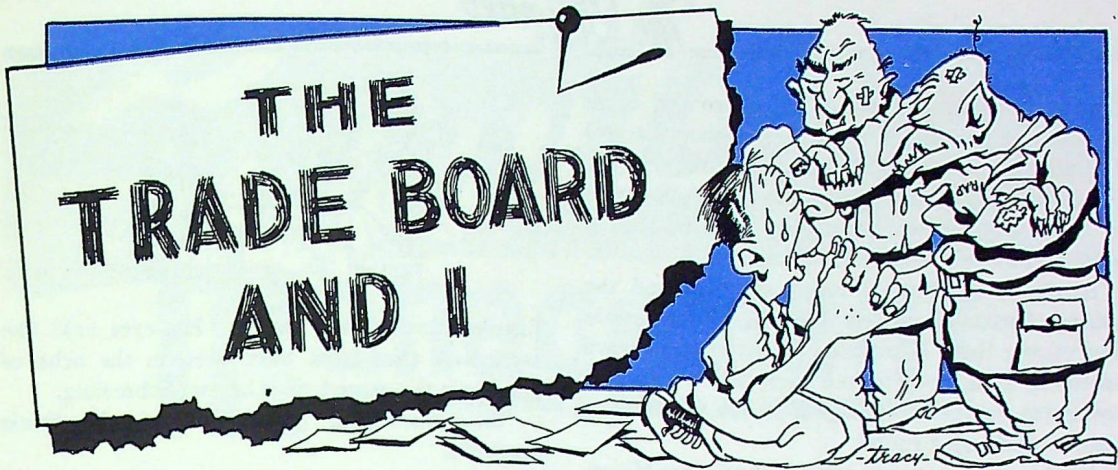
Power units are mounted side by side in a housing and attached to the main spars. The entire nacelle is fireproof, and the fire wall is equipped with extinguisher fluid entrances.



Exterior view of rear center fuselage shows pressure dome at end.

No appreciable sound is expected in the cabin from the jet units, because the tailcone is away from the fuselage by a good margin. Air travellers, weary of excessive cabin noise and the enervating vibration of the contemporary piston engine passenger transport, will welcome the silence; and, if expectations are realized, the XC-102 will be a widely sought-after aircraft.

★ ★ ★



by LAC H. ZIGLIN

LIKE ALL military organizations, the Air Force lives on tradition. At least once a year the delightful old customs of the Spanish Inquisition are revived through the medium of the Trade Examination Board.

I did not always feel like this about Trade Boards. My awakening to the facts of life came only the other day, shortly after I'd walked gaily into the Signals Office. A number of the boys were grouped around the bulletin board, looking at it as though hypnotized.

"Ziggy didn't make it," a voice said.



I moved in quickly. On the page of DRO's which was holding their interest was a list of names. At the top of that list was a short sentence: "The following remusterings are effected in accordance with Trade Examination Board Proceedings Serial No.so-and-so d/so-and-so.

Among the names not included in the list was that of LAC Ziglin...

A little later, comfortably relaxed over my bottle of beer, I said to myself: "Let's figure this thing out calmly. Just why did you fail?"

After a long and furious debate with myself I arrived at no answer at all. I felt quite positive, as I still feel, that Ziglin had carried out a well-planned assault upon his Group 2. Let me describe my strategy, and you be the judge...

About the end of August a notice appeared in DRO's to the effect that we could expect a Trade Examination Board some time in November. Immediately I swung into action.

As everyone knows, one of the prime requirements for any victim of any board is calmness. "How," I asked myself, "does one acquire this calmness?" The answer was given me by my roommate. He suddenly suggested that we head for the canteen and RELAX over a cool ale.

In no time at all my sense of duty had forced me into such a strenuous schedule of relaxing exercises that I should have been able to flow into the Trade Board room on the big day with no effort whatsoever.

Next on my programme came the actual business of studying up on all the things a Comm. Ops. has to know but never uses. For instance, there is that little item called a half-wave rectifier. Rumor has it that any half-wit finds this a cinch to understand. Not being a half-wit, I couldn't understand any part of it. Furthermore, I understood even less about it after asking a few Comm. Techs. It seems that this little gadget is operated by a bunch of little items called electrons. These go tearing through the wires, tubes, and what have you, at a great rate. For some undisclosed reason

# The Roundel

they branch out in various directions and cause all sorts of potentials, inductances, short circuits and other weird things to come to life in the circuit. From this apparently meaningless conglomeration of facts and figures, something happens that is vital to any self-respecting wireless set.

Anyhow, by dint of much studying and the asking of many questions, I managed to memorize everything there is to know about the half-wave rectifier. This, despite the fact that I wouldn't recognize one of the things if it was suddenly to appear and buy a round.

Next in importance to radio theory, came Morse. This is a very necessary subject to all Comm. Ops. They are required to pass a test at umpteen words per minute, just in case they should decide to join the Boy Scouts after retirement.

In like fashion, I tackled and overcame the subjects known as Procedure and Organization—though, now that I look back, I wonder if the time might not have been better spent on relaxing exercises.

The great day finally arrived. The morning started out as usual. After facing towards the C.O.'s office and bowing low three times, as is the custom with all right-thinking airmen upon arising, I felt quite equal to breakfast and the Trade Board. At about 8.30 I picked up my rabbit's foot and struck out for the Signals Office.

The Signals Office presented a weird sight. The whole section was present. The Trade Board had set up in a deserted PBX room. The airmen in the Signals Office were all wandering around with that condemned look you only see in the eyes of a groom on his way down the aisle. The air was filled with talk of frequencies and the uses of this, that, and the other thing. Now and then I could see someone drawing figures in the air, which I had no trouble in recognizing as portraits of a half-wave rectifier.

After what seemed an endless wait, it was finally decided to take my case while I still had some signs of sanity left. Suddenly two husky men seized me. Without warning I was dragged kicking and screaming into the Trade Board Room. There, the first sight that met my eyes was a flight sergeant. He looked up at me from under



furrowed brows as I entered. His eyes held the same look that must have been in the orbs of Joe Louis the second time he met Schmeling.

"Sit down, Ziglin," he said, in a voice like Boris Karloff's.

As calmly as a kid on his first date, I complied.

From here on the proceedings resembled nothing so closely as the quizzing of a suspected killer. All that was lacking was the single bright spotlight. The questions came shooting at me from every angle.

"What is an S4 used for?" (For all I knew, it might have been the official name for a bedroom utensil airmen for the use of.)

"How would you stop bleeding?" (I hadn't a clue.)

"Where would you go to apply for annual leave?"

"What is 278 for?"

I was queried on everything except the one question I had been told that every Trade Board asks every operator—"draw and explain the action of a half-wave rectifier." Then, quite unexpectedly, the board ended.

"Time for us to go over to the mess for supper," said Karloff. This rather surprised me. By that time I was under the impression that their staple food was human blood.

I made a last feeble effort. "But," I asked plaintively, "would you like me to draw and explain the action of a half-wave rectifier?"

"Nope. That's all for you."

The next two weeks went by slowly. Every day the section was full of Comm. Ops. going through the same procedure. DRO's were read more thoroughly than "The Chinese Room." Still confident in my secret knowledge of the half-wave rectifier, I felt that I must have passed. And then...

"Ziggy didn't make it," a voice said.



# Service Management

by SQDN. LDR. G. R. TRUENNER

## INTRODUCTION

JUST AS THE EQUIPMENT and processes of our forefathers have been outmoded, so have their management practices. RCAF Organization Order 959 states that the School of Service Management has been organized to train officers and senior NCO's in the principles of management as they affect the Service. Like any industrial enterprise which has grown in magnitude, the RCAF realizes that the streamlining of its structure and the refinement of its methods necessitate an ever-closer study of the problem of better management.

