

# The **CROWNDDEL**

Vol. 5, No. 1  
JANUARY 1953



**ROYAL CANADIAN AIR FORCE**



Issued on the authority of  
**THE CHIEF OF THE AIR STAFF**  
 Royal Canadian Air Force

VOL. 5, No. 1

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*This Month's Cover*



One of No. 426 (Transport) Squadron's North Stars leaves Dorval airport on its way to one of the R.C.A.F.'s far-northern detachments.  
 (Photograph by Flt. Lt. L. Walker, of A.F.H.Q.)

**EDITORIAL OFFICES:**  
**R.C.A.F., Victoria Island,**  
**Ottawa, Ont.**

# Valediction

It is a great privilege to be a member of the Royal Canadian Air Force, and although I will be retiring as Chief of Air Staff on January 31st, I shall still belong to the R.C.A.F. and maintain a keen interest in everything you do.

1953 will be a big year for us. The remaining F-86 squadrons will form and proceed overseas . . . squadrons of CF-100's will start to build up early in the year and will be taking up their planned positions in the air defence system by the year's end . . . the Early Warning system will be in operation . . . maritime squadrons will be patrolling both coasts . . . and some of the transport squadrons will be re-equipping with C-119's. The training organization, both air and ground, will be in full swing; and before the year is out, Materiel Command will be in its new headquarters, with excellent depots and bases all across the country. Reserve units — flying, radar, medical, and technical training — are being built up and becoming more and more efficient, and they will be ready to take their places in the front line, if required.

Because we have taken on so much and are expanding so rapidly, we shall be short of experienced personnel during the greater part of the year. This will throw a big load on the old hands. However, I know from your actions in the past that you can meet the challenge.

By the end of 1953 our total strength will be not far short of 50,000, some 7,000 of whom will be serving overseas helping to swell the N.A.T.O. deterrent force which we all hope will succeed in preventing a Third World War.



To all members of the R.C.A.F.—airwomen, airmen, N.C.O.'s and officers—I extend not only my sincere thanks but also those of all Canadian citizens, for a big job well done.

It is with confidence and great pride that I hand over my responsibilities as C.A.S. to Air Marshal Slemon. I know that you will give to him the same loyal support and co-operation which you have so willingly given to me.

Good luck, God speed you all, and Happy Landings!

W. A. Curtis,  
Air Marshal,  
Chief of the Air Staff

# SGT. SHATTERPROOF STANDS FIRM

Sir:

I was deeply touched by your suggestion that I send you a New Year's Message for the boys in the field. Unfortunately, a New Year's Message is expected to be one of hope — and I, Sir, have spent more than a quarter of a century in the R.C.A.F. I need say no more. A Shatterproof must stand firm upon his integrity.

But lest it be noised abroad that the old warrior has left his comrades without guidance for the coming year, I cannot remain completely silent. I am therefore committing to paper, for the first time, a legend that has inspired many of our greatest airmen in the past. Rightly interpreted, it offers a far loftier type of encouragement than that which this season of platitudes traditionally evokes.

The events related in it are reputed to have taken place about twenty years ago. Nevertheless it will be new to most of your readers, for it is seldom told in this decadent age of jets and central maintenance. You are, indeed, unlikely to hear it except on New Year's Eve at our remotest Stations, when perhaps some ancient N.C.O., bloated with the rich food and drink by which the Brass has sought to dull his senses, will lift his eyes from the tankard before him, fix his neighbour with a spectral stare, and begin to speak as follows . . .

It was New Year's Eve. Half-frozen, a gibbous moon slunk shuddering across the sky. Untwinkling, paralyzed with cold, the stars gazed down with a ghastly fixity upon the snow-covered landscape below.

Save for the moaning of the wind and an occasional muffled scream from the hospital, the Station lay in silence. Everyone who could had long since managed to escape to a more jovial environment. Here and there, a dim light hinted at the presence of some poor wretch who had been trapped by a duty roster, but over all else the desolation of sub-zero moonlight reigned supreme.

Only beside the Station gate was there any actual sign of life. Faintly illuminated by the light that filtered through the frost-encrusted window of the Guard House behind him, stood a squat figure from whose nostrils twin jets of steam issued at regular and soldierly intervals. It was LAC Cumbersome, the pride of the Station posse.



Not for him the seductions of the Guard House stove. Not for him the effeminate mug of hot cocoa. Who could tell but that, while he sat there in unmanly comfort, some senior officer might not come crawling under the gate without having a chance to see him or note his martial posture? No, for a Cumbersome there must be no shirking.

He was roused from his meditations by a harsh jangling of bells from the nearby village of Moose Pelvis. The New Year was upon him — with all its potentiality for good and ill! Like the loyal airman he was, LAC Cumbersome saluted stiffly in the direction of Ottawa, reaffirmed his Oath of Allegiance, and uttered a silent prayer for the continued health of the C.A.S.

It was at this point that he became aware of a figure standing on the other side of the gate. Whipping up his rifle, he trained it on the umbilical region of the stranger.

“Who goes there?” he barked.

“Group Captain Lucifer,” came the reply. “You, I believe, are LAC Cumbersome?”

As any graduate of a Service Management Course will tell you, nothing so pleases us, be we A.C.2’s or be we Air Commodores, as to have our names remembered by those of higher rank than ourselves. LAC Cumbersome was no exception to the rule. In fact, so flattered was he that he quite failed to remark that the Group Captain’s eyes shone with a greenish iridescence and that his greatcoat seemed to be made of an asbestos-like material that no earthly Dress Regulations could possibly have countenanced. Nor did it strike him as at all peculiar that the light in the Guard House had turned blue. His whole attention was taken up by the glitter of brass on his visitor’s cap and the music of his own name on those august lips.

“I am, Sir,” he stammered at length, hastily opening the gate and letting the Group Captain through. “If you will excuse me, Sir, I’ll notify the Orderly Officer of your arrival.”

Group Captain Lucifer raised his hand.

“No, my boy, don’t do that. It is you whom I came to see.”

“Me, Sir?”



The Group Captain smiled, revealing a double row of pointed teeth that would have been the envy of every basking-shark on the Great Barrier Reef. To LAC Cumbersome, however, who had never before seen a Group Captains’ teeth, they represented the ultimate in symmetrical dentition.

“Yes,” went on the Group Captain, “your work has been watched by our Headquarters with the keenest interest. We have, in fact, decided to open the way for you to accelerated promotion.”

An alert astronomer might have noticed, as Group Captain Lucifer finished speaking, that the moon had turned blood-red and that the cloudless heavens shook with a peal of thunder. But LAC Cumbersome was not an astronomer. He listened with bated breath as the Group Captain continued:

“I have therefore had your name placed on the Scale of Issue for the most valuable piece of equipment that a young airman can possess.”

He made a curious pass in the air, and (to the consternation of LAC Cumbersome) a triangle appeared in one of his hands and a short bar in the other. Had both objects not been glowing with a dreadful radiance that failed to suggest anything in the nature of fresh air or pork and

beans, they might well have hung outside the cookhouse of any logging-camp in Canada.

"This instrument," said Group Captain Lucifer, "is known as 'the angles'. You, my boy, shall learn to play it. You shall learn to play *all* the angles. In this cultured world of ours, there is no accomplishment that meets with richer rewards.— But first, we need your signature on the Loan Card."

As the genial officer set down the triangle and reached into his greatcoat pocket, a keen seismologist might have observed that the earth began to heave violently and that a sulphurous smoke came belching forth from its cracked surface. Seismology, however, was not LAC Cumbersome's long suit any more than astronomy. He reached for the somewhat unspeakable-looking Loan Card which the Group Captain had produced—

"Atten-SHUN!"

As the loyal young airman convulsively assumed the prescribed attitude, he became conscious of a second Group Captain who now stood beside the first. Taller than Group Captain Lucifer, he wore

a cap whose brass shone so brightly that his head was surrounded by a shimmering halo. Beneath one arm he carried a book, and in the other he bore a flaming sword — but, as LAC Cumbersome philosophically assured himself, senior officers sometimes do the queerest things on New Year's Eve.

It speedily became apparent, even to our hero, that the closest harmony did not prevail between these two officers. Flames were darting from Group Captain Lucifer's eyes, and the grinding of his sixty-four teeth was decidedly upsetting to listen to.

"Curse you, Michael!" he snarled. "This man is mine."

Group Captain Michael eyed him speculatively and shifted his grip on the sword. Then, turning to the waiting airman, he said:

"At ease, Cumbersome.— You have not signed, I trust?"

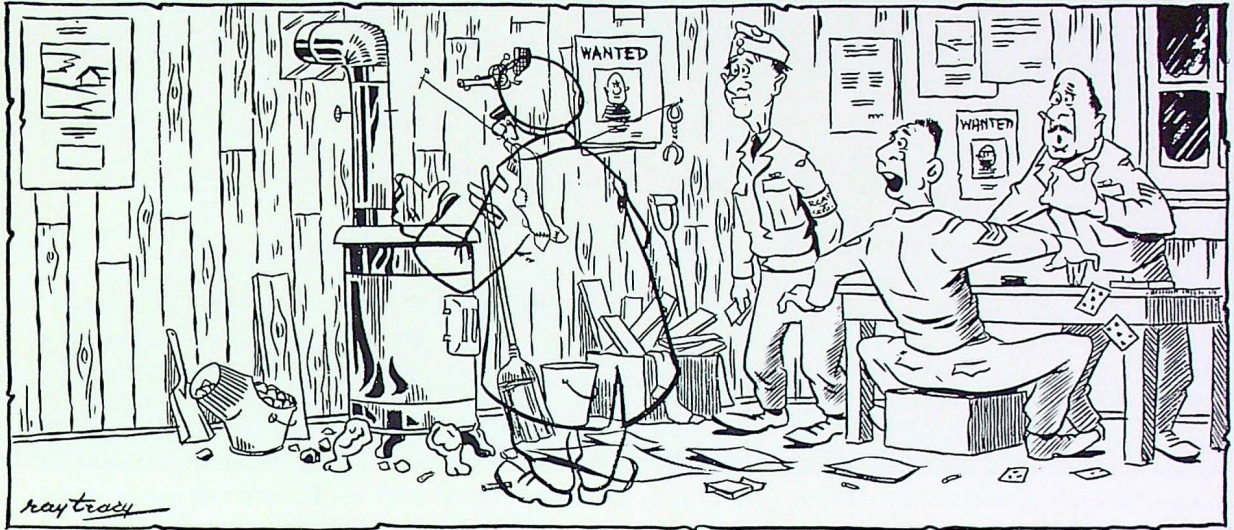
The turn of events had robbed the flame of LAC Cumbersome's ambition of much of its calorific value, and he was beginning to think of the Guard House stove with considerably less contempt. Nevertheless he managed as smart a "No, Sir!" as his fast-stiffening lips would permit.

"Good," said the Group Captain. "I regret to advise you, Cumbersome, that this man is an impostor. Though not without friends in high places, he is neither an officer nor a gentleman. He is the head of a highly subversive organization known as the Department of Infernal Affairs. LAC Cumbersome, do your duty!"

Group Captain Lucifer recoiled; then a look of demoniac cunning spread over his features. Seizing his hellish instrument, he played an angle.

LAC Cumbersome's senses reeled at the sweetness of those notes. For a timeless instant he saw himself covered with decorations, read his name in four-inch headlines, felt the ponderous caress of an Air Marshal's head-dress upon his brow . . . Indeed, it is possible that he might even then have yielded to the Tempter had not the Central Harp Band suddenly appeared overhead, playing the March Past of the Celestial Air Force. At the sound, his faculties were restored to him. But before he could get his legs in motion, Group





Captain Lucifer had sunk with a cry of baffled rage into a pit of boiling lava which had opened up conveniently at his feet.

Group Captain Michael regarded Cumbersome with kindly eyes.

"Well done, my boy. You will not regret your choice. Take this." (He held out the volume he had been carrying.) "In its pages you will find all the help that an airman needs in his climb up the ladder of Service success. Study it well.— And now, goodbye. We shall meet again—" he paused, and peered with interest at the other's frost-bitten cheeks "— perhaps sooner than I thought."

The next moment LAC Cumbersome was alone. He stared at the book in his hands. Its title stood out clearly in the brilliant (and once more normal) moonlight: "Queen's Regulations and Orders for the Royal Canadian Air Force". Eagerly he turned to page one . . .

He was found later by his relief, frozen to death where he stood. Clutched tightly to his breast was a copy of Q.R. (Air), while an expression of supreme enlightenment beatified his face.

And there, on that fateful night of long ago, we might reasonably expect the story to have ended. But not so. On the contrary, it had scarcely begun. For they say that on the first day of every subsequent January, just as the bells of Moose Pelvis have begun to ring in the New Year, a phantom LAC has appeared in the Guard House, warmed his hands at the stove, and departed muttering "Per Ardua ad Astra."

This year, it is said, he wore a corporal's stripes.

*Ray Tracy*

## ATTENTION HOBOS

One of the newest cargo planes has as much space for freight as three railroad refrigerator cars.

("Air Force": U.S.A.)

# It's in the Wind

## 6. Sunspots and the Weather

By R. A. Hornstein, Meteorological Division,  
Dept. of Transport.

*(Reprinted by permission of the Dept. of Transport)*

*Science moves, but slowly, slowly.*

TENNYSON

WHENEVER WEATHER conditions become even more abnormal than usual, there is considerable discussion as to the part which sunspots, or the lack of sunspots, may be playing in affecting the temperature, or the precipitation or the number of thunderstorms.

Sunspots are dark areas, sometimes large, sometimes small, which can be seen on the sun's face. From a historical point of view, they were discovered long ago. Some old Chinese records mention sunspots as early as the beginning of the Christian era. Also, the records of the Middle Ages in Europe contain a few comments concerning them. In most reference books, though, an Englishman, named Harriot, is credited with discovering, on December 10th, 1610, spots on the sun. Galileo published his paper on sunspots in 1613.

Shortly after Galileo's time it was found that the number of these sunspots varied in a cycle of about 11 years. Then, as more and more information was gathered, the period was found to average slightly more than 11 years. Actually the period

between the times of the highest sunspot activity varies. Sometimes it is as little as 7 years, sometimes as many as 15 years.

When it was found that there was a sunspot cycle, people at once speculated that the temperatures on the earth should vary with the number of spots. Many scientists began assembling temperature records to prove this contention. Hopes were high that from this discovery a technique could readily be developed whereby the weather could be predicted far in advance. As the sun has the greatest number of spots when it is hottest, the investigators naturally expected to find that at those times the atmosphere would be warmer. When there were only a few spots and a cool sun, the earth's atmosphere was expected to be cooler. Naturally, then, they were amazed when they found that, if anything, the opposite is true.

Records of the temperature of the upper atmosphere are available for the past few years only; our long weather records are all for the layers of air near the surface of the earth. Therefore, only

the lower atmosphere could be studied. For this surface layer it was found that more sunspots bring lower temperatures, and fewer sunspots bring higher temperatures. It appears, then, that a hot sun makes a cool earth, and a cool sun makes a warm earth.

When the early researchers ran into this confusing fact, and other complications, they became rather discouraged. Nearly everybody abandoned the idea that there might be any direct relation between sunspots and the weather. This feeling is still fairly general, and, as a result, there are few workers in this field at the present time.

In a study of this type it must be kept in mind that the sun is the only source of the energy that moves huge masses of air across the face of the earth. Also, the sun's heat evaporates enormous quantities of water. This later returns to the earth as rain or snow. Consequently, it is only reasonable to expect that changes in the sun's state would cause changes in the weather over the whole surface of the earth.