The science of management is not by any means a new one. As far back as 1916 B.C., the Babylonians set forth certain fundamental management truths. In 1644 B.C. the Chinese recorded basic efficiency principles. However, in spite of the fact that the science of management has been established for so long, it is, in the truest sense, still in its infancy. Only in the last three or four decades have the leaders of commerce, industry, and the armed forces been putting aside their rule of thumb methods for quantitative or analytical techniques. We have now within the RCAF a group charged with the responsibility of examining, not the usual military subjects, but the fundamentals of sound management insofar as they are applicable to the Service purpose. The results of their studies have been crystallized in the Service Management Course.

## The Four Principles of Management

The material presented in this course is built around four basic principles of management, sometimes referred to as the principles of organization.

1. All activity of an organization should be directed by one "boss." In other words, it is an extremely clever man who can serve two masters. This is the principle of Unity of Command.
2. Each superior should have no more subordinates reporting to him than he can effectively control within his area of supervision. This is the principle of Span of Control.
3. All functions required to accomplish the task of the organization should be homogeneously grouped and all individuals should be respectively assigned to these groupings in accordance with their capabilities. This is the principle of Homogeneous Assignment.
4. Assigned responsibilities should carry with them the commensurate authority necessary for decision and action. This is the principle of Delegation of Authority.

Experience has shown that a technique for efficient management can be more readily acquired if these four principles—namely Unity of Command, Span of Control, Homogeneous Assignment, and Delegation of Authority—are known and understood.

## The Officer's Job

After the principles have been mastered, attention is directed to the responsibilities of the individual administrator or manager. Research has shown that the officer's job is five-fold.

### 1. *Planning*

He must plan the work of himself and his section.

### 2. *Organization*

After planning has indicated a certain course of activity, he must organize the space, personnel, and equipment at his disposal to enable his section to fulfill the plan.

### 3. *Command*

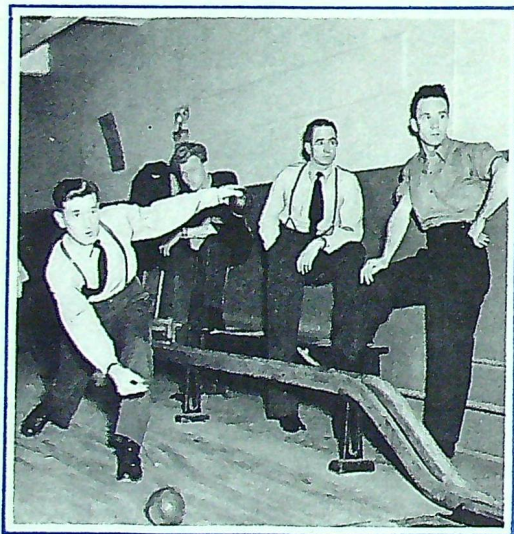
Proper directives and orders must be issued and leadership must be provided.

### 4. *Control*

The Commander must continually check to ascertain that instructions are being carried out by the organization, according to plan.

### 5. *Co-ordination*

He is also responsible for the uniting and correlating of all activity as it proceeds.



*Some of the staff and NCO students relaxing during the Course. Warrant Officer E. B. Brackenbury, a member of the instructional staff for NCO's Course, demonstrates the management of the bowls.*

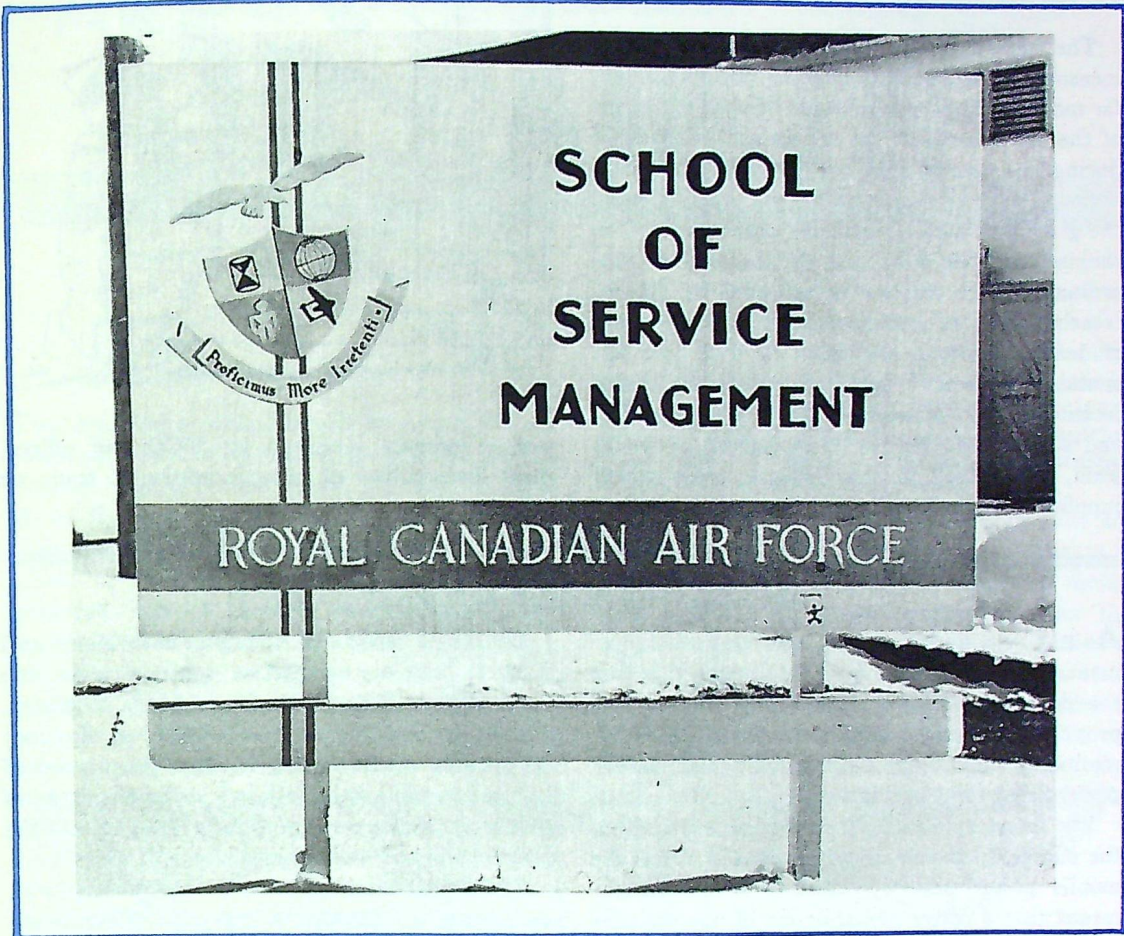
## Time Management

Because it is necessary for the individual, whether he be a worker, specialist, supervisor or executive, to consider the value of the time at his disposal, further investigation is pursued solely on the subject of time management. The worker or specialist, to do his job efficiently, must learn to distinguish between the important and the unimportant tasks. His time must be so arranged to enable accomplishment of the important jobs first. The value of the officer or NCO who holds an executive or supervisory position is assessed by the amount and quality of the work his subordinates do. He must spend less time in doing the work himself and more time in using his talents in training, advising, and assisting his staff. In this way the subordinates improve their own knowledge, capabilities, and overall efficiency; and production increases. Thus, the management of the individual's time is given an important place in the present course of study.