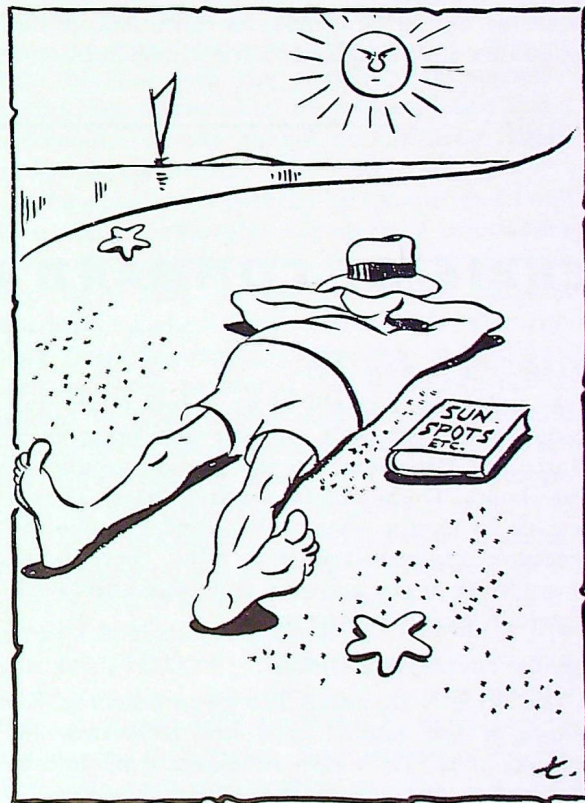
Some scientists claim that a close relationship does exist between sunspots and temperature, rainfall and thunderstorms in various parts of Canada. However, weather records in most of those places are available for only two or three sunspot cycles. It is always dangerous to jump to conclusions on the basis of limited evidence. This is particularly true when it comes to weather cycles. For instance, there was the famous example of perfect harmony between sunspots and weather as evidenced by the water level of the great lakes in central Africa from 1902 to 1912. But then this agreement suddenly broke down.

There are a whole host of these apparent cycles in weather elements, but, as time goes on, one after another fails to act as expected.

Back in 1936 Mr. Andrew Thomson, the present Controller of the Canadian Meteorological Service, studied sunspot activity as related to Canadian weather. He examined the weather records from a number of Canadian stations in an effort to discover if there was any effect which could be traced to the degree of sunspot activity. As there was a possibility that the influence of sunspots might depend on the distance of the station from the

ocean, he selected some stations which were right on the coasts and others which were in the centre of the country. The records were available for enough years to cover four complete sunspot cycles.

A thorough study of all these figures failed to show any definite cycles so far as temperatures in Canada are concerned. There are a few places in the tropics, such as Samoa, where changes in the number of sunspots apparently do affect the temperature to a measurable degree. In such tropical locations, however, the range of temperature throughout the year is quite small, and there are very few disturbing influences, such as travelling storms and high pressure areas. Still, once sunspots do have an effect in the tropics it is very likely that they also act on the weather in our latitudes, but here the influences of other factors are so large that the sunspot effect cannot be detected.



When Mr. Thomson investigated the precipitation records at a number of typically located Canadian stations, he found that the fluctuations from year to year during the sunspot cycle are comparatively small and show no regularity. When he went on to separate out the maritime stations, he did find that during years of increasing sunspots there was less than a normal amount of precipitation. The records, however, also show that the amount of precipitation varies so erratically from one year to the next as to make a forecast based on the regular changes in sunspot activity a very useless item.

Many investigators have claimed that there is a close relationship between the numbers of sunspots and thunderstorms in various regions of the earth. Unfortunately, even for the same region, some of these experts have claimed that thunderstorms are more frequent while sunspots are few, and others have claimed that the thunderstorm frequency increases as the number of sunspots increases. So far as Canada is concerned, it was found that any relationship between the number of

thunderstorms and the number of sunspots was so poor as to be undetectable.

In summary, then, the following conclusions appear to be valid: in view of the fact that the sun furnishes the power for our complicated weather machine, it appears logical to say that changes in the sun's output of energy, which are caused by sunspots, will cause changes in the earth's weather; however, in actually studying weather records we find some coincidences and some apparent contradictions. The entire matter is a most complicated one.

If success is ever attained in separating out all the facts and analyzing them properly, it may be found that they do fit a broad pattern. Then perhaps sunspots may be watched and from them a prediction may be made as to the earth's temperature and rainfall for long periods in advance. At the present time, though, our knowledge is still too limited to permit accurate forecasts of the number of sunspots a year or two ahead; hence seasonal weather forecasts based on sunspot numbers are bound to be unreliable.

## CHAIN OF COMMAND ★ ★ ★

### *Wing Cdr. to Sqn. Ldr.:*

As you know, there'll be an eclipse of the sun to-morrow. That isn't an everyday occurrence. March out the cadets to the parade ground at 0500 hours. Dress will be working-dress. They'll be able to see the phenomenon, and I'll give the necessary explanations. If it rains, there won't be anything to see, anyway, and the students can remain in their barracks rooms.

### *Sq. Ldr. to Flying Officer:*

The Wing Commander has given orders for an eclipse of the sun at 0500 hrs. to-morrow, in working-dress. He'll give necessary explanations of this rare phenomenon in the barrack rooms.

### *Flying Officer to Flt. Sgt.:*

At 0500 hrs. to-morrow morning the Wing Commander will eclipse the sun in working-dress with the necessary explanations on the parade ground. If it rains, this rare phenomenon will take place in the barrack rooms, which is not an everyday occurrence.

### *Flt. Sgt. to A.C.2's:*

Very early to-morrow morning at 0500 hrs. the sun will eclipse the Wing Commander in the barrack rooms, in working-dress. If it rains, this rare phenomenon will take place on the Parade Ground.

("Debut": R.C.A.F. Station St. Johns)

# The ROYAL CANADIAN AIR CADETS



By Arthur Macdonald, Air Cadet League of Canada

## NO. 22 (POWELL RIVER) SQUADRON

After looking over the press reports of squadron activities across Canada during the past few months, it seemed to us that this first Air Cadet column of 1953 might well highlight a few of the locally-sponsored events which have kept some of our best-known squadrons in the public eye.

Over the year, one of our most successful units has been No. 22 Powell River Squadron — always a prominent contender for the title of Canada's most proficient unit. The following comments, based upon the 1952 annual report of the Powell River group, are published here to give other squadrons an idea of just what it takes to keep a squadron at the top of the ladder year after year.

\* \* \*

“There are 69 boys and 65 girls enrolled in the Powell River Squadron. The secret of the squadron's success lies in the enthusiasm which led to an average yearly attendance of 96% for boys and 95% for girls. This enthusiasm is contagious, in that strong co-operation is extended by the sponsoring committee, the officers, and the auxiliary groups which form the background of the squadron's operation.

“Squadron activities call for a planned and thorough coverage of the official syllabus laid down by the R.C.A.F. The emphasis here is toward subjects which supplement school subjects, including navigation, theory of flight, meteorology, history, instruments, flying control and personal

hygiene. The girl cadets also study these subjects, plus nursing and telephone operation.

“To satisfy eager youngsters not yet of cadet age, a junior flight was established for boys aged 12 to 14, and all but two of these completed the training year. Their syllabus is based on a modification of senior cadet training, and it prepares them to step into the squadron as partially-trained cadets instead of raw rookies. Their smart performance at the annual parade drew highly favourable comment.

“The squadron is perhaps best known in Powell River for its efforts in the field of community service. In addition to their regular duties, which keep them fully occupied at weekly parades, squadron members have participated in everything from flag-raising ceremonies to ushering. Last year they sponsored four basketball teams, assisted the model aircraft club, staged a successful entertainment, sang carols to shut-ins at Christmas, conducted the March of Dimes campaign, operated boys' and girls' badminton clubs, and gave notable assistance at the Airport opening. They also conducted shooting competitions, sponsored a D.C.R.A. entry, carried out the tuberculosis Christmas Seal campaign (setting a new high for donations — 34% above any previous mark), furnished the solarium in the new hospital wing, and sponsored an R.C.A.F. band concert and dance. In addition to these major efforts, there were many undertakings on behalf of smaller groups within the community.

# 0<sup>TH</sup> K·W SQDN. *Sponsored by* 404 WING R.C.A.F. ASS<sup>'</sup>



*This display helped No. 80 (Kitchener-Waterloo) Squadron to go "over the top" on a recent Tag Day.*

"Powell River's girl cadets (three of whom were the first in Canada to win private pilot's licenses), although not officially recognized, receive strong unofficial support for their activities. In many ways, the girls serve as pacemakers for their brothers-in-uniform.

"The Powell River girl cadet group now boasts a distinctive uniform, having received a special set of 76 blazers from President Harold S. Foley, of the Powell River Company in recognition of their fine performance. These, together with their regulation cadet caps and grey skirts, give them a distinctive and well-groomed appearance.

"Some changes took place in committee and officer personnel at the end of the year. After eleven years' outstanding service as commanding officer and committee chairman, Myron McLeod resigned. Flt. Lt. Vincent Forbes, who for six years has been the spark plug of the squadron, resigned as commanding officer but agreed to remain on the sponsoring committee as vice-chairman. S. B. McFarlane was elected committee chairman and Flying Officer Art Charlton has taken over as commanding officer of the squadron,

with Flying Officer Cliff Walker as his adjutant.

"With these capable men, and with the continuance of strong support in the community, No. 22 Squadron looks forward to another banner year."

## HAMILTON GLIDER PILOTS

One of the more encouraging features of the Air Cadet programme in the past few years has been the solid support extended to squadrons by Wings of the R.C.A.F. Association. This support took a somewhat different twist in Hamilton recently when the members of No. 126 Wing, R.C.A.F.A., decided to make it possible for Hamilton Air Cadets to take to the air in a glider.

The idea was originally put forward by Flying Officer Benjamin Rakus, D.F.C., an officer with Hamilton's Air Cadet Wing, who investigated the various types and makes of gliders. He presented his report to the Air Cadet sponsoring committee and they decided to go ahead with the project. The latest word is that the glider has been ordered, and plans have been made for its assembly and

maintenance. The Hamilton Soaring Club will assist in operating the glider and instructing the cadets.

#### NO. 27 (CITY OF LONDON) SQUADRON

One of Canada's most expansion-conscious units is No. 27 (City of London) Squadron. This unit, which started the new training year with a strength of 110 cadets, is in the midst of a recruiting drive aimed at boosting enrolments to 250 before the end of the current training year.

As part of its drive to attract more cadets, the squadron has announced plans to set up a Link trainer, and, believe it or not, negotiations are under way to procure a Harvard training aircraft.

#### LUCKY CADET

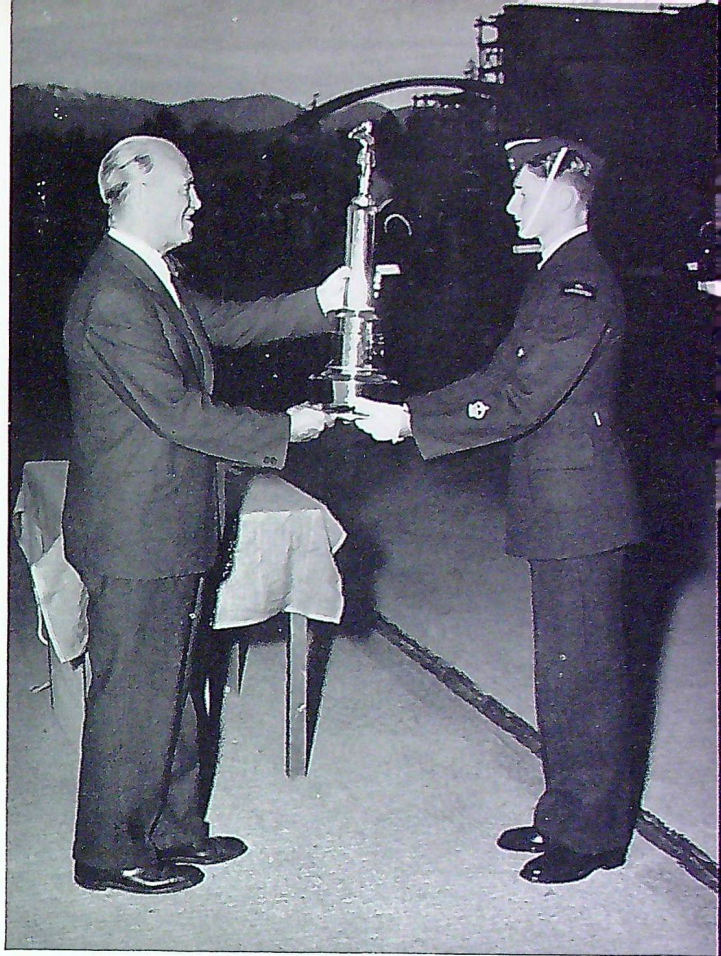
According to the Victoria "Daily Times", one of Canada's luckiest Air Cadets last year was 18-year-old Frank Russell, of No. 89 (Victoria) Squadron. Frank was one of the 26 Canadian cadets chosen to represent this country on the U.S. exchange visit, a trip which took him to Washington, New York, and Florida. After returning from the United States, Frank learned that he had been awarded a \$100 bursary from the Municipal Chapter of the I.O.D.E. of Victoria. The grant will go towards his education at Victoria College this year.

#### INTER-SQUADRON VISITS

On the subject of exchange visits, we have word of an extensive series of inter-squadron exchanges which are making life happier for cadets in Ottawa and Montreal.

As a reward for perfect attendance and general all-round proficiency, cadets of 51 (Ottawa Optimist) Squadron recently spent a week-end in Montreal as guests of No. 21 (Mount Royal) Squadron. The lads enjoyed a sightseeing tour of the city, visited the Canadair plant, and witnessed the McGill vs. McMaster football game. In return, the Mount Royal Squadron visited Ottawa, where they made a Cook's tour of the Capital City as guests of the Optimist group.

A similar programme has been successfully carried out at the Lakehead, where the Geraldton



*Mr. A. W. Carter, past president of the Air Cadet League, presents his precision drill trophy to W.O.2 L. Watters, of 135 Squadron, Vancouver.*

squadron recently played host to 25 cadets from Port Arthur and Fort William over the week-end. This was in return for a previous jaunt to the Lakehead enjoyed by members of the Geraldton squadron (including the squadron band).

#### DR. W. W. McBAIN

Top-ranking R.C.A.F. Officers and officials of the Air Cadet League gathered recently in Port Colborne, Ont., to pay tribute to one of Canada's most widely-known Air Cadet leaders, the late Dr. W. W. McBain. The occasion was the dedication of Port Colborne's Air Cadet training centre, which will now be known as McBain Cadet Hall. The training centre, considered one of the finest of its kind in Canada, was constructed through the voluntary effort of Port Colborne's citizens and



*The annual inspection of No. 534 (Peterborough) Squadron by Air Commodore W. W. Brown, Chief Staff Officer, Training Command H.Q.*

cadets, who responded generously to Dr. McBain's enthusiasm for the project.

Speaking at the dedication ceremonies, Air Vice-Marshal C. R. Slemon, C.B., C.B.E., said: "In measure of personal contribution, no member

of the Air Cadet League was more outstanding than Dr. McBain. The cadet-building in Port Colborne is a great monument to a great man. The R.C.A.F. is proud to be associated with his memory and achievements."

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## HEAVY HEADS

The hundreds of rivet heads protruding from the outside surfaces of a DC-3 create drag that requires 200 h.p. to overcome.

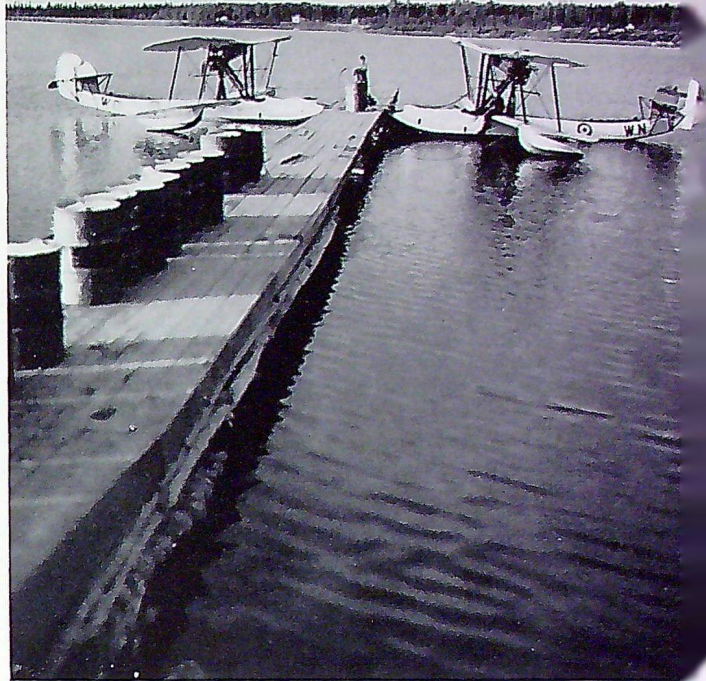
*("Air Force": U.S.A.)*

# Pin-Points in the Past

Twenty-eight years ago the R.C.A.F., as such, was less than a year old, and it survived (as we said in our last issue) chiefly by carrying out aerial operations for various civilian government departments. One of its chief bases for such operations was Winnipeg Air Station, of which the most important sub-base, in 1924, was Victoria Beach, some seventy miles north of the city. In addition to its sub-bases, Winnipeg Air Station maintained numerous gasoline and oil caches throughout the outlying territory.