### Practical Problems and Personnel Relations

Training at the School of Service Management is not totally restricted to purely theoretical subjects. The students are confronted with problems involving the investigation of some of the work methods and procedures of our Service. After the elementary mysteries of time and motion study are mastered and a standard method of work simplification is developed, everything from the design of an I & R Section to the method of applying for Benevolent Fund assistance is analysed. Trainees prove that savings can be effected in the size of offices, number of personnel, amount of waste, elapsed time and other factors which concern any specific problem. Those who originally scoffed at the idea of adapting industrial methods of work analysis find themselves irresistibly drawn to the fascinating art of effecting better and more simple working habits.

The course is concluded with lectures on personnel relations. The modern officer's or NCO's interest in this subject, whether he is conscious of it or not, arises from an intelligent selfishness. He recognizes that personnel relations have an im-



*The meaning of the Schools' Crest is revealed only to Initiates*

portant bearing on his Service effectiveness. He knows that co-operation, loyalty, good discipline, initiative, pride in the Service, conscientious effort, the will to carry on in the face of difficulties, and similar subordinate attitudes, are largely the effects of his own understanding and human engineering of people. Students are shown that the proper application of management training is in itself a well-balanced programme for better personnel relations.

#### **Course Methods**

The school is sometimes accused of using unorthodox teaching techniques. The presentation

of material capitalizes on the fact that individuals learn more by doing and seeing than by just being present in lectures. The classrooms are so arranged that students can see each other as well as the instructor. Lectures are interspersed with individual assignments which consolidate or illustrate the point under immediate consideration. Practically all subjects are followed by synthetic exercises and discussions where students, divided into syndicate groups, are asked to ascertain the best possible organization for this or that undertaking, or the best workshop layout for this or that particular problem. After a suitable period of time, syndicates re-assemble in classrooms, where answers are reviewed.

## Conclusion

The success of any training programme is not measured in terms of diplomas or examinations. A far more useful yardstick would be the assessment of the continuance of the enthusiasm engendered during the course. The subject of management seems to have certain latent qualities which instill the graduates with a sustaining desire to improve themselves, their jobs, and the lot of their subordinates. Such interest is indicated by the increasing bulk of correspondence from previous students. Hardly a mail goes by that does not contain a request for additional precis, reports of recent research, answers to particular problems, and so forth. In Service Management, it would seem, the RCAF is developing a study which supplies a common purpose, a common ground,



and a common language for NCO and officer, quite irrespective of considerations of trade or branch.

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## NUCLEAR POWER FOR AIRCRAFT

AS HAS NOW BECOME USUAL, each new announcement on progress made by the Americans towards the development of nuclear energy for aircraft propulsion coincides with some British scientist reminding us of the improbability of nuclear power being used in this way.

The latest statements from America are: First, the successful development of what is called the mobile power pile—by which it is presumably meant that a conventional design of pile has now been built which is compact enough to be portable without great difficulty. Second, it seems that American plans for the actual design of a nuclear-powered aircraft are now in progress and the work is now more a question of detail engineering than of basic research.

There can be no doubt that during the past few months the Americans have quickened the tempo of development on these lines and have gone farther towards solving the main difficulty, which centres around the weight of shielding round the pile. The minimum weight has, until now, been generally regarded as about 50 tons. The Americans may have produced a material with some form of "artificial density" sufficient to trap the radioactive products, yet remain reasonably light.

Continued reports of American enthusiasm and progress are a remarkable contrast with the bleak British attitude. Professor M. L. Oliphant, F.R.S., in his lecture in London on October 26, opening the Sir Halley Stewart Trust series of lectures on "The Atomic Age," joined the ranks of British physicists who apparently disagree with the practicability of nuclear propulsion of aircraft.

Professor Oliphant's lecture was brilliantly lucid, and he really succeeded in making a difficult subject easily understood by the man-in-the-street. At the end of the lecture he gave a brief outline of the theory of the hydrogen-helium process of releasing atomic heat. He considered it 50 years before a "sun on earth" could be produced. Evidence from the U.S. Government official at one time best placed to assess actual progress, suggested that America would have a hydrogen-helium atomic bomb (which is expected to be at least 1,000 times more powerful than any Plutonium fission bomb) in a few years. And that forecast was made some time ago. *Unfortunately for mankind there is little doubt which of these two conflicting opinions is nearer the truth.*

(Courtesy of "The Aeroplane")

# The ROYAL CANADIAN AIR CADETS



by A. MACDONALD

## The Guthrie Trophy

THE HIGHEST AWARD that can be won by an Air Cadet squadron in western Canada is the Guthrie Trophy, named for its donor, Air Vice Marshal M. M. Guthrie, C.B., C.B.E.

As A.O.C. North West Air Command, a post which he held until his recently-announced retirement, A/V/M Guthrie decided to stimulate competition among the Air Cadet squadrons in the Command by setting up an annual contest based on general squadron proficiency. The competition got under way last year, and the first winners were announced only a few months ago. Guthrie Shields, awarded annually to the best squadron in each of the four western zones, were won by 84 (Port Arthur) Sqn., Port Arthur, Ont.; 30 (Wylie-Mitchell) Squadron, Estevan, Sask; 341 (Mundare) Squadron, Mundare, Alta.; and 324 (Revelstoke) Sqn., Revelstoke, B.C.

After carefully re-assessing the year-round performance of the four winners, the judges decided that No. 30 Squadron, Estevan, was the best squadron in North West Air Command. Award of the coveted Guthrie Trophy was made by its donor on November 7, 1948.

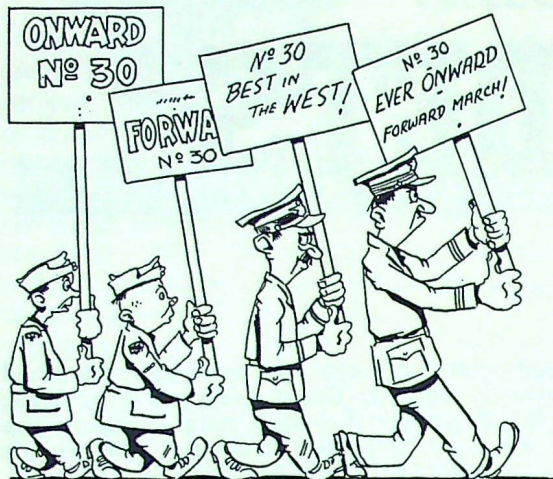
It is, perhaps, significant that a small Saskatchewan town should produce the first winning squadron. Scattered across the face of Canada, there are 177 active Air Cadet squadrons at the latest count. Many of these units are located in large centres of population where a good supply of potential officers and instructors exists, and where considerable assistance may be obtained from nearby RCAF establishments. The casual observer who is familiar only with these "big city"

operations actually has a somewhat distorted view of the Air Cadet League's functions; for it is often in the small, rural communities that the Air Cadet training programme reaches its most valuable level.

Considering the fact that small-town units are seldom blessed with too many advantages, it is indeed remarkable that No. 30 Squadron should rate so highly in general proficiency. How the squadron reached its present enviable status makes interesting reading—as well as providing a clear picture of the Air Cadet training programme in action. The following report, which might be entitled "How We Won the Guthrie Trophy," was prepared by F/O H. F. Walker, Officer Commanding.

### Success Story

In the summer of 1947, the fortunes of No. 30 Squadron were at a low ebb. Enrolment was down, community interest was falling off, and there was some talk of disbanding the unit. In August, Mr. W. J. Perkins, K.C., chairman of the local sponsoring committee, called a meeting of his committee for the purpose of making a fresh start. The members appointed Mr. Harold F. Walker as commanding officer, and Mr. Norman Gould as adjutant. As a former RCAF officer, Harold Walker was well equipped to supervise training, although he professed no knowledge of Air Cadet matters. Norman Gould, on the other hand, was a former Air Cadet who had spent some time in the Navy. At the outset, the two officers agreed upon a common goal: to make No. 30 Squadron the "Best in the West."