Our photographs show, respectively, two Vickers Vedettes tied up for refuelling at the Long Lake cache, and sports day at Victoria Beach. The latter photograph is of special interest in that it shows, standing at the extreme left, Flt. Lt. H. Edwards, who died an Air Marshal last February. Other persons in the photograph are (left to right): not known; Flt. Sgt. F. S. Gilchrist, commissioned during the war, retired; 2nd AM T. Couper; Mr. Phillips, the civilian watchman; Cpl. B. M. Aronson, retired as Wing Cdr.; Sgt.-Maj. T. A. ("Chesty") Livingstone, retired as Wing Cdr.; LAC Philbrow, ex-R.A.F., released; Cpl. R. Cressy, ex-R.A.F., released; 1st AM A. E. Hopkins, camp cook, commissioned during war, retired; Cpl. H. C. Semple, released.

For the identification of the above men we are indebted to Air Vice-Marshal C. R. Slemon and Wing Cdr. B. M. Aronson.



# Ranks in the Commonwealth's Royal Air Forces

By Wing Commander F. H. Hitchins.

*(In this interesting little article the R.C.A.F.'s Air Historian replies to the letter from Mr. C. H. Link which appeared in our last issue. Mr. Link, it may be recalled, pleaded for less unwieldy rank designations than those now in use in the Commonwealth's Royal Air Forces, and also suggested that our readers might be interested by a few notes on the suggestions put forward when the R.A.F. was formed.—EDITOR.)*

THE RANKS now in use in the Royal Canadian Air Force, which we adopted from the Royal Air Force, are a reminder of the mixed naval and military elements in the ancestry of the R.A.F.

When the Royal Flying Corps was formed in 1912, its Military Wing used the normal Army ranks (Lieutenant, Captain, Major, etc.) with a supplementary "trade" appointment or designation of Flying Officer, Flying Officer (Observer), Flight Commander, Squadron Commander, etc. Later, when the R.F.C. was undergoing great expansion in 1917, two "training" ranks, Cadet and Flight Cadet, were introduced.

The Naval Wing of the R.F.C. (as it was originally designated until the Admiralty took it upon itself to rename its air arm the Royal Naval Air Service) likewise used normal Navy ranks with an air prefix, e.g. Flight Sub-Lieutenant, Flight Lieutenant, Flight Commander, Squadron Commander, Wing Commander. Like the R.F.C. the R.N.A.S. also introduced, in 1917, a preliminary training rank of Flight Officer.

When the R.F.C. and the R.N.A.S. were amalgamated as the Royal Air Force on 1 April 1918, the question of rank titles for the new Service came up for discussion (see H. A. Jones, "The War in the Air", Vol. VI, pages 25-6). A committee which had been considering this and other thorny problems prepared one list, using chiefly Navy and Army titles, which was criticised on the ground that the naval titles were reserved for the senior officers and the military ranks for the junior

grades. There was some sentiment that the R.A.F., being now a completely independent Service separate from both the Army and the Navy, should have its own distinctive titles of rank. A list was prepared and submitted to the committee, proposing that the ranks of the R.A.F. be: Ensign, Lieutenant, Flight-Leader, Squadron-Leader, Reeve (or, alternatively, Wing Leader), Banneret (or Leader), Fourth-Ardian (or Flight Ardian), Third-Ardian (or Squadron Ardian), Second-Ardian (or Wing Ardian), Ardian, and Air Marshal. Reeve and Banneret have a nice mediaeval flavour, but Ardian will not be found in any dictionary. It was coined from two Gaelic words "ard" (meaning "chief") and "ian", or "eun" (meaning "bird").

Confronted with these various suggestions, the committee dealing with the matter took the line of least resistance and passed the buck to the War Cabinet. That body accepted (rather surprisingly) the Admiralty proposal that R.A.F. officers should carry military titles. So, on 1 April 1918, those members of the R.A.F. who had previously been serving with the R.F.C. retained their former titles, while members of the R.N.A.S. who transferred to the new Service converted their naval ranks to the Army equivalent.

After the war had ended and there was more leisure to consider such weighty matters, the Air Council, on 27 August 1919, promulgated new titles of commissioned rank for the R.A.F.—the ranks which are still in use today. In this list the

naval influence seems to predominate from Flight Lieutenant to Air Commodore, and the military in the four highest brackets.

When Canada formed her own C.A.F. at home in 1920, the Regulations (issued on 31 August 1920) recognised both R.A.F. and Army titles for

all ranks above Flying Officer (e.g. Flight Lieutenant or Captain), possibly because Army rank insignia (star, crown, crossed swords) were worn on the C.A.F. uniform. This "duality" continued until the R.C.A.F. came into being as a permanent Service and R.A.F. dress replaced that of the C.A.F.

## The Suggestion Box ★ ★ ★

*The Chief of the Air Staff has sent letters of thanks to the undermentioned airmen for original suggestions which have been adopted by the Service.*

Sgt. W. C. Westaway, of No. 2 C.M.U., designed a new type of spare-tire carrier for use on station wagons in the R.C.A.F. By mounting the tire inside the rear door of the vehicle instead of underneath the back part of the body, the tire is kept free of ice and mud accretion, and is much easier to get at when required. Furthermore, its security is ensured, since it is at all times within the vehicle.

*Sgt. W. C. Westaway.*

Cpl. W. R. Dunn, of R.C.A.F. Station Whitehorse, devised an ingenious modification to the R.C.A.F. coding stamp used in the preparation of invoices for payment. His modification, in which the large stamp is mounted on a rounded wooden base, materially prolongs the life of the stamp, permits the making of several impressions with one inking, and generally saves a considerable amount of time and effort.

*Cpl. W. R. Dunn.*



# SURVIVAL CAN BE FUN

By Flying Officer L. W. F. Beasleigh, Survival Training School.

*(Here are heartening words for those who look forward to being sent on the Survival Course with that same enthusiasm which marks a visit to the dentist. Flying Officer Beasleigh's article may also serve to discourage a practice which is reportedly all-too-prevalent among Service mothers — namely, that of telling their recalcitrant offspring that Flt. Lt. Alexander or Flt. Lt. Goodey will get them if they don't watch out. In point of fact, the R.C.A.F.'s Polar Pundit and his Chief Instructor are both good family men.*

*Spurred on by the realization that he is still with us, Flying Officer Beasleigh has kindly offered to send "The Roundel" an account of the winter survival course at Cambridge Bay, to which, we gather, he is very shortly to be subjected.—EDITOR.)*

THE SURVIVAL Training School at Edmonton is one of the most prolific sources of news in the R.C.A.F.—probably because most people derive pleasure from the sufferings of their fellow men.

As P.R.O. of R.C.A.F. Station Edmonton and Adjutant of the Survival School, I have been kept fairly busy giving visiting journalists the story on the school. The sight of yours truly sitting in the mess, quaffing a brew and holding forth to the press on how "we" turn city lads into bush "gen" men, has frequently bothered the school's experts more than somewhat; for, while they spend 50% of their time in the bush, I seldom get beyond the city limits. Eventually, therefore, they applied a little pressure to the Officer Commanding, Flt. Lt. Alexander, who kindly offered to work an extra ten minutes a day to take care of my work and thus leave me free to go to the school's bush camp and get some first-hand information. I patiently explained that I suffer from fallen arches and that my eyes were a little weak. Furthermore, I pointed out, I couldn't sleep properly on anything but a spring-filled mattress. The O.C., however, remained quite unmoved.

*Flt. Lt. Scott Alexander, officer commanding the Survival School, shows how to make a fishing-net with hand-made needle and parachute shroud lines.*





*Brewing the final can of tea before turning in.*

I went to the Station supply section, hoping they wouldn't have the necessary equipment in my size. Alas, they were depressingly well stocked and most flexible in their attitude towards sizes! They fitted me with boots, lumberman; bags, sleeping; suits, bone-dry; shirt, woollen; underwear, long; socks, heavy; caps, winter; gloves; pyjamas; and a great big pack-sack. At the school's supply section they added a shotgun, axe, hunting-knife, messing-kit, fishing-kit, and compass. This last item made me feel a little better. It was the only piece of equipment that I knew anything about.

At 0530 hrs. on the following Thursday morning I awakened my family, said good-bye to them with unusual solemnity, then darted out to the car as fast as I could, in case any early-rising neighbours should spot me in my outlandish rig. I checked in at the airmen's mess for breakfast, and, with thirty-five other victims, attempted to eat enough ham and eggs to keep the old body going for ten days. After breakfast, I sat around smoking, and hoping that some clumsy character would spill boiling coffee over my head — but it was one of those days when nothing goes right. So I slunk outside to where the bus was waiting, and gave a hand in loading rations. It took ten minutes to load the instructors' rations and two minutes to load ours.

When we got under way, I sat at the front of the bus, close to the driver, and casually asked if he had ever had an accident. No, dammit, he hadn't had one in twenty-five years! At this point I finally gave up. The fact had to be faced: I was

going into the bush. I didn't like to think about it, so I went to sleep. I slept as long and as well as the hairy shirt would let me, and, after five hours, the bus stopped at a spot that was suitable in every respect for a fine large penal institution or a secret atomic plant.

We all got out, claimed our kits, and stood looking at the R.C.A.F. power-wagon, trying to figure out how many journeys it would have to make to move us and our kit five miles from the highway to the base camp. The instructors explained that said power-wagon was for them and the rations, and that we would walk in, carrying our kits.

After forty-five minutes on the trail, I felt in need of a little search and rescue, and was all for sending out distress signals. A hardier soul, with some years of scout experience behind him, pointed out the tire marks of the wagon, and explained that we weren't lost and had only a

*Flt. Lt. R. J. Goodey, the chief instructor, who served with Flt. Lt. Alexander in the Arctic when they were both in the R.C.M.P.*





*A paralean-to, with fire and green-wood reflector.*



*The McLeod River, seen from the base camp.*

bit further to stagger. After a total time of one and a half hours on the trail, we reached a group of paratepees, and broke up into four camps, each composed of nine guinea pigs under a camp leader chosen by virtue of keenness or previous experience.

Gratefully we shed our loads and assembled for introduction to the instructors, both R.C.A.F. and civilian, who were assigned to our course. Rules and regulations were read, and, after a demonstration on the use of an axe, we were dismissed for lunch.

This was indeed an occasion. I was detailed to light a fire, but, not having had the three days' lectures back at the school H.Q. in Edmonton, I was at a distinct disadvantage. The first thing I asked for was a newspaper, which, of course, was not to be had. So I scratched around with bits of bark and moss and whittled on a stick, and in due course a fairly promising blaze was produced. Rations were opened, and we had to decide whether to eat dried meat bar, oatmeal, or biscuits and soup. I whomped up a mess of meat-bar-and-biscuit stew. Somebody remarked that it couldn't possibly taste as bad as it looked, but believe me, it did. I dumped my share into the bush and chomped on the chocolate bar, which is really first-class confectionery.

We spent the next three days in and around the base camp, taking in demonstrations and lectures on bush lore, first aid, and all the other phases of

survival. As we got hungrier, we devised ways of preparing rations that were a little more palatable. Camps were kept tidier and made more comfortable, and we began to feel much better about the whole thing. It also became clear that the members of the survival staff were really expert in bush craft. We would search an area and return to camp swearing that there was no game for miles around; an instructor would go out for an hour and come back loaded with it.

The third day marked my introduction to such gastronomical delights as roast porcupine and boiled squirrel. I agree that it is nourishing and can keep a man alive and active, but I still prefer roast beef and pork chops. Pools and lakes that had been offering up great numbers of grayling and rainbow trout to previous courses were definitely out of business, and my fishing kit was nothing more than excess baggage. Nevertheless, my shotgun brought in a fair amount of partridge and grouse, and the rabbits were begging to be snared.

About this time it began to occur to us that we really did need the course. Some of us were as handy with a shotgun as a cow with a crutch, and had we forced-landed away from civilization, practically all of us would either have starved or died of exposure, strictly from ignorance.

On our fourth day in the bush, we went out on trek under the supervision of Sgt. Ken Clark, a pararescue safety equipment technician and sur-

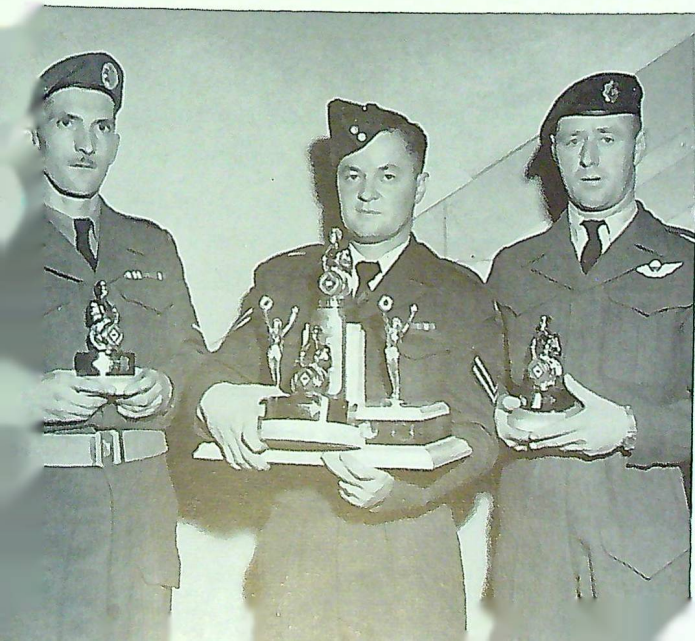
vival expert. We walked for eight miles, through magnificent country, with packs that now seemed a lot lighter and less bothersome. Mid-way in our trek we crossed a creek, and I noticed some of our students fingering cameras, half-hoping that someone would slip off the log. Selecting a site on high ground, we built our shelters, using parachutes. We made dish-shelves and tables, and covered the shelter floor with evergreens. The area was full of game that was easy to find for experts-comelately such as we, veterans of four days in the bush.

When the time came to make the trek back to base camp and then to the highway to catch the bus for Edmonton, we all felt a little sorry to leave, although none of us admitted it. But we did agree that it was a solid, comfortable feeling to realize that, should we ever come down in the wilderness, we would not lack the necessary clues to survive. All in all, it was a wonderful experience, and my advice is, **GET ON THE COURSE AT THE FIRST OPPORTUNITY!**



As for me, I am just waiting for the next gentleman of the press to come along. I'll really give him the full treatment.

## 1952 Roadeo Champions



Cpl. Eugene Setters (centre), of No. 25 A.M.B., Calgary, proudly holds the trophies which he received upon winning the 1952 Automotive Transport Association Truck Roadeo, held in Toronto. His 369½ points out of a possible 400 assured the R.C.A.F. of winning the Armed Services Trophy for the second consecutive year. With him stand (left) Lance-Cpl. J. R. Thompson, who finished second, and Cpl. E. Klassen, who placed third.

# Personnel Movements



## OFFICERS: SEPTEMBER

S/L A. Lehn — R.C.A.F. Stn. Whitehorse to A.F.H.Q.  
S/L R. M. McDonald — 405 (M.R.) Sqn., Greenwood, to Air Div., France.

## OFFICERS: OCTOBER

S/L F. L. Bernstein — C.A.R.D.E., Valcartier, to C.E. & P.E., Rockcliffe.  
S/L L. P. S. Bing, D.F.C. — A.F.H.Q. to 2 A.F.S., Macdonald.  
S/L W. J. Buzza — R.C.A.F. Stn. St. Hubert to 434 (F.) Sqn., Uplands.  
S/L J. D. Dickson, D.F.C., A.F.C., D.F.M. — 412 (T.) Sqn., Rockcliffe, to C.J.S. London.  
W/C J. Dunn — 2 (F.) Wing H.Q., Gros Tenquin, to A.F.H.Q.  
S/L J. G. Easson, D.F.C. — C.J.S. London to 30 A.M.B., U.K.  
S/L N. J. Gallagher — A.T.C.H.Q., Lachine, to Air Div., France.  
S/L W. T. H. Gill, D.F.C. — 410 (F.) Sqn., U.K., to 1 F.W.H.Q., U.K.  
S/L C. S. S. Gilliatt, D.F.C. — T.C.H.Q., Trenton, to R.C.A.F. Stn. Portage La Prairie.  
S/L C. J. Girard — R.C.A.F. Stn. Aylmer to R.C.A.F. Stn. Edmonton.  
S/L C. H. C. Hoseason, A.F.C. — A.D.C.H.Q., St. Hubert, to 1 G.Ob.C.U., Vancouver.  
S/L J. A. King — 12 A.C. & W. Sqn., Mont Apica, to C.J.S. Washington.  
S/L J. E. A. La Flamme, D.F.C. — 2 A.F.S., Macdonald, to R.C.A.F. Stn. Portage La Prairie.  
W/C H. F. Marcou, D.F.C., A.F.C. — 1 A.D.C.C., Lac St. Dennis, to C.J.S. Washington.  
S/L C. B. Marshall — R.C.A.F. Stn. Uplands to 31 A.C. & W. Sqn., Edgar.  
S/L B. D. McArthur — T.C.H.Q., Trenton, to A.D.C.H.Q., St. Hubert.  
S/L S. R. Miller — A.D.C.H.Q., St. Hubert, to 7 G.Ob.C.U., Halifax.  
W/C H. A. Morrison, D.S.O., D.F.C., A.F.C. — 412 (T.) Sqn., Rockcliffe, to C.J.S. London.  
W/C M. E. Pollard, D.S.O., D.F.C., A.F.C. — 412 (T.) Sqn., Rockcliffe, to 2 F.W.H.Q., France.  
S/L E. C. R. Purchase — R.C.A.F. Stn. Greenwood to C.J.S. Washington.  
W/C R. A. Skuce, M.B.E. — 14 T.G.H.Q., Winnipeg, to 11 T.S.U., Montreal.  
S/L E. C. Snider, D.F.C. — A.F.H.Q. to R.C.A.F. Stn. Trenton.  
S/L J. W. T. Van Gorder — R.C.A.F. Stn. Winnipeg to R.C.A.F. Stn. Portage La Prairie.  
W/C R. B. Waitt — 11 T.S.U., Montreal, to 14 T.G.H.Q., Winnipeg.  
S/L J. H. Woods, D.F.C. — T.A.G.H.Q., Edmonton, to 404 (M.R.) Sqn., Greenwood.

## OFFICERS: NOVEMBER

S/L J. F. Allan — R.C.A.F. Stn. Bagotville to 414 (F.) Sqn., Bagotville.  
W/C E. Beaton — 5 S.D., Moncton, to A.M.C.H.Q., Ottawa.  
S/L M. J. H. M. Belleau — R.C.A.F. Stn. Bagotville to 2 A.F.S., Macdonald.  
A/C F. S. Carpenter, A.F.C. — A.F.H.Q. to C.J.S. London.  
G/C S. G. Cowan, O.B.E. — A.M.C.H.Q., Ottawa, to A.F.H.Q.  
S/L W. S. Day, D.F.C. — 2 (M.) O.T.U., Greenwood, to 405 (M.R.) Sqn., Greenwood.  
S/L J. M. Dexter — A.F.H.Q. to A.M.C.H.Q., Ottawa.  
S/L I. G. Duncan, D.F.C. — C.J.A.T.C., Rivers, to 1 Gr. H.Q. (Aux.), Toronto.  
S/L C. E. Harris, D.F.C. — R.C.A.F. Stn. North Bay to 5 G.Ob.C.U., North Bay.  
G/CH. W. Hows — T.C.H.Q., Trenton, to 5 S.D., Moncton.  
S/L F. E. McLaren, D.F.C. — 400 (F.) Sqn. (Aux.), Toronto, to A.F.H.Q.  
S/L E. F. Nelles, D.F.C. — R.U., Hamilton, to R.C.A.F. Stn. Goose Bay.  
S/L W. Paylor — 2 C.M.U., Calgary, to Air Div., France.  
S/L A. P. Whalen, M.B.E. — A.M.C.H.Q., Ottawa, to A.A.F.C.E., France.

## WARRANT OFFICERS: OCTOBER

WO2 A. A. Adair — R.C.A.F. Stn. Whitehorse to R.C.A.F. Stn. Camp Borden.  
WO2 E. H. Albrough — 2 C.M.U., Calgary, to 6 R.D., Trenton.  
WO2 J. C. Allen — T.C.H.Q., Trenton, to J.A.G., Germany.  
WO2 W. O. Delong — 12 E.U., Clinton, to R.C.A.F. Stn. Claresholm.  
WO2 J. N. Dewar — 6 R.D., Trenton, to 1 R. & C.S., Clinton.  
WO2 J. G. Dickson — R.C.A.F. Stn. North Bay to 2 (F.) Wing H.Q., Gros Tenquin.  
WO2 F. E. Gagnon — R.C.A.F. Stn. Uplands to R.C.A.F. Stn. St. Hubert.  
WO1 F. J. Higgerty — R.C.A.F. Stn. Rockcliffe to 12 T.S.U., Weston.  
WO1 E. A. Hynes — 1 S.D., Weston, to 2 (F.) Wing H.Q., Gros Tenquin.  
WO2 H. R. Macaulay — 3 A.C. & W.U., Trenton, to 32 A.C. & W. Sqn., Foymount.  
WO2 G. C. Mainwaring — R.C.A.F. Stn. Edmonton to 2 (F.) Wing H.Q., Gros Tenquin.  
WO2 J. R. J. McKenna — R.C.A.F. Stn. Claresholm to 1 R.C.S., Clinton.  
WO2 A. J. Milne — 6 R.D., Trenton, to 10 T.S.U., Calgary.  
WO2 R. D. Periton — 12 A.D.G.H.Q., Vancouver, to 2 (F.) Wing H.Q., Gros Tenquin.  
WO2 P. C. Redgrave — 1 R. & C.S., Clinton, to Air Div., France.



### WARRANT OFFICERS: NOVEMBER

WO2 D. Fowler — R.C.A.F. Stn. Macdonald to R.C.A.F. Stn. Portage La Prairie.  
 WO2 A. K. Haines — 1 A.R.O.S., Clinton, to T.C.H.Q., Trenton.  
 WO1 R. H. Kempster — R.C.A.F. Stn. Trenton to R.C.A.F. Stn. Portage La Prairie.

WO2 H. B. Liddle — 4 A.C. & W.U., Uplands, to 32 A.C. & W. Sqn., Foymount.  
 WO2 A. M. MacKenzie — T.C.H.Q., Trenton, to A.F.H.Q.  
 WO2 L. J. McMahon — 412 (T.) Sqn., Rockcliffe, to Prac. Flt., Rockcliffe.  
 WO2 R. G. Miles — 25 A.M.B., Calgary, to 6 R.D., Trenton.  
 WO2 E. K. Sollows — 434 (F.) Sqn., Uplands, to 2 (F.) Wing H.Q., Gros Tenquin.

### KEY TO ABBREVIATIONS

A.A.F.C.E.	— Allied Air Forces Central Europe.	E.U.	— Exam. Unit.
A.C. & W.	— Aircraft Control & Warning.	(F.)	— Fighter.
A.C. & W.U.	— Aircraft Control & Warning Unit.	F.W.H.Q.	— Fighter Wing Headquarters.
A.D.C.C.	— Air Defence Control Centre.	G. Ob. C.U.	— Ground Observer Corps Unit.
A.D.C.H.Q.	— Air Defence Command Headquarters.	Gr. H.Q.	— Group Headquarters.
A.D.G.H.Q.	— Air Defence Group Headquarters.	J.A.G.	— Judge Advocate General.
A.F.S.	— Advanced Flying School.	(M.R.)	— Maritime Reconnaissance.
Air Div.	— Air Division.	O.T.U.	— Operational Training Unit.
A.M.B.	— Air Materiel Base.	R. & C.S.	— Radar & Communications School.
A.M.C.H.Q.	— Air Materiel Command Headquarters.	R.D.	— Repair Depot.
A.R.O.S.	— Air Radio Officers' School.	R.U.	— Recruiting Unit.
A.T.C.H.Q.	— Air Transport Command Headquarters.	S.D.	— Supply Depot.
C.A.R.D.E.	— Cdn. Armament Research & Development Est.	(T.)	— Transport.
C.E. & P.E.	— Central Experimental & Proving Establishment.	T.A.G.H.Q.	— Tactical Air Group Headquarters.
C.J.A.T.C.	— Canadian Joint Air Training Centre.	T.C.H.Q.	— Training Command Headquarters.
C.J.S.	— Canadian Joint Staff.	T.G.H.Q.	— Training Group Headquarters.
C.M.U.	— Construction & Maintenance Unit.	T.S.U.	— Technical Service Unit.

## A Caravan of Bats

Neither the Foreign Office nor the M.C.C. have seen fit to comment on a report from Kalimpong that a large consignment of cricket bats, transported on the backs of mules, is on its way to Lhasa at the behest of the education authorities in Tibet. Accustomed as we are to being baffled by international affairs, it is difficult to recall any recent development in that sphere of which the significance was harder to evaluate. There is, of course, nothing odd in the Tibetans wanting to play cricket; the natural and salutary aspiration does them credit . . .

It is, all the same, a little surprising that King Willow should come into his own at a time when Tibet is under Communist control . . .

There may — indeed there must — be more in this business than meets the eye. It looks like some sort of a move in the Cold War. Readers with romantic minds will toy with the idea that the whole thing has been organized, for subversive

purposes, by the British Secret Service — that at the head of the caravan (humming the Eton boating song to put people off the scent) strides, heavily disguised, some agent of the calibre of Colonel Egham or Big White Carstairs. Alas, it is more likely to be the other way round. World Communism, though it has many conquests to its credit, has as yet made little impression on cricket; but its outward indifference to the sport (the Russians have not even bothered to claim that they invented it) may well mask a respect for its civilizing influence and a determination to adapt it to conform with the exigencies of Marxist doctrine . . .

How fast or how far this threat to one of our dearest institutions may develop, it is impossible to say. It depends, to a certain extent, on whether the people in Lhasa remembered to order any balls.

(*"The Times Weekly Review"*: U.K.)

# They Improvise

Notes on Salvage in the R.C.A.F.

By Sgt. R. H. Chilton, A.M.C.H.Q.

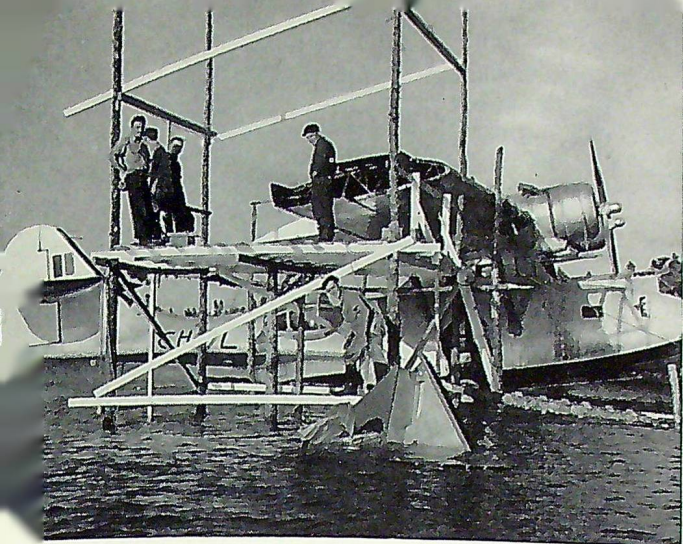
*(A German general once remarked that the strongest asset of the British was their genius for improvisation. The same compliment might well be paid to the salvage crews of the R.C.A.F. Readers may recall Sgt. G. R. Lawrie's story of last March, in which he described the rescue of a crashed helicopter from the heights overlooking a haunted valley in British Columbia. In the present article Sgt. Chilton touches on the theme of salvage in a somewhat more general way.—EDITOR.)*

VERY LITTLE PUBLICITY is given by the R.C.A.F. to salvage, i.e. the rescue of property. This is understandable, as we do not like to advertise our accidents and mishaps. The immediate reaction of the average reader upon learning of an aircraft accident is to exclaim: "There goes \$\$\$\$!" For them, the story ends then and there. But for the Salvage Section of No. 6 Repair Depot a story is just beginning. If our same average reader knew the final ending, his exclamation might well be: "There goes \$."

This salvage may mean repairing the crash on the spot and, in the case of an aircraft, flying it back to the R.D. for complete repair. It may mean its partial dismantlement, and its loading on a special trailer (involving the building of special stands and crates), and its eventual return to a contractor or to the Depot. The crash may even necessitate the reduction of the aircraft or vehicle to spares. Nevertheless, these spares are still valuable in that they may be used again.

A "duck".





*Rescuing a Canso from Cold Spring Pond, Nfld.*



*A salvage crew encampment.*

Consider the case of an aircraft whose undercarriage has been completely written off. The N.C.O. in charge of a salvage crew is told to take three or four men and move it a few miles. This, in itself, is a fairly big job. But let us assume that this hypothetical aircraft — a Canso, North Star, or Lancaster — is forced down in a remote northern lake which is covered with a thin coat of ice. It is surrounded by marsh and there are no roads leading to it. Also, there has been a heavy snowfall, and a strong, steady wind is blowing. This all adds up to a tough project. It is the task of the salvage crew to rescue it, and they have yet to fail. If you were to ask them why the job was difficult, they would probably mumble something about sleeping in tents at thirty below, or eating their own cooking, or missing the Depot dance.

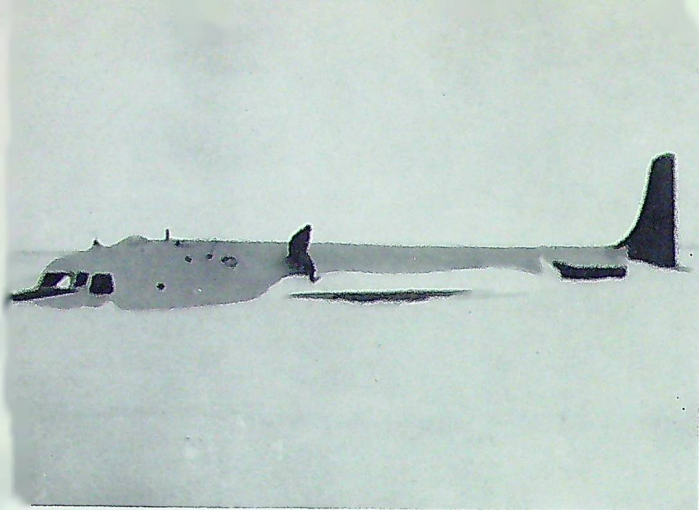
The No. 6 Repair Depot Salvage Section of Air Materiel Command is called upon to salvage aircraft stranded on the frozen coast of Labrador, lying on the bottom of an isolated lake, mired in a mosquito-infested swamp, or simply sitting at the end of a runway. Rescues have been effected well within the Arctic Circle.