Only twenty-two cadets were enrolled from the preceding year and it was apparent that a vigorous recruiting campaign was long overdue. F/O Walker and Adj. Gould visited the local schools and acquainted the boys with the advantages of becoming Air Cadets.

The following week the first parade was held, with no less than sixty-three cadets in attendance. The first few parades were taken up with fitting uniforms, drilling the new cadets, and lecturing on service familiarisation.

Early in November, F/O Walker and Adj. Gould attended the Annual Meeting of the Provincial Committee of the Air Cadet League in Regina. They received valuable suggestions as to training, equipment and syllabus for the coming year. During one of the sessions, Air Vice-Marshal Guthrie of N.W.A.C. announced and displayed the Guthrie Trophy, and Mr. Walker and Mr. Gould decided they wanted it for their squadron. They returned to Estevan thoroughly enthused, and promptly enlisted the aid of two civilian instructors to assist them. Mr. Stan Mays, a former RAF flight-sergeant disciplinarian, specialized in drill and rifle drill, and Mr. Joe Tunaley, ex-RAF sergeant aero-engine mechanic, agreed to teach engines, airframes and some airmanship. Adj. Gould, meanwhile, instructed in meteorology, drill and first aid, while F/O Walker tackled navigation and airmanship.

From September to January, parades were held each Thursday evening, and thereafter they were held each Tuesday and Thursday. The squadron was perhaps more fortunate than most (certainly more than the average small-town squadron) in that it had its own Air Cadet Hall. This was a spacious structure at the Estevan Airport (formerly No. 38 S.F.T.S. under the Commonwealth Air Training Plan). The hall had an excellent stage, dressing-rooms and wash rooms, a projection room and basketball courts. In the hall, too, were rooms for clothing and equipment stores. In cold weather, when heating the hall did not seem practicable, the Reserve Army generously offered the use of its drill hall, along with an excellent classroom, for two evenings a week.

During the winter months most of the time was spent in classes, supplemented by the occasional instructional film. Many hours were taken up with drill, and one group of cadets was formed into a rifle squad. By spring, the squadron Warrant Officer (F/Sgt. Remington Walker) could boast a smart precision squad, and the squadron was very much "on its toes."





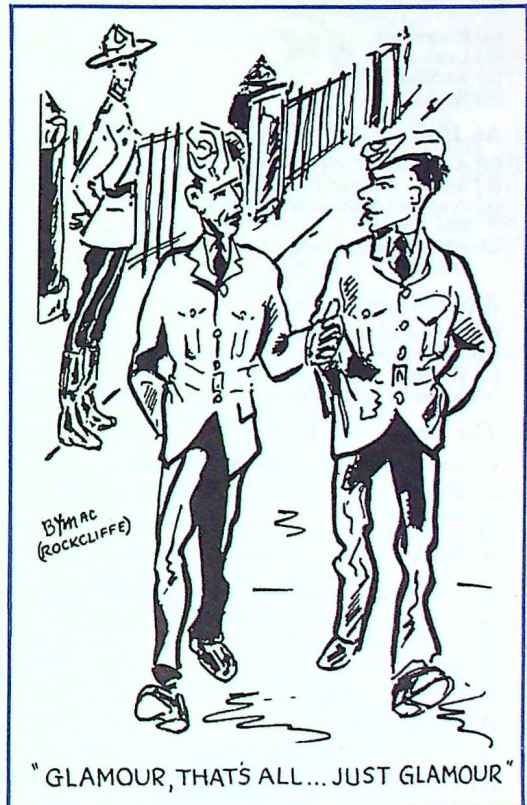
In the spring of 1948, the squadron recommended four cadets for RCAF Flying Scholarships. All four were granted, although one of the lads failed to pass his medical. Local flying scholarships were donated by Mayor Harry Nicholson, who is a member of the local sponsoring committee, and by the Rotary Club of Estevan; and these were awarded to two of the Junior N.C.O.'s. All other NCO's in the squadron had previously received scholarships.

Much to the gratification of the squadron, WOII R. Walker, its nominee for a trip to Britain under the Cadet Exchange Visit Plan, was chosen to be one of the fortunate cadets and will readily testify to the value and enjoyment to be had from such a trip.

On June 3rd, Squadron Leader Mitchner of the Joint Air School at Rivers, Manitoba, arrived to make the annual inspection. A complete ceremonial parade was carried out and thereafter the awards were made. LAC Thomas Osaduk and LAC Marcus Wanner tied for the prize given by Judge E. R. Wylie to the most outstanding First Year Cadet. Mayor H. Nicholson presented his flying scholarship, and Mr. H. Mandel presented the one given by the Rotary Club. Announcement was made too of the nominees for RCAF scholarships. A display of flying was carried out by WOII R. Walker, Sgt. Vern Pace and Sgt. Earl Joice, in three Tiger Moth aircraft of the Estevan Flying Club. The Rifle

Squad did some precision drill for the inspecting officer; and the programme ended with a display of model aircraft in flight by the following five cadets, members of the Balsa Butchers Aero Club: WOII R. Walker, Sgts. Pace and Joice, Cpl. Shannon, and LAC Wanner.

The end of the training year was marked by the annual trip to the summer camp at Gimli, where the cadets not only enjoyed themselves thoroughly but also made a good impression on their supervisory officers. It had been a pleasant year and a successful one—more successful, in fact, than anyone had expected. The final result—the winning of the Guthrie Trophy—came as an exceedingly pleasant surprise which the squadron hopes to repeat at the earliest opportunity.





# WHAT'S THE SCORE



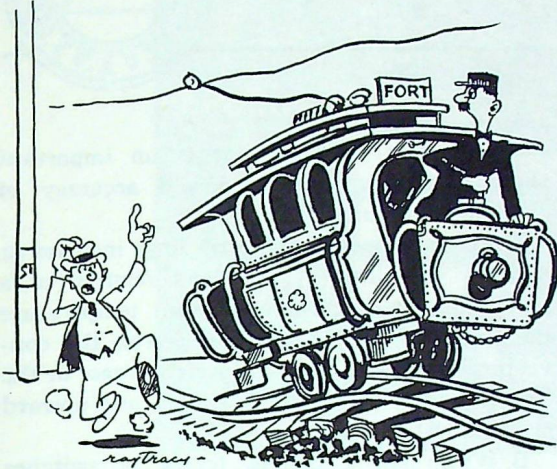
Score one point for each question rightly answered. A score of 16 or more is above average.

(Answers on page 48)

1. "The noblest prospect which a Scotchman ever sees is the high-road that leads him to England." This famous saying was uttered by:
  - (a) The late Lord Tweedsmuir
  - (b) Sir Robert Bruce
  - (c) Dr. Johnson
  - (d) Andrew Carnegie
2. The last stage in the disintegration of uranium is:
  - (a) Plutonium
  - (b) Lead
  - (c) Radium
  - (d) Gold
3. An Irish elk is:
  - (a) A member of a fraternal order in Eire
  - (b) An extinct animal
  - (c) A species of dwarf deer developed at Whipsnade Zoo, England
  - (d) An experimental cross between a moose and a caribou
4. A Social Leopard is:
  - (a) A domesticated puma
  - (b) An unpopular inhabitant of Dogpatch
  - (c) (In New York) the eldest son of a social lion
  - (d) A species of Manchurian cheetah that hunts in packs
5. The demise of William the Conqueror occurred at the same moment as his:
  - (a) Birth
  - (b) Marriage
  - (c) Coronation
  - (d) Death
6. A man with an ingenuous disposition is:
  - (a) Clever and inventive
  - (b) Frank and honourable
  - (c) Subtle
  - (d) Humorous
7. A quid pro quo is:
  - (a) (In England) a tip of one pound
  - (b) A type of tobacco chewed by Lascar seamen
  - (c) A mathematical term
  - (d) An equal exchange
8. "Much may be done with a Scotchman if he be caught young" was said by:
  - (a) The late Lord Tweedsmuir
  - (b) Dr. Johnson
  - (c) Ben Jonson
  - (d) Field Marshal Montgomery
9. A doctor who takes over the practice of another doctor during the latter's vacation or sickness is sometimes referred to as a:
  - (a) Locus paenitentiae
  - (b) Locus standi
  - (c) Locum tenens
  - (d) Locus classicus
10. They are no older than:
  - (a) Us
  - (b) We
  - (c) Them
  - (d) Her

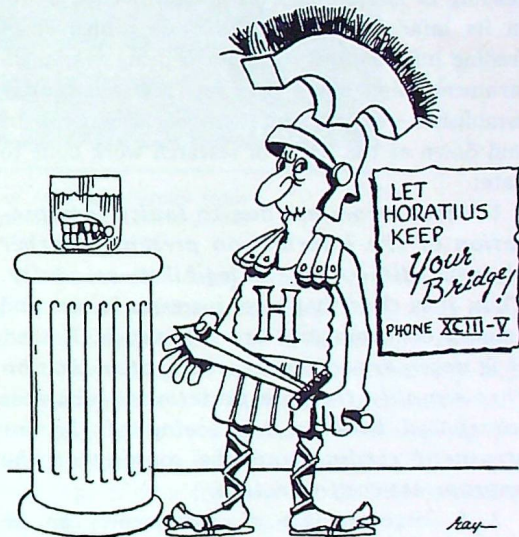


11. The historic signal, "Hold the fort! I'm coming!", was sent by:
- (a) Robert E. Lee
  - (b) Winston Churchill
  - (c) William T. Sherman
  - (d) Lord Kitchener



12. The capital of Roumania is:
- (a) Budapest
  - (b) Bucharest
  - (c) Zagreb
  - (d) Prague
13. "The only way to get rid of a temptation is to yield to it," was said by:
- (a) Oscar Wilde
  - (b) Sir Harry Lauder
  - (c) The "Gloomy Dean" of St. Paul's
  - (d) Dutch Schultz
14. The sea in which it was formerly supposed that ships could be trapped and held forever by the seaweed is:
- (a) The Sargasso Sea
  - (b) The Caspian Sea
  - (c) The Caribbean Sea
  - (d) The Dead Sea
15. Cosmic Rays are believed to radiate from:
- (a) Outer space
  - (b) The Kennelly-Heaviside layer
  - (c) The sun
  - (d) The ionosphere
16. The number of planets in our solar system is:
- (a) Five
  - (b) Seven
  - (c) Ten
  - (d) Nine

17. The largest of the planets in our solar system is:
- (a) Mercury
  - (b) Pluto
  - (c) Earth
  - (d) Jupiter
18. The legend on the "Banner with a strange device" was:
- (a) "Unfair to Organized Labour!"
  - (b) "Excelsior!"
  - (c) "Damn the Torpedoes—Full Speed Ahead!"
  - (d) "On to the Bastille!"
19. A pentode is:
- (a) A device used in radio tubes
  - (b) An obsolete form of verse having five consecutive rhyming lines
  - (c) A roof-top apartment
  - (d) An insectivorous sloth



20. The celebrated line, "How well Horatius kept the bridge," occurs in:
- (a) A poem by Tennyson
  - (b) A book by Ely Culbertson
  - (c) A report by Calvin Coolidge
  - (d) A ballad by Macaulay



# INSTRUMENT

# MISINTERPRETATION



Based on a paper by WALTER F. GREYER

(Reprinted by courtesy of the "S.A.E. Journal")

ALTHOUGH PSYCHOLOGICAL RESEARCH on the reading of aircraft and other instruments is still in its infancy—so that the basic principles of feeding information to a human being via an instrument dial have not yet been absolutely established—certain tentative conclusions can be laid down as the result of research work done to date:

1. *Most errors are due to faulty interpretation of the information presented rather than to difficulties in legibility or acuity.* Thus, it is clear that mere increases in size and amount of illumination are not enough. Rather, *it is necessary to find methods of indication that simplify the interpretational processes interposed between the seeing of the instrument reading and the making of the appropriate control action.*

2. A large number of instruments can be checked most rapidly and accurately when they are designed so that all pointers head in the same direction for the normal reading. This arrangement is of particular importance in the case of engine instruments, many of which are of concern only when their readings fall outside the normal operating range. Uniform pointer alignment thus allows the pilot to detect quickly any indications of malfunctioning.

3. The 9 o'clock position appears to be better than either the 3 o'clock or the 12 o'clock position for the uniform alignment of pointers on a large group of instruments.

4. Direction of movement is an important variable affecting the speed and accuracy of qualitative instrument reading.

A. For instruments whose readings increase or decrease with little or no direct relation to a control motion (such as outside air temperature thermometers and oil pressure gages), the conventional way is to have the scale increase in the clockwise direction on circular dials, and upward or to the right on linear dials.

B. Where knobs, cranks, levers, or switches control instrument readings, the knobs and the indicators that they control should move in the same plane of space and should follow the convention of using clockwise, forward, or upward motion of the control for increase, if possible.

If a rotary control knob moves in the same plane as a linear indicator, it appears to be best to have the indicator move in the same direction as the edge of the knob nearest the indicator.

When the indicator moves in an arc and the same plane as the knob, best results are obtained if the indicator rotates in the same angular direction (clockwise or counterclockwise) as the knob.

If the knob and indicator movements are in different planes, there appear to be no consistent operator preferences.

C. Instrument indicators that are related to altitude, heading, and position of the aircraft, as well as to the movements of the flight controls, appear to be read most quickly and accurately when the instrument motion corresponds to the motion of the airplane with respect to the earth, rather than for the instrument motion to correspond to the motion of the earth with respect to the airplane.

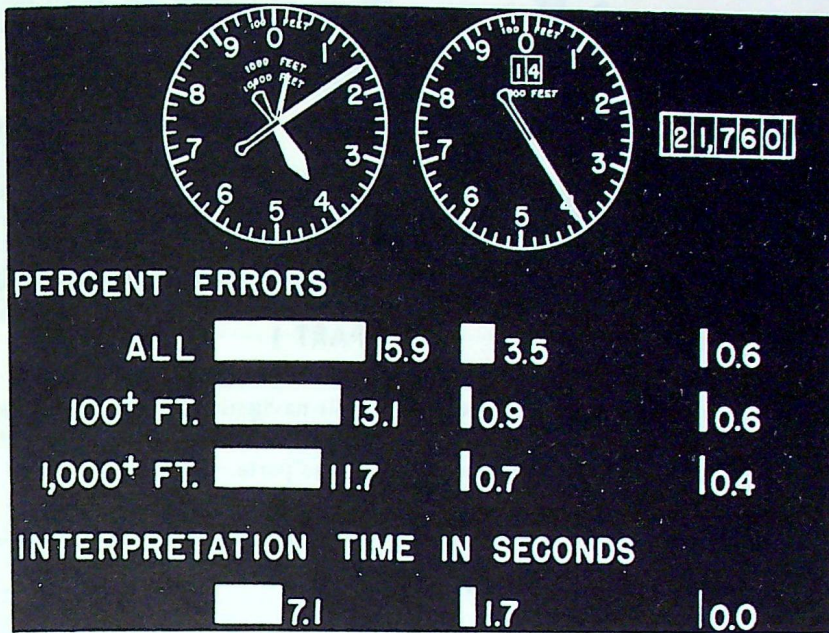


Fig. 1—Speed and accuracy of reading altitude from three types of indicator compared (97 Air Force pilots made 12 readings on each instrument).