Salvage is not taught to these aero-engine and airframe technicians on any course. It is not described in any publication. No previous job can serve as a sample type, as every rescue represents new problems. A simple crash may be duplicated, but usually no two salvage jobs are alike. Terrain, weather, transportation, roads, locality, equipment

available — any or all of these factors may introduce a new problem. Equipment peculiar to salvage, to such as special slings, hoists, rope, lumber, cranes, grappling hooks, and portable lighting equipment, may not be available in a certain area, or it may be divided among as many as five different jobs in scattered areas. As one officer at the Depot stated, "About the best equipment you can have on a salvage job is a car-load of lumber and a headful of brains." A crew assigned to a job will, therefore, remove the object by the most practical means their experience suggests. They will take with them what few tools they can, they will make use of whatever help they can obtain in the locality, and they will improvise from the natural surroundings.

What follows is an example of difficulties encountered during an actual salvage operation. A Dakota, experiencing adverse take-off conditions, nosed over, causing damage to the airframe and loss of one engine. The locality was a slushy ice-covered lake about 150 miles from Goose Bay, on the coast of Labrador. To illustrate further the near-impossible take-off conditions, it may be noted that a Norseman aircraft, carrying a crash-survey crew, was able to take off from the scene only after eight attempts, the equipment and two of the crew being left behind.

Returning by air from the Depot, W.O.1 Gibbs and a salvage crew joined Sgt. Bolch, who was one of the two men left behind by the Norseman.



*A North Star salvage project at Resolute Bay.*

As Bolch had already laid out the camp site, it was possible to set up tents immediately, and the crew dug into the deep snow.

They then set to work against time. The ice was melting, and there was danger that the aircraft would break through. The actual job would have taken only about 7½ days, but the necessity of working on snowshoes and of having to dig in every time the weather closed down kept the party there for three weeks.

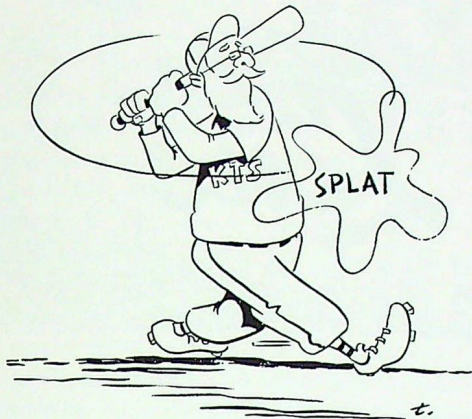
The power plant was assembled, and repairs to the airframe were carried out in the old bush pilot style, i.e. by rule of thumb and common sense. When the aircraft was ready, the salvage crew began to hack away the ice and dig out the aircraft. J.A.T.O. units were attached and the aircraft, having taken off under the control of its original pilot, flew directly to Goose Bay. The salvage crew returned later to No. 6 R.D.—sunburned, hungry for a home-cooked meal, but at the same time satisfied with a job well done.

On another occasion, Flt. Sgt. Laroche and his crew performed what was considered impossible. They removed a forced-down aircraft from a

swamp that was a swamp in the strictest sense of the word. So isolated was the aircraft that rescue of the pilot and student had to be carried out by helicopter. Here was a salvage job which required a different set of rules again, and which called for initiative in all stages of rescue. Anyone seeing the crew at work would have thought them part of an Amazon jungle expedition. They wore tropical helmets, waders that nearly reached their chins, and plenty of mosquito repellent. An amphibious “duck” was brought into action, and the crew began the tough job of hacking a roadway through the swamp. Constant communication was carried out by walkie-talkie sets.

This job was completed in six days. The wings of the aircraft were first removed and placed on the “duck.” Then the remainder of the aircraft was towed on a stone-boat to firm land, loaded, and transported back to the R.D. During the job the “duck” threw off one of its treads and had to be jacked up in the swamp for refitting. It should also be mentioned that 3500 feet of 3-inch rope was used during the operation.

Salvage work does not entail the rescue of aircraft only, but of R.C.A.F. property of almost any kind. Every airman in the Depot Salvage Section appreciates the variety of his work and the fact that his initiative is a main essential in performing it. It is a well-known fact that every technician on the Depot hopes for a chance to work in salvage or to be called upon as a specialist in one of the many crews engaged in this important work. As has already been remarked, the rescue of property is a comparatively unsung activity of the R.C.A.F.; but, for those engaged in it, salvage has an appeal of its very own. Perhaps it offers an outlet for that urge to adventure which, even in this age of Bendix washers and outboard motors, has not utterly forsaken the human spirit.



## The "2 K.T.S. Pensioners"

By Sgt. E. H. Ramm, No. 2 K.T.S., Aylmer

FOR THE SECOND successive year the No. 2 K.T.S. Softball Team has won the House League Championship at R.C.A.F. Station Aylmer. There is nothing newsworthy in that fact, you say. Winning a championship two years running is not unusual. Many teams have done it. Look at the Yankees.

Admittedly, the event in itself is really not unusual, but we feel that there *is* something unusual about the composition of the K.T.S. team. If the "Pensioners" are not the oldest team to win a championship, we think that they are the oldest club to repeat the performance. The senior man on the team, Sgt. Ron Eaton, 45, was in the Service before the junior man, Cpl. Bill Buck, 22, was born. Bill had trouble in making the team, not because of lack of ability, but because it was feared that he was too young! This could be due to the fact that the average age of the 14 players is 34, and the average length of service is 11½ years. Distributed among the married men are 31 children and one grandchild.

The success of the team is due not only to the players' ability, but also to the strong "school spirit" which exists among the members of the K.T.S. staff. Such *esprit de corps* is fostered by the O.C. of the school, Sqn. Ldr. M. G. Holdham, M.B.E., and is mainly attributable to his happy faculty of promoting harmony in his staff. This intangible spirit has encouraged the old-timers to get out on the diamond and show the younger fellows just how it should be done.

With their ambition achieved (an unbeaten season crowned by their second championship), the old men are talking retirement. However, we don't think it will stick. Once the bats start booming next spring, we think they will be out there — everyone from "grandpa" down to the "infant" — striving for number three. Having scored 105 runs in their last five games, the old hands have an affinity for the willow. Besides, if they don't get out there, what will there be to talk about over the coffee cups during break periods?

*Left to right: Poulin, Ault, Gregg, Roberts, Holdham, Ramm, R. Crawford, Buck, Eddie, D. Crawford, Shaw, Taylor. (Missing from photo: Antonette, Eaton, Thorne.)*





## FLIGHT SIMULATORS

By Sqn. Ldr. W. H. Muncy

*(The subject of flight simulators has long been a controversial one in the R.C.A.F. The question on which their adoption or rejection hinged was whether their potential value to flying safety merited their extremely high cost. Their protagonists finally won the day, however, and the R.C.A.F. recently placed an order for several CF-100 and F-86E flight simulators.*

*More than just a ground instrument trainer, in the strict sense of the words, the flight simulator also provides the most faithful reproduction of adverse flying conditions that has yet been devised. Unprecedented in its variety of functions, it offers the best obtainable preparatory training for its particular aircraft counterpart.*

*Sqn. Ldr. Muncy has, for the past five years, been closely associated with pilot-navigation and instrument flying. From 1947 to 1950 he was engaged in communications and rescue flying at R.C.A.F. Station Whitehorse, during which period he attended the Staff Navigation Instruction (Pilot) course at Summerside. His next posting was to No. 1 Instrument Flying School, Centralia, where he doubled as flying instructor and chief ground instructor. He is now Assistant for Training Aids on the staff of the Chief of Training at A.F.H.Q. He requests that we acknowledge with thanks the help he received from Flying Officer J. R. Becker in the preparation of this article.—EDITOR.)*

THE never-failing interest which passing aircraft seem to draw, as evidenced by craning necks and faces turned skyward, bears eloquent testimony to the fact that the man-made simulator of Nature's winged creatures has not even yet been completely "accepted." To many minds, the concept of a mass of metal and complicated gadgetry hurling through the air is still new, and, presumably, will always be so.

Small wonder, then, that in the field of synthetic flying training aids (best represented in the Second World War by the Link Trainer, the

celestial navigation trainer, and a host of other devices designed to lighten the burden of the birdman) we not infrequently encounter the bland assumption that these, too, are new.

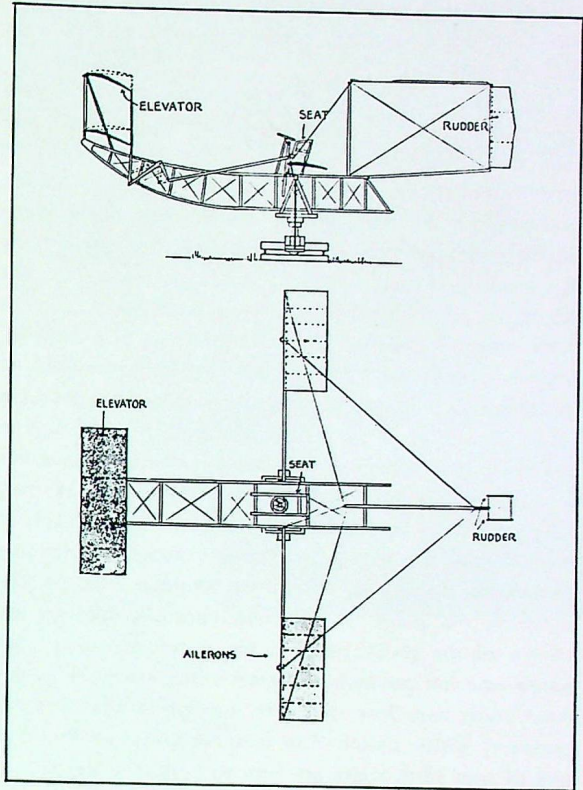
However, back in December 1910, England's "Flight" ran an article, complete with photograph and drawings, about the "Sanders Teacher," the forerunner of the modern flight simulator. It is thought that the article referred to, which was written by Dorothy M. Haward and which is reprinted with permission of "Flight", will be of interest.

## THE SANDERS TEACHER

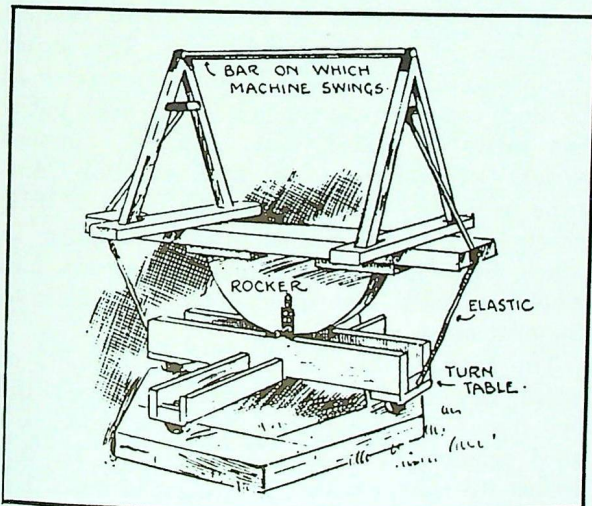
Those wishing to take up aviation either as a recreation or a profession find many drawbacks at the commencement of their undertaking, and one of the most formidable, especially to those not blessed with a long purse, is the risk of smashing the machine while endeavouring to learn how to control and fly it.

Even the most apt pupil is certain to find himself in difficulties at some time or another during his probation, and, owing to his lack of skill, the machine is necessarily sacrificed to save his life, or at least to prevent a serious accident. The invention, therefore, of a device which will enable the novice to obtain a clear conception of the workings of the control of an aeroplane and of the conditions existent in the air, without any risk personally or otherwise, is to be welcomed without a doubt. Several have already been constructed to this end, and the Sanders Teacher is the latest to enter the field.

The aim and object of an invention of this kind is naturally to render tuition safe to the pupil while at the same time giving him confidence. Now there is a tendency to design such an apparatus merely for purposes of balance and without any real resemblance to the actual aeroplane, while the very balance is so exaggerated that the pupil is placed under conditions that are in no way so arduous in free flight.



### *The pivoted rocker.*



The Sanders Teacher seeks to overcome both these difficulties. In the first place, the teacher so closely adheres to the construction of the actual aeroplane that, in learning to control it, the pupil is simultaneously learning the control of the machine he wishes to pilot, and the principle is applicable to any make or type of aeroplane. In the second place, the balance of the teacher is so arranged on scientific principles that the conditions are practically the same as if the pupil were actually in the air. The varying force of the wind has effect in almost an identical manner as on a working aeroplane, while the niceties of lateral and longitudinal stability are not carried to an extreme.

The device, as will be realized from the description following, is neither costly nor elaborate, while the perfection of workmanship to be found in the Sanders biplane is also plainly noticeable here. One would say that the motto of the firm is "If a thing is worth doing at all it is worth doing well," as even the minutest detail is

carried out with most scrupulous care and accuracy and incorporated in the construction only after much thought and experiment.

The machine consists of a fuselage-elevator, two lateral ailerons, and a rudder, either single- or double-planned. The control is a simple motor steering wheel in front of the pupil, connected up with elevator, rudder, and ailerons. All these details are standard parts of the Sanders biplane, and can be substituted, if desired, by the same parts of any other type of aeroplane. Thus, the purchaser of a Teacher is buying parts which can be used later, if he wishes, in the construction of a machine, and his outlay can therefore scarcely be considered an extravagant one. The fuselage is slung on to a wooden pivot consisting of a hexagonal bottom on which a crossway square running on wheels is placed. Above this is a rocker bearing a flat board surmounted by two triangular brackets with a bar running through sockets at the top. This bar also passes through two corresponding sockets on the upper part of the fuselage which is thus slung on the pivot. A bolt runs vertically through the centre of the pivot, beneath the rocker, on which the entire machine can swing around to the wind, the movement being very free owing to the ball bearings on the crossway piece below. The ailerons attached at either end of two 12-ft. spars are braced up by means of wire stays to the fuselage and a mast is situated at the rear of the machine. They are also supported above by a rubber spring attached to two small masts.

For the rest, a personal inspection is recommended to aviation instructors as a device worthy of their attention.

\* \* \*

If the Sanders Teacher was not the first synthetic trainer, it certainly must have been one of the earliest. The big step in the evolution of synthetic trainers, however, did not come until the aviation world began to appreciate the importance of being able to fly solely by instruments, without visual reference either to the ground or to the horizon. The story, from then on, is very much the story of the Link Trainer; but this instrument trainer, which was used by half a million pilots of all nations during the Second World War, has come a long way since V-J day. It still doesn't take off, but it does "fly" just like an aircraft, and it still remains one of the best

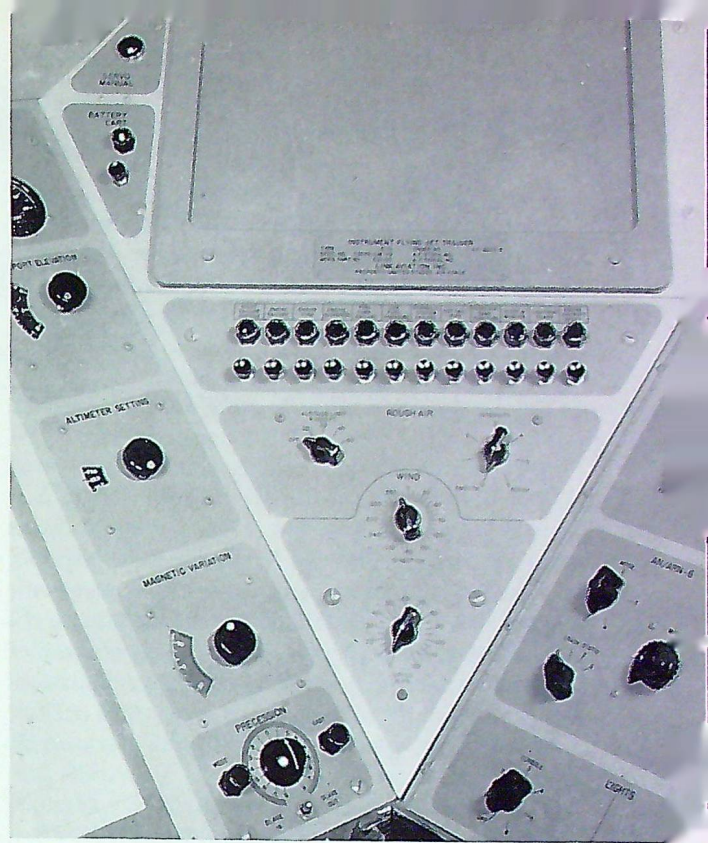
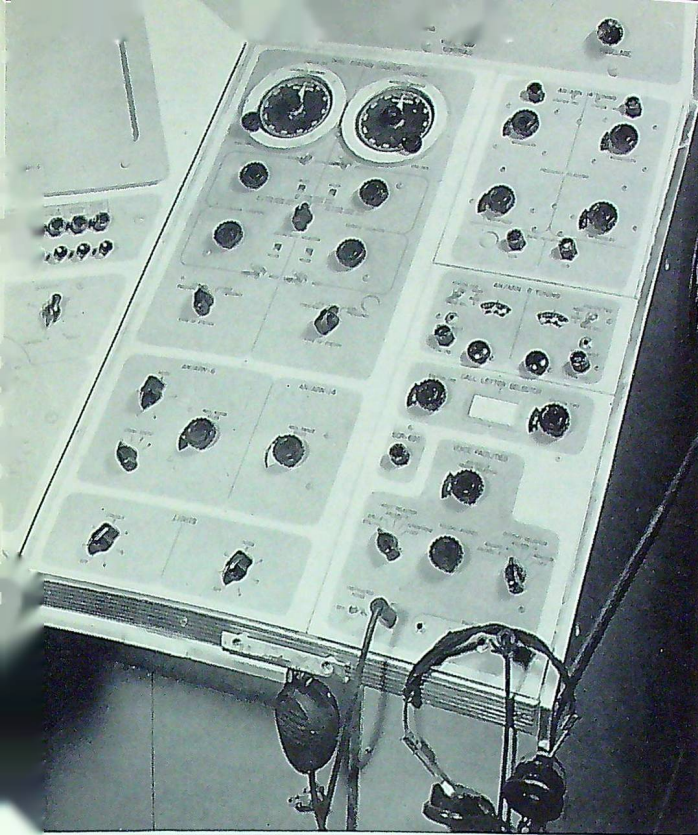
forms of flying safety insurance yet discovered.