For example, the rate-of-turn needle is deviated in the direction in which the aircraft is turning, that is, right or left. On the remote-indicating compass the pointer rotates in the direction in which the aircraft is turning, that is, counter-clockwise or clockwise. In the same manner, the pointer of the rate-of-climb indicator moves up for ascent and down for descent. These three would, therefore, be considered as airplane-reference instruments. In pilots' lingo, they give a "fly from" indication. Several other instruments follow the earth-reference principle, giving what pilots call a "fly to" indication.

5. Studies of quantitative readings of multiple-pointer instruments indicate:

A. Combining readings from two or more pointers into a single, quantitative reading is difficult and causes errors.

B. A common error is reading too high by one revolution of the sensitive pointer. This is a particularly hazardous type of error when reading the altitude of an aircraft.

C. In the combining of numbers from different pointers, numerous errors result from digits being displaced or interchanged in the number series.

D. Misreading of the dial scale causes a high proportion of errors. In the case of the altimeter, most of these errors consisted of misreading the 20-ft. graduation intervals at 10 ft. (This is the only type of error that was not directly related to the use of two or more pointers.)

E. Other types of error, which occur less frequently, may be described as omission of one pointer, interchange of two pointers, repetition of reading on one pointer, and reading to lower adjacent instead of to nearest numeral.

F. Most of these types of errors are probably unavoidable in instruments that require the combining of readings from two or more pointers.

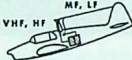
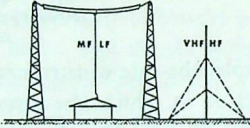
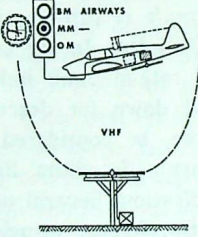
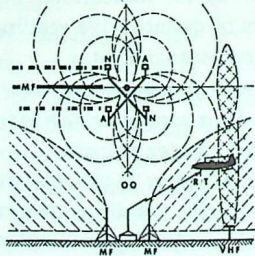
G. All errors, except misreading of the scale, can be virtually eliminated by the use of a single-pointer instrument with a counter to indicate the number of revolutions of the pointer (as shown on the middle dial in Fig. 1).

# Air Navigation

## RADIO AIDS

### PART I

The following short guide to modern radio aids used in air navigation is reprinted here by courtesy of "Interavia." It is presented with unusual brevity and comprehensiveness, and should be of considerable interest to most RCAF personnel. It will be completed in three parts.—Editor.

COMMUNICATIONS AND SIGNALLING			
1 NON-DIRECTIONAL TRANSMISSION AND RECEPTION	ÉMETTEURS ET RÉCEPTEURS NON DIRIGÉS	EMISORAS Y RECEPTORES NO DIRIGIDOS	RUNDSTRAHLENDER UND UNGERICHTETE EMPFÄNGER
AERODROME RADIO STATION	STATION RADIO D'AÉRODROME	ESTACIÓN RADIO DE AERODROMO	FLUGPLATZ-RADIO-STATION
AIRCRAFT RADIO STATION	STATION RADIO D'AÉRONEF	ESTACIÓN RADIO DE AERONAVE	FLUGZEUG-RADIO-STATION
MF COMPASS LOCATOR	RADIOPHARE CIRCULAIRE	RADIOFARO CIRCULAR	ZIELFLUG-HILFSENDER
M-MARKER	BALISE M (NON-DIRECTIONNELLE)	BALIZA M (NO-DIRECCIONAL)	BEREICH-ABGRENZSENDER
<p>Transmitting and receiving ground stations, established in aerodrome vicinity, are used for communications or DJF flight; LF and MF waves usually radiated or received through T-aerials, HF and VHF waves through mast aerials. Airborne transmitters and receivers likewise have T-aerials (or L, V, or retractable trailing aerials) for LF and MF, and mast aerials for HF and VHF waves.</p>			
			
			
2 VHF MARKER BEACONS	RADIOBALISES VHF	RADIOBALIZAS VHF	VHF-SIGNALBAKEN
Z-MARKER	RADIOBALISE Z	RADIOBALIZA Z	Z-STANDORT-SIGNALBAKE
FAN MARKER	RADIOBALISE EN ÉVENTAIL	RADIOBALIZA EN ABANICO	FÄCHER-SIGNALBAKE
OUTER AND MIDDLE MARKER (OM, MM)	RADIOBALISE EXTÉRIEURE RADIOBALISE INTERMÉDIAIRE	RADIOBALIZA EXTERIOR RADIOBALIZA INTERMEDIARIA	AUSSEN- UND MITTEL-SIGNAL
BOUNDARY MARKER (BM)	RADIOBALISE DE DÉLIMITATION	RADIOBALIZA DE DELIMITACIÓN	PLATZ-EINFLUGSIGNAL
<p>Vertically-radiated transmissions from VHF radio beacon stations (mostly 75 Mc/s.) are received in the aircraft as visual and/or aural signals, informing the pilot that he is over an established point along an airway or approach beam. The Z-marker indicates, in a cone of silence, the location of a radio station.</p>			
			
DIRECTIONAL RADIO BEACONS			
3 LF AND MF RADIO RANGE	RADIOPHARES D'ALIGNEMENT LF ET MF	ESTACIONES DE RADIOALINEACIÓN LF Y MF	LF UND MF LEITSTRAHL-BAKENSYSTEM "RADIO RANGE"
BEAM	FAISCEAU (TRAIT CONTINU)	HAZ (TRAZO CONTINUO)	LEITSTRAHL
IDENTIFICATION SIGNAL	SIGNAL D'IDENTIFICATION	SEÑAL DE IDENTIFICACIÓN	STATIONS-RUFZEICHEN
CONE OF SILENCE (OO)	CONE DE SILENCE (OO)	CONO DE SILENCE (OO)	SCHWEIGEKEGEL (OO)
STATIC DISTURBANCE	PARASITES ATMOSPHERIQUES	PARÁSITOS ATMOSFÉRICOS	ATMOSPHÄRISCHE FUNKSTÖRUNGEN
<p>U.S.-adopted method of short-range navigation along airways established by a network of LF or MF directional-transmitting stations; Adcock aerial systems each send out 2 A and 2 N beams in interlocking sequence so that a continuous ("on-course") signal is heard in their plane of intersection. Position "fixes" occasionally indicated by fan-markers and M-markers placed at established points along airways; RT usually provided through centre aerial of range station.</p>			
			

## 4 VHF OMNI-DIRECTIONAL RADIO RANGE (VOR)

BEARING INDICATOR  
SPINNING FIELD PATTERN  
AUTOMATIC COURSE COMPUTER  
DISTANCE MEASURING EQUIPMENT (DME)

## RADIOPHARES D'ALIGNEMENT VHF OMNIDIRECTIONNELS

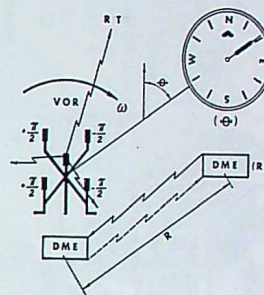
INDICATEUR DE RELÈVEMENT  
CARACTÉRISTIQUE TOURNANTE  
CALCULATEUR AUTOMATIQUE DE CAP  
DISTANCÈMÈTRE DE BORD DME

## ESTACIONES DE RADIOALINEACION VHF OMNIDIRECCIONALES

INDICADOR DE MARCACION  
CARACTERÍSTICA GIRATORIA  
CALCULADOR AUTOMÁTICO DE RUMBO  
DISTANCIÓMETRO DE BORDO DME

## VHF ALLRICHTUNGSLEITSTRALBAKENSYSTEM

AZIMUT-ANZEIGER  
DREHENDE CHARAKTERISTIK  
AUTOMATISCHER KURSRECHNER  
ENTFERNUNGSMESSGERÄT DME



Projected short-range navigational system comprising a network of VHF beacons with Adcock aerials having a spinning field pattern, for determination of azimuth (by phase comparison) by automatic means on board the aircraft. If DME (radar) beacons are installed on the ground and DME in the aircraft, it is also possible to effect distance measurements.

## DIRECTION-FINDING

## 5 DIRECTION FINDING WITH D/F LOOP

AURAL NULL  
D/F LOOP  
RELATIVE BEARING ( $\beta$ )  
AIRCRAFT HEADING ( $\alpha$ )

## RADIOGONIOMÈTRES D'AÉRONEFS (D/F)

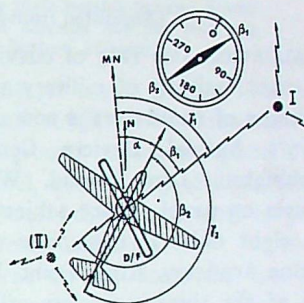
EXTINCTION  
CADRE RADIOGONIOMÉTRIQUE  
GISEMENT ( $\beta$ )  
CAP DE L'AVION ( $\alpha$ )

## RADIOGONIÓMETROS DE AERONAVES (D/F)

EXTINCIÓN  
CUADRO RADIOGONIOMÉTRICO  
LOCALIZACIÓN ( $\beta$ )  
RUMBO DEL AVIÓN ( $\alpha$ )

## EIGENPEILUNG MIT PEILEMPFÄNGER

MINIMALER HÖREMPFANG PEILRAHMEN  
BORDSEITENPEILWINKEL ( $\beta$ )  
STEUERKURS ( $\alpha$ )



Airborne equipment comprises D/F loop aerial, rotatable through 360 deg., and a receiver. When the receiver is tuned to a ground station, and the loop set perpendicular to the station direction (null position), reception is at minimum or null volume (which is easier caught by the human ear than maximum). The bearing ( $\beta$ ) relative to the longitudinal axis of the aircraft is read off a scale coupled with the loop. The angle ( $\gamma$ ) between the magnetic (or true) north and the bearing line to the ground station is the sum of the relative bearing ( $\beta$ ) and the aircraft heading ( $\alpha$ ) with respect to the magnetic (or true) north. Indications have 180-deg. ambiguity (hence double pointer) as the ground station can be at either point I or II.



## THE PICK OF THE CROP

Squadron Leader W. Skelding, one of the RCAF's older-timers in the instructional field, has sent us the following selection from the scrap-book of "howlers" he has compiled over a number of years. All of them, he assures us, are both genuine and first-hand.

A quarterly return is made out yearly.

The trajectory is part of the rifle, somewhere near the bolt.

Flaps operate up and down, more down than up, I think.

A Class II Modification is a modification modified.

The common sizes of split pins are: large and small.

The impeller creates more air to give bigger combustion to drive fuel to inlet ports.

A horsepower is the ability of an engine to lift 33,000 cubic feet a foot per minute.

The ranks correctly addressed as "Mister" are those below Corporal, as they have not any rank.

Three types of corrosion are: inner, outer, and anticorrosion.

C.A.P. 78 is a hymn book.

It takes a better man to make a tuck splice than a wrapped splice.

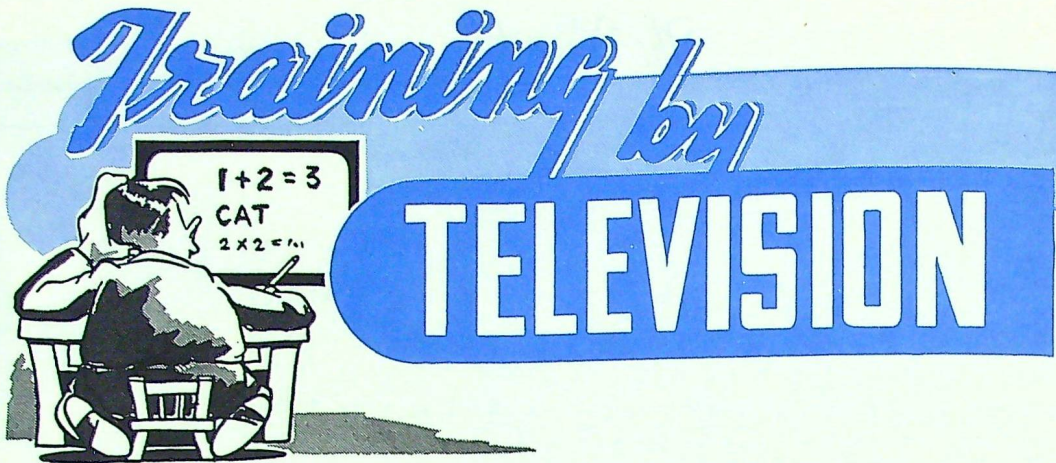
I have never seen the inside of a carb. nor taken one apart, so that's all I know about it. The 4 forces of flight are: forward, sideways, upward and downward.

The Otto cycle is the four time of the engine beginning at 180 degrees between each.

A ball pein hammer is generally used for all soft metals, like glass, wood, etc.

The micrometer is used to measure external diameters in thousands of inches.

# Training by TELEVISION



(Reprinted from "Electronics" by courtesy of McGraw-Hill Publishing Co. Inc.)

EVALUATION AND TEST of television as a vehicle for mass training of military personnel with a minimum of instructors is now under way at the Navy's Special Devices Center near Port Washington, Long Island. Weekly television lectures on naval science subjects are being telecast eight miles to classrooms at the Merchant Marine Academy, Kings Point, N.Y., where one-fifth of the third-year class will be taught two subjects by television. Other students will receive standard instruction, and results will be evaluated by the Psychology Department of Fordham University.

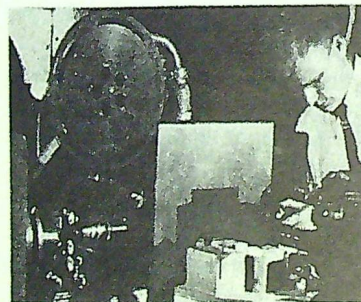
Plans call for a tryout of network television training before the end of the year, with lectures going out from Special Devices Center over existing and new coaxial lines and microwave relay facilities to Naval Air Reserve Stations at Squantum, Floyd Bennett, Willow Grove and Anacostia. In all these tests, television receivers of various types will be used under a variety of conditions and with screen sizes ranging from that of a 10-inch tube on up to that projected onto a 9 by 12-foot screen. Also under investigation will be methods of instruction best adapted to the television medium and the design of the ideal television classroom. Tryouts of talk-back circuits are contemplated, so that students anywhere in widely scattered classrooms can ask questions of the instructor during or after a lecture.

## Advantages of Television

With television, lectures by the Navy's best

instructors can be presented to as many students as desirable, all at one time. During emergencies or accelerated wartime training programs, increased utilization of top notch men would justify holding them for training purposes, where they can do more good than on combat assignments.