The device, as originally designed, was a *pre-flight* trainer. It was not as an aid to would-be pilots, however, that the trainer made its real mark. A hood and some instruments were added to the invention, and, in 1934, it was sold to the U.S. Army Air Force as an instrument flying trainer. The "break" which opened the door was the cancellation by the federal government of air-mail contracts for civilian airlines and the decision that the Army Air Force should take over the job. The number of wrecked military aircraft from coast to coast soon set grim emphasis on the need for improved instrument flight training.

The U.S. Army thought that this new instrument trainer might be of help, and asked for a demonstration. The results were highly satisfactory. Thereupon the Army ordered several trainers for immediate delivery, and synthetic instrument flying instruction for all pilots became compulsory. As other governments and civilian airlines came to appreciate the value of synthetic instrument flying training, the number of trainers in use grew by leaps and bounds. When war clouds appeared on the horizon, the demand increased tremendously, and pilots from most of the allied nations, at bases all over the world, sweated over flight problems in the little trainers.

The next major step in the evolution of synthetic flight trainers came soon after the Second World War. The engineers of various companies turned to electronics to obtain more faithful simulation of aircraft performance. The writer declines to involve himself in any controversy as to which company was the first in this field, but it can safely be stated that both the Curtiss-Wright Corporation and the Link Aviation Company were early competitors. The result of their efforts was a precise mathematical mechanism in which flight- and engine-computors, servos, and amplifiers, made high-speed flight as realistic to the pilot as his next breath.

The Link C-11A jet instrument trainer, of which the R.C.A.F. has already received the first few of a considerable number on order, is a good example of these new machines. In this trainer the trainee sits under a clouded hood. Be-



*Two views of the instructor's console of the C-11A jet trainer.*

fore him are all the instruments and controls required to "fly" the jet, plus several newly-developed instruments which have not yet been installed in many aircraft. A couple of feet behind him, at a master panel, sits the check pilot. The latter has a duplicate set of instruments on his panel and also a series of 23 lights which tell him what errors of operation his pupil is making, e.g. "Incorrect Throttle Setting," "Exceeding Mach Number," "Exceeding 101% rpm," or "Engine Disable." A set of "emergency" switches permits him to plague the pilot with engine failure, fuel pump failure, pitot head and wing ice, and hydraulic system failure. He may observe the pilot's emergency actions through an aperture behind his head.

The trainee runs through his check procedure just as he would in an aircraft, and "takes off". All instruments and controls react exactly as they would in an actual take-off; realism is simulated even to the whine of the engine. Once "in the air,"

the pilot heads his aircraft towards his cross-country destination.

Here is where the "emergency" switches come in. The designers of the trainer felt that in the past, instrument trainer instruction failed to present enough of the problem of operating the aircraft. The trainee was able to concentrate solely on his instrument flying and navigation. This is no longer the case, for the instructor can now inflict a couple of "emergencies" on his student and watch his reactions. He may, for instance, introduce a higher rate of fuel consumption, in which case the pilot must quickly decide whether he can reach his original destination or whether he must alter course for an alternate base. He may cause the fuel pump to fail, so that he can watch the student's air-starting procedure. Should the pilot fail to handle any of the induced emergencies, the instructor has an "Engine Re-set" switch, by which he may give him a "new" engine, or a fresh start.

Furthermore, from the standpoint of radio aids to navigation, the C-11A trainer is very well equipped. In addition to the normal radio compass and I.L.S. equipment, the following aids are provided: ultra-modern V.H.F. omni-range (with off-set course computer), which is hooked up with a radio magnetic indicator; distance measuring equipment; and the ID-249 cross-pointers.

Although this C-11A trainer sounds like — and is — a very marvellous piece of equipment, it is actually not the last word in synthetic flight trainers. The head of the family is the immensely complex Flight Simulator. This is an electronic trainer which exactly simulates a particular type of aircraft, down to the last detail of performance characteristics and cockpit layout. As a matter of fact, in the manufacture of simulators, the cockpit assemblies are usually obtained from the aircraft manufacturer.

The question which first comes to mind is this: why bother with the simpler machines? Why not have a flight simulator for each type of aircraft? The answer is: cost. As the degree of simulation rises, so does the cost, particularly the cost of engineering. The flight simulator, therefore, which

duplicates every detail of the actual aircraft, is a very expensive machine indeed, and is usually produced only for new types of complex and expensive aircraft.

Flight simulators either have been or are being produced for such aircraft as the DeHavilland Comet, Boeing Stratocruiser, B-36, B-50, B-47, C-97, C-119, C-124, F-89C, F-86D, and many others. The R.C.A.F. has recently ordered a number of CF-100 and F-86E flight simulators.

What is the aim of these machines? Every one of them, from the Sanders Teacher to the modern electronic marvel, has been built with just one aim — to produce the highest possible crew efficiency at the lowest possible cost in men and materials. If flight simulator training saves the lives of only one crew, and only one aircraft, it more than pays for the cost of the simulator. Apart from these important facts, experiment has shown that instrument trainer and flight simulator instruction can considerably reduce the amount of air instruction necessary to bring a pilot to a given standard of proficiency, and the cost of operation of one of these machines is only a fraction of what it costs to operate an aeroplane.

### SLACKER!

When a municipal labourer of Southport, England, left his work at a seaside pier in order to save a drowning man, the City Council docked him for the time he was off the job.

(“New York Times”)

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# ROYAL CANADIAN AIR FORCE

# Association

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## NATIONAL EXECUTIVE COUNCIL MEETING

It was decided at the two-day autumn meeting of the National Executive Council that the 1953 convention of the R.C.A.F.A. would be held in Ottawa on May 25th and 26th. The meeting was presided over by the national president, Air Vice-Marshal A. L. Morfee, C.B., C.B.E., and 18 additional members of the council were in attendance during the sessions at which matters of general policy and plans were discussed.

Encouraging reports from all groups of the Association were presented by the group representatives, and all indicated continued growth of, and interest in, the organization. Considerable discussion was held on such matters as resolutions, membership, accommodation for Wings, Air Cadets, amenities for R.C.A.F. personnel overseas, "bon voyage" parties, and other questions.

The Hon. Brooke Claxton, Minister of National Defence, addressed the delegates briefly, and another visitor was Air Marshal W. A. Curtis, C.B., C.B.E., D.S.C., Chief of the Air Staff, who also spoke. Air Vice-Marshal D. M. Smith, C.B.E., was the chief speaker at an informal dinner held at the R.C.A.F. Officer's Mess on the opening night of the council meeting. The dinner was attended by guests as well as council members.

## WESTERN TOUR OF PRESIDENT

A tour of the western Wings of the Association was made during the autumn by the national president, and visits were made to sixteen centres during the month-long trip. Accompanying Air Vice-Marshal Morfee were Wing Commander J. P. McCarthy, D.F.C., of Air Force Head-

quarters, and J. A. Emery, of the Association's National Headquarters staff.

Stops were made at the Lakehead, Brandon, Regina, Moose Jaw, Yorkton, Saskatoon, Prince Albert, Edmonton, Red Deer, Calgary, Lethbridge, Vancouver, Victoria, Cranbrook, Medicine Hat, and Winnipeg. It was not possible to visit the Wing at Comox because of weather conditions.

Enthusiastic gatherings were held by all Wings visited, and the president outlined to members what has been going on in the Association on Wing and national levels. He urged full support of the drive for a greatly increased membership and other projects.

*Members of the Montreal Wings Council wish "bon voyage" to airmen leaving for overseas and present them with reading-matter for the trip. Making the presentations are (left to right) H. Blatherwick (No. 304 Wing), J. Ewart (No. 306 Wing), M. J. Simon (No. 301 Wing), and R. Westerman (No. 204 Wing).*





*Delegates and R.C.A.F.A. officials at the National Executive Council meeting at Ottawa. Front row (l. to r.): Mrs. E. A. Hall, Miss Evelyn Halliday, Air Vice-Marshel Adelard Raymond, C.B.E., Air Vice-Marshel A. L. Morfee, C.B., C.B.E., Miss Hilda Thompson, J. C. Gray. Middle row: J. René Gauthier, G. G. Morrow, R. S. Godfrey, J. B. Estey, Ivan B. Quinn, A. F. Wigglesworth. Back row: H. M. Feldman, P. E. Burden, Air Vice-Marshel K. M. Guthrie, C.B., C.B.E., J. N. Park, H. C. Beaupré, Air Vice-Marshel G. E. Brookes, C.B., O.B.E., E. R. McGill.*

Wing Commander McCarthy spoke on the present-day Air Force, touching on both the operational and training aspects.

#### MEMBERSHIP CAMPAIGN

An extension to include the month of December in the membership drive was decided upon after a number of Wings had written to say they would like a little more time to sign up prospective members who had already been approached. Such requests were more numerous from Wings having no quarters of their own, and which take on members only on regular monthly meeting nights.

It was asked that final returns be sent in by December 31st. The winners will be announced just as soon as possible. The number of new

applications received during the first part of the drive was most encouraging, and the Association is continuing to show a steady growth.

#### WING ACTIVITIES

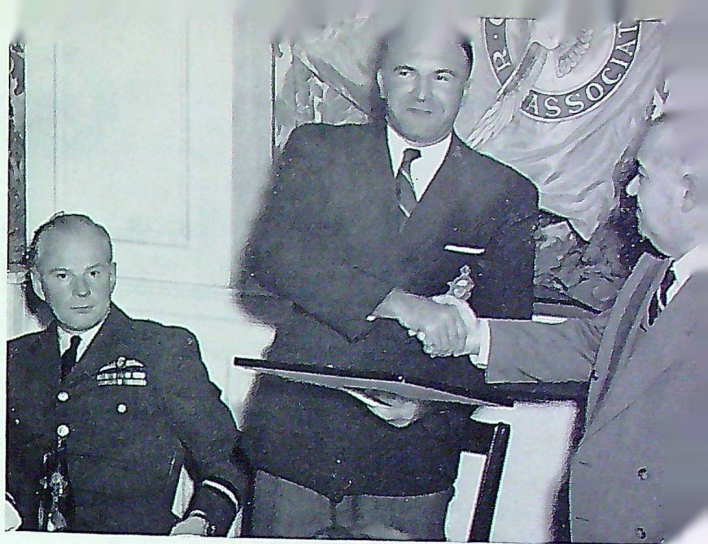
A highly successful Charter Night was held at Drummondville, Que., when the charter of No. 309 Wing was presented to President A. L. Schaefer by J. René Gauthier, Q.C., president of the Quebec Group, on behalf of the national president. The presentation was made at a dinner and this was followed by a dance at the Legion Hall which was attended by upwards of 300 members and their guests. A special speaker at the dinner was Air Commodore R. C. Ripley, O.B.E., A.O.C. Air Transport Command, who gave a talk on the

extensive operations of his command. Also attending the affair was J. C. Gray, of R.C.A.F.A. National Headquarters.

Wing Commander J. A. Sproule, D.F.C., commanding officer of R.C.A.F. Station London, was the guest speaker at a meeting of No. 412 (Air Force Club of Windsor) Wing. Wing Commander Sproule addressed the meeting on officer-selection methods.

Progress on the matter of permanent places in which to hold meetings is reported from several quarters. The Wings at Brandon, Winnipeg, Medicine Hat and Yorkton, are the latest to meet with success, and it is hoped that before too long all Wings will have a home of their own.

*Mrs. F. C. Jackson, of Saint John, N.B., sets a wreath on the memorial plaque placed in the Court House in 1950 by No. 250 Wing. Mrs. Jackson lost a son in the R.C.A.F. overseas.*



*President A. L. Schaefer, of No. 309 (Drummondville) Wing, receives Charter from J. René Gauthier. With them is Air Cdre. R. C. Ripley, O.B.E., the guest speaker.*

*Flt. Lt. R. McLean and Cpl. L. G. Dunbrack, of No. 30 A.M.B., Langar, England, check reading material received from No. 306 (Maple Leaf) Wing.*



No. 306 (Maple Leaf) Wing, of Montreal, heard an interesting talk by Nicky E. Hesse, research assistant at the Institute of International Air Law at McGill. Mr. Hesse served with the German Luftwaffe during the war and for a time was an interpreter at Stalag Luft 3, Sagan.

Wing Commander D. C. S. MacDonald, D.F.C., spoke on R.C.A.F. plans for Europe and Canada at a meeting of No. 404 (Kitchener-Waterloo) Wing. L. H. Jenkins of R.C.A.F.A. National Headquarters also attended the meeting.

The latest report from No. 250 (Saint John) Wing shows that more than 1,300 passengers have been carried so far on the sight-seeing flights on Sunday afternoons sponsored by the Wing. A 10-year-old girl was passenger No. 1,000, and she

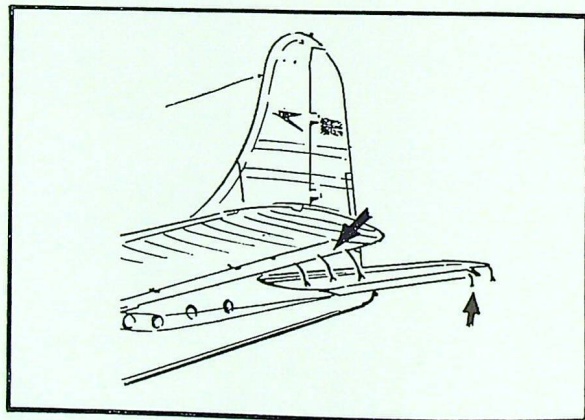
received a special prize of a round trip airline ticket to Moncton, where she was entertained at the home of Ralph Wood, president of the Moncton Wing.

A proposal that the Maritime Group of the R.C.A.F.A. be divided into two separate groups was advanced at the autumn meeting of the New Brunswick Council held in Moncton. The representatives of the four provincial Wings felt this would mean better liaison and better working arrangements. The resolution, which will be submitted at the annual meeting of the Maritime Group next March, calls for the formation of one group to embrace Newfoundland and Nova Scotia and of another to embrace Prince Edward Island and New Brunswick.

## STATIC WICK DISCHARGERS

READERS are often puzzled by the three short cords attached to the tips of the wings and tail of large aeroplanes — particularly airliners. These “ropes” are, in fact, cotton wicks that act very much as does the iron chain dragged under a traction engine. In our damp atmosphere we are not greatly worried by the generation of static electricity by the friction of moving bodies — animal as well as mechanical — of which the sparks and crackles from hair or an artificial silk garment are everyday examples.