Lectures and demonstrations of newly developed devices can be presented immediately by television, with no passing on of training from one instructor to another. If necessary, the pilot model itself can be used for demonstration. Since only one demonstration device is needed, more money can be spent on its development and construction. Security can be maintained by guarding coaxial terminal points and by scrambling the r-f signal, where necessary.



Two 35-mm slide-strip film projectors and a 16-mm sound film projector here feed into a GE film camera located under the control room of the Navy's television studio at Sands Point, Long Island. Two full-silvered front-surface mirrors make possible permanent mounting of all three sources, any of which can be cut into a studio program at will

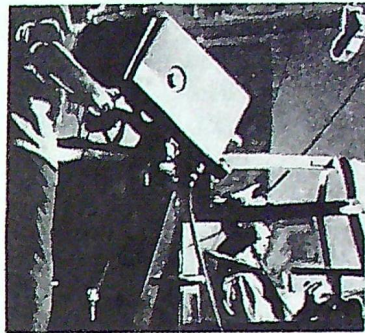
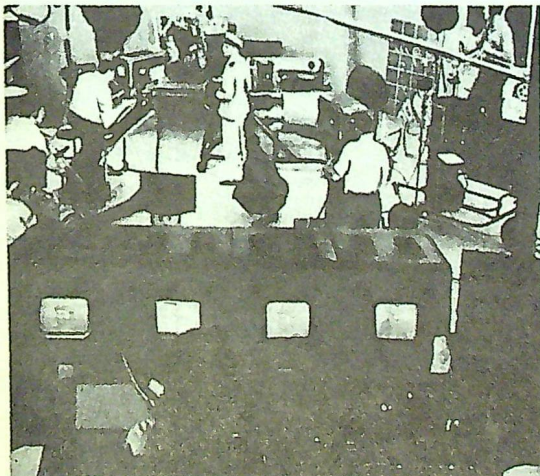
Television training gives every student a front-row seat, where he can see every movement of the instructor clearly. The television camera scales demonstration models up or down to proper size for most effective training.

With television, usable portions of obsolete motion picture training film can be salvaged and brought up to date by combining with personal demonstrations. Students lose interest in films showing obsolete planes, for instance, yet basic principles involved remain the same. Unparalleled flexibility in choice of instruction material is another advantage. The lecturer can change at will from models to artwork, maps, diagrams, motion pictures, film strips, slides, demonstration devices, training devices and actual service gear.

Though television offers promise of better instruction, it does not eliminate all instructors. Rather, it permits use of local laboratory instructors and assists them with the best of lecture help. It is not intended for teaching all subjects; introduction sessions to courses and the more difficult sessions offer greatest promise. Whether television will actually reduce learning time through use of new and more effective techniques is not yet known.

\* \* \*

A typical setup of the Navy's teaching-by-television is shown in the illustration below. John Leonard, Lt., USNR, is lecturing about the cut-



Televising cockpit mockup of P2V Neptune during Navy flight training lecture. Studio has two GE cameras like this and two DuMont cameras

away 4,000-lb. J-31 jet engine behind him, used in the Ryan Fireball jet fighter. Other instructional props in the background include a futuristic red plastic rocket model, a relief map of Long Island terrain, and a tactical board for setting up problems involving aircraft and ships.

The two cameras on the floor, the four-unit monitoring panel and the control panel are General Electric units, while the two portable television line monitors at the right are DuMont units.

The picture going out of the studio at the moment is on the left-hand monitor, showing a full-face view of the instructor as picked up by the left-hand camera. The next monitor has a monoscope pattern, but more often is connected to show the output of a GE film camera located under the control room. This camera is arranged for three-way operation from a 16-mm sound film projector and two 35-mm slide-strip film projectors.

The third monitor shows the output of the left-hand camera and hence has the same picture as the first. The fourth monitor serves the other camera, here aimed at the jet motor in readiness for the next scene. Squatting on the floor is assistant producer Nat Marshall, who along with camera and mike boom operators receives instructions over headphones from director Peter L. Barker at left foreground. The audio engineer at the control panel rides gain on the sound portion of the program just as in broadcast studios.

# LETTERS to the EDITOR

"Letters to the Editor" express only the opinions of their writers. They do not in any way reflect the official views of the RCAF.

## DRASTIC

Dear Sir:

I read Lt. Col. Sprung's excellent article, "The Battle is One," with considerable interest—and with some dismay at the confusion and waste which seem to be the inevitable corollary of divided command. Surely the only answer to the whole problem is, in the last analysis, the formation of a single armed service. Let us consider this idea (which is, of course, far from new) from the much-discussed viewpoint of the defence of Canada in the event of invasion.

Invasion of Canada from the North is possible only by air-borne troops, and can be countered only by an air force capable of achieving and maintaining air superiority. Entering from the North-West, troops would have to use the one existing road—the Alaska highway—which, in that it presents a single target, could best be rendered impassable by means of aircraft. Attack upon the east or west coast would have to be sea-borne; and it has been adequately demonstrated in the recent war that sea-power cannot operate without air-supremacy. The remaining route for possible invasion—Europe-Iceland-Greenland—is at present adequately taken care of by the U.S.A.

It would therefore appear that a powerful Air Force is Canada's best, if not sole, defence; and if that is true, would not the logical defence policy be to concentrate all the money available for the armed forces upon building up the RCAF? Drastic though the suggestion may sound, I cannot see why the Air Force should not also include an RCAF Brigade capable of carrying out all the defence functions that might be required of ground troops.

The foregoing remarks, I must add in conclusion, apply only to Canada's armed services viewed as a defensive weapon. This, however, is the light in which all newspapers and journals are today asking us to regard them. If we agree to do so (the wisdom of which is debatable) I feel that my suggestions, though lacking in poetry, may at least be realistic.

Sgt. J. L. Davidson.



## CONTINENTAL DEFENCE

Sir:

As a lay student of possible future trends in international affairs and of the best means of forearming against their less (for us) pleasant aspects, I have frequently noticed a tendency among newspaper and magazine writers to concentrate upon the more "glamorous" aspects of continental defence.

It seems to me, however, that there are several matters that must be taken care of before we get down to such questions as how many squadrons, ships and divisions we shall need to protect us in the event of war. The value of all the divisions, ships and squadrons in the world is halved unless we have first ensured that they can be moved and supplied in a way that will make it possible for them to operate at maximum efficiency. Surely it is primarily essential that we have enough power to continue manufacturing war equipment in circumstances of (perhaps) as yet unforeseen difficulty and that, once manufactured, this equipment can be moved swiftly as and where required.

Assuming this to be true, is it not time that concrete plans were made—and carried out—for the improvement of our highways, waterways, and power systems?

A continental system of six-lane super-highways appears to me to be one of the most important projects that could be undertaken today. Canada's "system" is non-existent, and even the States' leaves much to be desired in time of war.

As regards waterways, it does not seem to be realized by the average writer that the destruction of the Panama Canal would completely isolate the eastern North American fleet from the western. The construction of at least one additional canal in the same area presents, as far as I know, no insuperable topographical difficulties. As regards the main continental area, it would not be at all impossible to construct a system of canals and channels that would not only stand us in good stead in wartime but would considerably cheapen and simplify both power and transportation costs in days of peace.

Lastly, the question of power. Our present power system is quite inadequate, even during peace—as has recently been proved in Ontario. Is not the conception and execution of a gigantic construction programme for new dams and power plants (all of them hooked up in a continental grid system) of immediate and paramount importance if certain victory is to be assured us in any future conflict?

LAC R. S. Blois

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

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

# AIR CADETS... ...ATTENTION!



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