Airliners flying in the tropics, or in the dry upper atmosphere, can develop quite high static electrical charges which, although generally too small to cause a spark, can interfere with radio communications. The static wick dischargers are intended to dissipate any such charges into the atmosphere. To be effective it is most important that the fluffy tips of the wicks should be kept clean and dry — oil, in particular, will act as an insulator and spoil their effectiveness.



In the same way, aircraft always have at least one tyre with an electrically conductive surface in order to discharge static immediately upon landing.—BOFFIN.

(“Air Pictorial”: U.K.)

## The Fable of the Club

ONCE UPON A TIME, as the fable goes, there was a man who owned a club. It wasn't a fancy club — just a plain ordinary hunk of tree branch which fitted his hand and had an even swing. And when the man got into a fight, he'd lay about him with the club and fracture skulls and beat ears off left and right. But in one fight a hardy opponent managed to get in a lick of his own because the man hadn't knocked him out with the first stunner. And this set the man thinking. What he needed was a guarantee that when he hit 'em they'd stay hit.

So he strapped a couple of flat stones to the end of the club, reasoning that their hard surface would do the trick. The club weighed a little more and swung differently, but the man soon got used to it.

One day he swung particularly hard and fanned. The club flew out of his hand and some distance away and before he retrieved it, he had taken quite a beating himself. After doing in his attacker, he figured that he needed something to keep the club from doing that again. So he devised a leather wrist thong, and he was able to swing the club like crazy without ever losing grip on it.

In another grand fight, he and his opponent swung simultaneously and broke each other's clubs. After finishing off his assailant with hands, feet, and teeth, the man figured he needed a stronger club. He certainly would have had the advantage if his enemy's club had broken and his hadn't.

So he built a new weapon. He found two flattish stones and a leather thong and tightly lashed them to the new club, which he had selected carefully for size, weight, and swing. Then he wrapped tough animal gut over the whole works. This, he thought, is a club. It was heavier, he admitted, and it swung a little harder, but it sure was lethal.



He learned from every fight he was in. He added a pointed rock for piercing skulls and a thin serrated seashell for slashing. He lengthened the club and fattened the critical section. He also had to strengthen the wrist thong because the club was somewhat heavier by then.

One night he got into a fight; he won it with difficulty. The next day he figured a way to combine the club and a torch for night fighting.

By this time the club was really a deadly weapon. It killed on the first blow. It stayed in the man's hands. It worked equally well day or night.

The club was also a lot heavier and more unwieldy than it had been at the start, but the man realized this was the price for increased killing efficiency.

And then one day he tangled with a character from the next village. It promised to be an easy fight because the man knew he'd win as soon as he got that club swinging. But he never quite made it. Before he got that high-quality club operating, the character from the next village — using a very ordinary club picked up from under a tree — stepped in and beat the daylights out of the man.

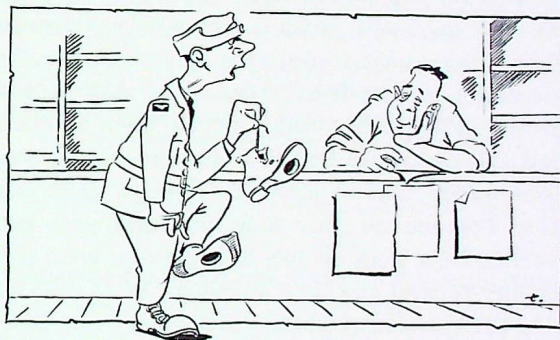
*Moral: Are combat airplanes too complicated?*  
(“Aviation Week”: U.S.A.)

# ★ What's the Score?

"As the year comes to a close," observes Sgt. Shatterproof in a rather stiff memo., "it is the duty of every loyal member of Her Majesty's R.C.A.F. to cast about in his memory for such crumbs of wisdom as he may have gathered from 'The Roundel' during the past twelve months. None know better than you and I, Sir, how meagre the resultant intellectual feast is likely to be: but, be that as it may, it nevertheless behoves us to rally to his aid. To this end I have selected twenty of the least pointless questions that have been published in 1952. Despite their elementary nature, it is just possible that some new recruit, brought up in the remotest region of the Barren Lands until he reached the enlistment age, may discover among them one or two which he is unable to answer without referring to page 48. Should that prove to be the case, the tax-payers of Canada may yet postpone the punitive expedition which (I gather from the grapevine) they are even now planning to carry out against the editor of 'The Roundel'. It is a frail straw, Sir, but we must clutch at it."

1. "Explosive decompression" means:
  - (a) Failure of pressurized cabin.
  - (b) Rupture of the internal organs of a crash victim.
  - (c) Sudden collapse of lungs occasioned by failure of oxygen supply.
  - (d) Damage to middle ear during rapid descent when Eustachian tube is blocked.
2. A zero reader is:
  - (a) A gyroscopic flight instrument used by the pilot.
  - (b) A type of thermometer used in the Arctic.
  - (c) An illiterate.
  - (d) A visual warning device attached to a certain type of fuel gauge.
3. The R.C.A.F. has adopted the nautical mile as a unit of measurement:
  - (a) Because the R.C.N. has always found it most satisfactory.
  - (b) Because it's easier to calibrate instruments in nautical than in statute miles.
  - (c) As a security precaution.
  - (d) In order to relate linear measurement with measurement of an arc.
4. The letters "MIG" are an abbreviation of the words:
  - (a) Mikoyan Gurevich.
  - (b) Medium Interceptor (Ground).
  - (c) Manchurian Intruder Group.
  - (d) Molotov Illyushyn Golovanov.
5. The classification of a file depends on:
  - (a) The ratio of classified and unclassified documents it contains.
  - (b) The highest classification of any document it contains.
  - (c) The lowest classification of a majority of documents it contains.
  - (d) The individual preference of any officer of air rank.
6. A printed form which in its completed state is to be classified "Secret," should be marked:
  - (a) Secret.
  - (b) Restricted (when incomplete).
  - (c) Restricted and Secret.
  - (d) Secret (when filled in).

7. The classic remark, everywhere quoted by Armament personnel, that "Without Armament there is no need for an Air Force," was first uttered by:
- Mr. Winston Churchill.
  - Sir Basil Embry.
  - Sir Basil Zaharoff.
  - Lord Trenchard.
8. The title to property of an R.C.A.F. mess or institute is vested in:
- The mess or institute committee.
  - The C.A.S.
  - The C.O.
  - The Minister of National Defence.
9. A member of the R.C.A.F. is entitled to a military funeral when:
- He retires on pension.
  - It is approved by the Minister.
  - He has served a minimum of one year.
  - He dies in honourable circumstances.
10. In R.C.A.F. official writing, the last world conflict should be referred to as:
- The Big War.
  - World War II.
  - The Second German War.
  - The Second World War.
11. Anoxia is:
- A goddess in Greek mythology.
  - The effect of lack of oxygen.
  - A town of S. America.
  - A disease of the os coccyx.
12. *Not* a type of system used in aircraft is that known as:
- Pneumatic.
  - Hydraulic.
  - Pneudraulic.
  - Aeromatic.
13. The compulsory release-age for a flight sergeant and below is:
- 47.
  - 50.
  - 55.
  - 60.
14. Blackout is due to "+G". Physiologically, the effects produced are the result of:
- Too little blood in the brain.
  - Stoppage of the heart.
  - Too much blood in the brain.
  - Closing of the pupils of the eyes.
15. The first Chief of the Air Staff, R.C.A.F., was:
- Wing Cdr. W. G. Barker.
  - Air Cdre. A. K. Tylee.
  - Group Capt. J. L. Gordon.
  - Air Vice-Marshal G. M. Croil.
16. A guided missile required to operate at any altitude would be powered by a:
- Turbo-jet.
  - Ram-jet.
  - True rocket.
  - Pulse-jet.
17. The much-publicized Orenda engine is:
- An axial flow engine.
  - A centrifugal flow engine.
  - A Whittle jet engine.
  - A turbo-prop engine.
18. Grivation is:
- A phallic dance performed by flight cadets on graduation.
  - The number of degrees to be added to True Heading to allow for magnetic variation and map convergence (in calculation of Grid Heading).
  - The number of degrees to be deducted from Grid Heading to obtain True Heading when flying over the North Pole.
  - The ovation given to a grid gladiator.



19. An airman who discovers holes in the outsoles of his shoes should:
- Attend clothing parade and demand a new pair.
  - Wait until the insoles are worn through too.
  - Turn them in to the Supply Section for repair.
  - Give them to a friend who takes a size larger, so that the latter can trade them for a new pair on the pretext that he has outgrown them.
20. "Negative G" is associated with:
- A strip-tease without the usual garment.
  - A black-out (in flying).
  - A red-out (in flying).
  - The old grey mare.

# ATLANTIC CROSSINGS ★ ★ ★

. . . The latest figures we have show that, for the last recorded twelve-month period, 400,000 passengers flew the Atlantic one way or the other. The thought of some 1,000 people making the crossing daily involves one in some remarkable considerations about the number airborne over the Atlantic during any hour of the day or night. Few of them, and that is how it should be, will give any thought to the heart-breaking efforts of those early pilots which made regular crossings possible. According to the most complete record in our possession, a total of 78 attempts on the crossing of the North Atlantic from East to West were made between 1919 and 1939; this figure includes that by the Italian Armada of General Balbo, counted as individual efforts.

The easier crossing from West to East began with Wellman in 1910 and involved 105 attempts. Again this includes the return of the fleet of Italian flying-boats counted as individual attempts. As we duly reminded our readers again the other day, the first successful crossing was by the American Naval flying-boat teams, only a month before the successful sixteen-hour crossing of Alcock and Brown in 1919. Not many people seem to know that this successful British landplane crossing was followed by that of a British airship, which left East Fortune on July 2 in the same year and reached New York on July 6. It left that great city on July 10, and was back at Pulham in Norfolk by July 13. Yet in spite of this remarkable demonstration of the apparent possibility of airship travel, the appearance of the airship on the North Atlantic can only be regarded as spasmodic and came to a disastrous end with the horrid accident to the German "Hindenburg" while landing at Lakehurst, New Jersey, in May, 1937.

In the intervening years, the "Graf Zeppelin" made a crossing in 1928 and our own R.100 in 1930.

But meantime a much more significant crossing had been achieved. This was the first crossing from East to West, that is against the prevailing wind. This was in 1928 when a German Junkers mono-plane flew non-stop from Dublin to Greenly Island, Labrador, arriving on April 13, after 36 hours flying. The Irish member of the three-man crew is fortunately still with us. The year before that the single-handed effort of Charles Lindbergh had captured the imagination of the World by a non-stop flight between New York and Paris. Both flights seem to us to have had true historical significance. Precise and accurate navigation made Lindbergh's achievement possible with a mere 220 h.p. High cruising speed and long range with a sizeable crew made the East-West crossing of the Junkers possible . . . The first Eastward crossing with Gipsy engines took place in 1934 when Reid and Ayling flew a twin-engined D.H. Dragon from Wasaga Beach, Ontario, to London in just under 31 hours. The much more difficult crossing the other way had already been made two years earlier in 1932 by Mollison in a Puss Moth (single-130 h.p. Gipsy Major) in crossing from Port Marnock, Eire, to Pennfield Ridge, N.B., in just over 30 hours. Then Mollison and his wife, always to be remembered as Amy Johnson, did the journey together in 1933 from Pendine Sands, Wales, to Bridgeport, Conn., in 39 hours. Mrs. Beryl Markham, the first woman to do the eastbound trip alone, did the flight in a Percival Vega Gull in 1936, flying from Abingdon in Oxfordshire to Baleine Cove, Nova Scotia, in under 25 hours . . .

*("The Aeroplane": U.K.)*

# The Laws of the Navy

(As a supplement to the Judge Advocate General's article in our October issue, "Notes on Canadian Military Law," we are reprinting the following excerpts from an article by Commodore H. F. Pullen, O.B.E., which appeared recently in the Royal Canadian Navy's official organ, "The Crowsnest."—EDITOR.)

THE EARLIEST known laws governing ships and seamen were the "Laws of Oleron." They were derived from a code established by the Republic of Rhodes and used from the earliest times by the countries bordering the Mediterranean Sea.

Richard I (1189-1199) introduced the "Laws of Oleron" to England when he returned from the Crusades. There were 47 articles dealing with offences against life and property, those against discipline being dealt with by Military Law.

At that time there was no Navy as we know it. Hired merchant ships were used for sea warfare, being manned by soldiers suitably equipped with bows and arrows, Greek fire, etc. In time, the King built or acquired ships of his own, which were administered by the King's Council during the 13th and 14th Centuries. The Council was responsible for the supply and maintenance of the King's ships, and for issuing instructions to the Admirals in command of the fleets. They were known as "keepers" or "governors of the sea," or "keepers" or "Governors of the King's ships," and appear to have had jurisdiction as far as discipline on board was concerned.

During the reign of Edward I (1272-1307), two Admirals were appointed, one to be responsible for all sea affairs along the South Coast of England, the other from the Thames northward. Their duties included the administration of justice as far as seamen and shipping were concerned. This was done through Courts of Admiralty using Richard the First's laws as the code. Offenders were punished according to the custom of mariners by the Admirals. Captains of ships could not punish unless given special permission.

Sometime before 1350, the "Black Book of Admiralty" was compiled from the "Laws of Oleron." It contained the duties of Admirals, and the laws and penalties relating to offences committed at sea. The Admirals were required to administer justice "according to the law and ancient custom of the sea."

During Henry the Eighth's reign (1509-1547), what is believed to be the earliest set of regulations drawn up for the government of a fleet were issued by Thomas Audley. They were known as "A Book of Orders for War by Sea and Land." In summary, some of them were as follows:

- No Captain shall go to windward of his Admiral;
- Disobedient Captains shall be put ashore;
- Boarding is not to be undertaken in the smoke, nor until the enemy's deck has been cleared with small shot;
- If a captured ship can not be held, the principal officers are to be taken out of her, the ship "boulged" and "the rest committed to the bottom of the sea for else they will upon you to your confusion."

Internal discipline was based on the regulations drawn up by Richard I. They were "Set in the mayne part in parchment to be rid as occasion shall serve." (KRCN Article 1.12 orders the Articles of War to be placed in a prominent place in the ship.) For example — a murderer was tied to the corpse and thrown overboard. To draw a weapon on the Captain meant the loss of the right hand. To sleep upon his watch for the fourth time meant being lashed to the bowsprit with a biscuit, a can of beer and a knife, and left to starve or cut himself down into the sea. A thief was to be ducked two fathoms under water, towed ashore astern of a boat and dismissed. Only a boat from the flagship was to board a stranger to make enquiries,

as the men "would pilfer things from our nation as well as of the kinges dere frends." In a captured ship, all plunder, except treasure, between the upper and lower decks, was allotted to the men.

Up to the Commonwealth (1649-1660) the internal discipline of the fleet was still based on the "laws and ancient customs of the sea." These were supplemented by orders and instructions issued by the Admirals to their fleets for any particular operation, lapsing when the operation was completed. A good example is supplied by the instructions issued by Howard and Essex for the combined expedition against Cadiz in 1596. They were entitled "The Discipline directed by the Generals to be observed in the Fleet." The first article reads, in part: "First, that you take a special care to serve God, by using of common prayer twice every day, except urgent cause enforce the contrary. . ."

During James the First's reign (1603-1625) the Navy was not properly paid or fed. While some said that "the English were good seamen and better pirates," Sir Walter Raleigh wrote that "they go with as great a grudging to serve in His Majesty's Ships as if it were to be slaves in the galleys."

The penalties for misconduct were very severe. Flogging was so common that "some sailors believe in good earnest that they shall never have a fair wind until the poor boys be duly whipped every Monday morning." Ducking, keel-hauling, tongue-scraping and tying up with weights around the neck "until head and neck be ready to break" were common punishments. They were very old, semi-illegal and, if connived at, were not publicly recognized.

Under Charles I (1625-1649) prayer was to be said twice daily, before dinner and after the Psalm sung at the setting of the evening watch. Anyone absent was liable to 24 hours in irons. Swearing was punished by three knocks on the head with a boatswain's whistle. Smoking anywhere but on the upper deck, "and that sparingly," was punished by the bilboes.\* A thief was lashed to the capstan "and every man in the ship shall give him



five lashes with a three-stringed whip on his bare back." For brawling or fighting, the offender was ducked three times from the yardarm, then towed ashore and dismissed. If a man slept on watch, three buckets of water were poured on his head and into his sleeves.

During the Commonwealth the first steps were taken to put the discipline of the Navy on a firm foundation. During 1648-49, the House of Commons passed a set of regulations for the government of a fleet commanded by the Earl of Warwick. They were based on orders and instructions issued long ago by various Admirals for their fleets. At the Battle of Dungeness, on November 30, 1652, Blake was defeated by Tromp, partly because some of his ships ran away. He wrote to the Admiralty pointing out that he did not have authority to punish his cowardly captains — all he could do was report them.

Up to this time, power to punish was still vested in the Admiralty. The Commonwealth Government acted quickly. Within two weeks a complete set of laws was drawn up, based on those passed for the Earl of Warwick's fleet. On December 25, 1652, The House of Commons passed the first Articles of War, which were known as "The Laws of War and Ordinances of the Sea."

There were 39 articles. The first dealt with the observance of divine service, the 39th was a vague reference to offences not otherwise mentioned, which were to be dealt with according to the "laws and customs of the sea." Of the remaining 37, 13 required the death penalty, 12 "death or such lesser punishment according as the Court Martial shall direct."

\*The "bilboes," we gather, were a form of nautical stocks, consisting of an iron bar to which are attached sliding shackles.— Editor.

# Rockets to Earth-Circling Orbits

By C. T. Aubrey

(Condensed from the "S.A.E. Journal".)

THE ART of rocketry has reached the stage where an orbital rocket is a likely possibility within the next 15 years. Space ships are further off, but we do have a pretty good understanding of some of the problems involved in interplanetary travel.

Multistage rockets are the most promising type for orbital rockets. Design of a single-stage rocket using present chemical propellants and capable of reaching escape velocity appears impractical from structural considerations. Too large a portion of the initial rocket weight must be propellant. The final velocity attainable with a single-stage rocket is also severely limited by the fact that propulsion energy must be utilized to accelerate the entire empty mass of the rocket continually even after the bulk of that empty mass is no longer useful.

To illustrate the concept of the multistage rocket, let us consider a two-stage rocket vehicle. The mother rocket is fired first starting from rest. The weight of the propellant in the mother rocket divided by the gross weight of the combination determines the final velocity of the combined rocket. When this speed is attained, all the fuel in the mother rocket has been used, but none of that in the baby rocket has been used. At this time the mother rocket is separated from the baby rocket and the engine of the baby rocket is started.

The first two-stage rocket was projected into space on February 24, 1949 at the White Sands Proving Ground. The rocket was a modified V-2, carrying a WAC Corporal. Gross weight of the V-2 and WAC Corporal combination was approximately 27,000 lb. The V-2 carried over 19,000 lbs. of propellant, and the WAC Corporal 385 lbs.

Firing time was 3:14 p.m. Mountain Standard Time. One minute later the V-2 had reached an altitude of about 20 miles and was moving with a velocity of approximately 3600 mph. Then the WAC Corporal fired, adding its own velocity to that provided by the V-2. Forty seconds later it had accelerated to 5000 mph, expending all of its fuel in the process. The empty V-2 continued to rise too, of course, reaching an altitude of 114 miles before falling back.

But the WAC Corporal forged ahead with a higher velocity. When the V-2 crashed in the desert 5 min. after take-off, the WAC Corporal was still climbing. It continued to climb for another 90 sec., reaching a maximum altitude 6½ minutes after take-off.

Maximum altitude was 250 miles above sea level. The WAC Corporal had reached empty space. (At that altitude there are fewer molecules in a cubic inch of air than in the best vacuum we can produce in our laboratories at sea level. An air molecule travels a distance of approximately 5 miles before it collides with another one.)

Although the WAC Corporal launched from the V-2 reached a peak altitude of 250 miles, it could not have established itself in an orbit around the earth because its velocity was considerably less than that required to balance the gravitational attraction of the earth.

The most logical choice for the orbital rocket appears to be a three-stage vehicle. Its characteristics are presented in Table 1. The gross weight of the rocket is 17,500 lbs. The initial weight of the separate steps, each loaded with propellant, are

Table 1—Three-Stage Orbital Rocket to Attain an Escape Velocity of 17,300 MPH with a Jet Velocity of 10,000 FPS

	Stage		
	1	2	3
Gross Weight, lb.	17,500	3130	560
Thrust, lb.	43,500	7840	1400
Propellant Weight, lb.	11,750	2100	376
Structural Weight, lb.	2620	470	84
Payload, lb.			100

Table 2—Four-Stage Escape Rocket for Escape Velocity of 25,000 MPH and Jet Velocity of 10,000 FPS

	Stage			
	1	2	3	4
Gross Weight, lb.	108,500	18,900	3270	570
Thrust, lb.	271,000	47,200	8180	1425
Propellant Weight, lb.	73,300	12,800	2210	385
Structural Weight, lb.	16,300	2830	491	85
Payload, lb.				100

3130 and 560 lbs., respectively. The third stage carries the 100-lb. payload.

A satellite rocket, revolving in the 200-mile orbit outside the atmosphere of the earth, could remain in such a circular orbit indefinitely with power off, circling the earth in less than 2 hours.

In the case of a rocket for escape from the earth, a velocity of 25,000 mph. is required. A four-stage rocket may be considered. The properties of this rocket are given in Table 2. The overall gross weight is 108,500 lbs. for transporting a 100-lb. payload. The initial gross weights of the separate stages, each loaded with propellant, are, 18,900 lbs. for the second, 3270 lbs. for the third, and 570 lbs. for the fourth. Fig. 8 illustrates the basic configuration for a single-stage, four-stage, and three-stage rocket.

The fact that a step rocket leaving the earth will be discharging empty steps creates a problem. These discarded steps will come crashing back to

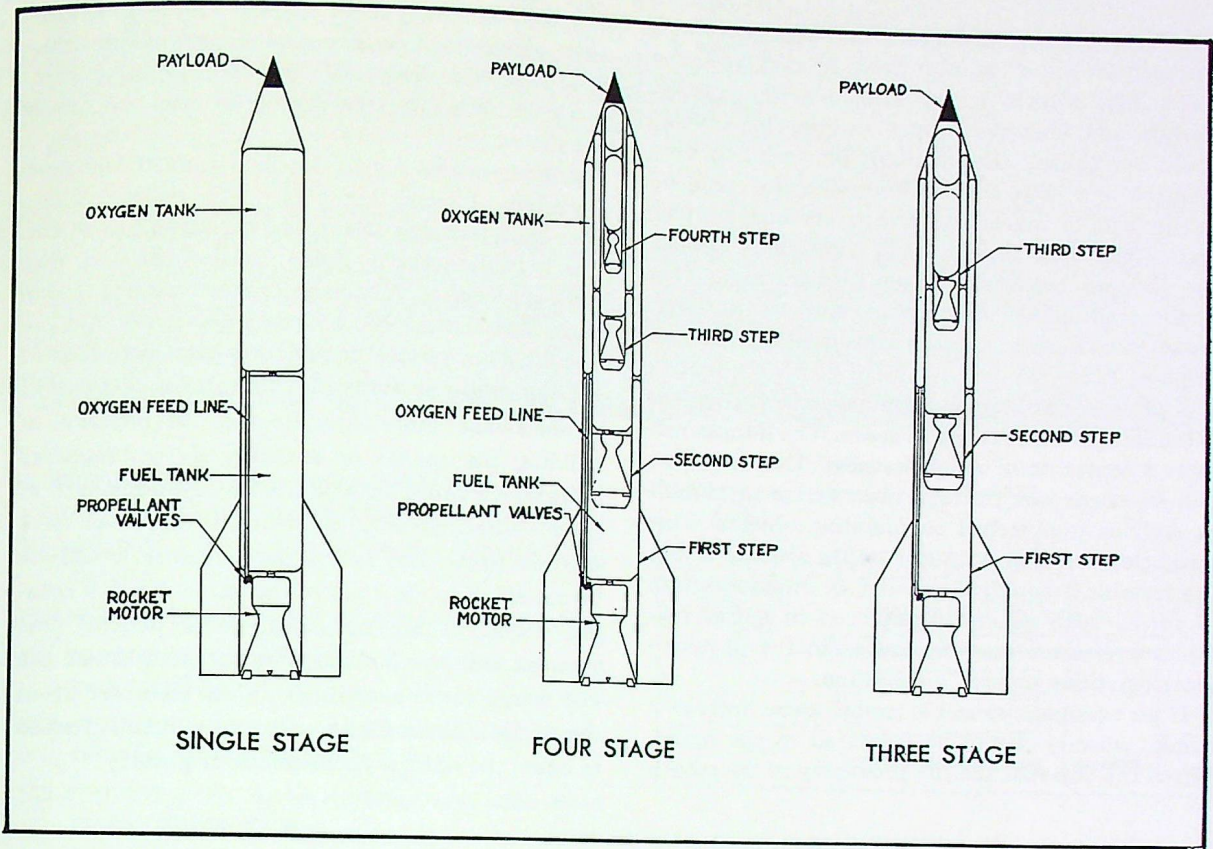
earth at limit velocities. So a means of lowering these masses back to earth with minimum velocity must be considered. At this date the most feasible means is use of a parachute to ease the descent. The mass of the parachute as well as its expulsion mechanism must be considered in figuring empty weights of the rocket.

The problem of navigation through space is one of terrifying consequence. It is a problem which requires being at a certain point in space at the same instant the destination is at that point. To miss connections with your destination could mean being drawn into the sun by its tremendous gravitational field. One must be cognizant of the fact that the earth is held in its orbit around the sun by the force of attraction exerted between the two. It is this tremendous force due to acceleration of the sun's gravity which would draw the erring rocket to the sun.

When considering escape from the earth, one must in like manner consider returning to the earth or landing on some distant planet. A rocket does not land by simply nosing into the ground. It must be equipped to slow its velocity to a point where a safe and violence-free landing could be made. One proposal for this problem has been to mount folding wings on the rocket which could be extended when approaching the atmosphere, to allow the rocket to glide to a safe landing.

Another question which must be investigated thoroughly is: Will an earthbound rocket burn up like a meteor due to extreme velocities when it reaches the earth's outer atmosphere? It is quite possible. Therefore, provision must be made to slow the rocket down before it reaches the atmosphere. The most logical means is through a directional control of the rocket motor. If the rocket motor or an auxiliary rocket motor could fire forward along the velocity vector, its action would cause a deceleration of the rocket. Through controlled deceleration it would be possible to slow the rocket down to nonexcessive speeds when entering the atmosphere. A different method suggested for slowing down to non-excessive velocities is carefully controlled approach to the earth.

Our thinking in terms of space travel must necessarily be confined to our own solar system.



Unless a projectile could begin to approach the speed of light (186,000mps.) a journey to even the nearest stars would be impossible within the human life span.

A measure of heat control must be maintained beyond the earth's atmosphere. The predominant scheme seems to be temperature control by absorption and reflection. Since there is no matter in space outside of the atmospheres, there is no temperature. A rocket in space could be designed so that one side of it would have a near-perfect reflecting surface and the other side a near-perfect absorbing surface. This could be accomplished in part by having one side a shiny white and the other side a dull black. If the interior of the rocket were warm, the white side could be turned toward the sun, our primary source of radiant energy. The white side would reflect all radiant energy, and as

a consequence no heat would be absorbed by the rocket. In reverse manner if the rocket interior were cold, facing the black side to the sun would bring about almost complete absorption of radiant energy, which would warm the rocket. It would appear that in powered flight the problem will be one of cooling due to loss of heat energy into the rocket from the rocket motor, and a rise of temperature due to fluid friction caused by the atmosphere.

The fact that all men breathe is also a disturbing complication. Provision must be made for maintaining a continuous flow of oxygen to the cabin while continually removing exhaled carbon dioxide. Moisture or water vapor must be supplied to the oxygen, or else skin and bone become dehydrated. One solution for conserving the necessary elements for living is through a distillation process whereby

all waste matter and gases are separated and cleansed for re-use. A more basic solution is use of plant life, which in growing absorbs carbon dioxide and liberates oxygen. A two-fold reward could be realized then if plant life could be propagated in a large rocket. The plant life could be in the form of vegetables for human consumption, and at the same time it could continually cleanse the air and replenish oxygen for breathing. This application would hold good only for a large rocket which could support a voluminous amount of plant life.

A physiological factor of unknown importance is attendant when coasting in space. The human will have a sensation of weightlessness. This sensation will be borne out through observation of himself as well as unattached surrounding objects. This weightlessness will be caused by the absence of any appreciable amount of gravity, or an equilibrium of forces such as are experienced in a free fall. Opinion is somewhat divided as to the physiological reactions to such a condition.

If an occupant raised a cup of water to take a drink, velocity would be imparted to the liquid. When the cup reached the proximity of the mouth

it would naturally be stopped. The liquid, however, would not stop, but would continue on in the final direction with the imparted velocity, probably enveloping the head of the would-be consumer.

A human who thrust his foot against the floor would find himself bouncing off the ceiling. There have been two solutions proposed for this problem. One is to induce a magnetic field at the floor and have all loose objects constructed with a metal base. The shoes worn by the human would have metal plates. In this manner a partial sensation of gravity would be available. The alternate solution is somewhat more complicated. It consists of building the rocket or satellite of two separate units which could be separated by a long length of cable. When coasting field-free in space or in a satellite orbit, the two separate units would be thrust apart to the ends of the cable. Then a rotation could be set up about some neutral axis between the two bodies. This rotation about the axis would cause centrifugal forces to be set up in the rocket. These forces could be controlled so as to equal the normal acceleration of gravity.

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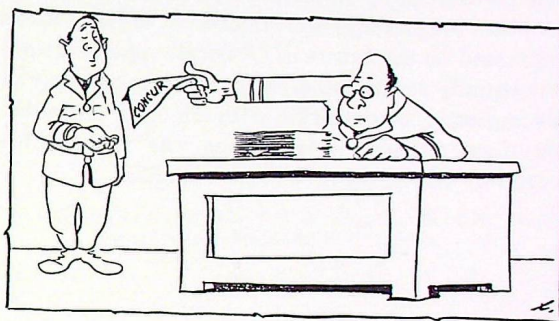
### LITTLE ACORN

Forty years ago, U.S. Army aviation consisted of two officers, nine enlisted men, one airplane, one airship, and three balloons.  
(*"Air Force": U.S.A.*)

# GOBBLEDYGOOK

*In big business, and in military and government circles, a new language has come into being. Sometimes called "gobbledygook," it is designed to impress the uninitiated. Here are some examples of the current distortions of plain English.*

- A PROGRAMME.** Any assignment that can't be completed by one telephone call.
- TO EXPEDITE.** To confound confusion with commotion.
- CHANNELS.** The trail left by inter-office memos.
- CO-ORDINATOR.** The guy who has a desk between two expeditors.
- CONSULTANT (or EXPERT)** Any ordinary guy more than 50 miles from home.
- TO ACTIVATE.** To make carbons and add more names to the memo.
- TO IMPLEMENT A PROGRAMME.** To hire more people and expand the office.
- UNDER CONSIDERATION.** Never heard of it.
- A MEETING.** A mass mulling by masterminds.
- A CONFERENCE.** A place where conversation is substituted for the dreariness of labour and the loneliness of thought.
- TO NEGOTIATE.** To seek a meeting of minds without a knocking together of heads.
- REORIENTATION.** Getting used to working again.
- RELIABLE SOURCE.** The guy you just met.
- INFORMED SOURCE.** The guy who told the guy you just met.
- UNIMPEACHABLE SOURCE.** The guy who started the rumour originally.
- TO CLARIFY.** To fill in the background with so many details that the foreground goes underground.

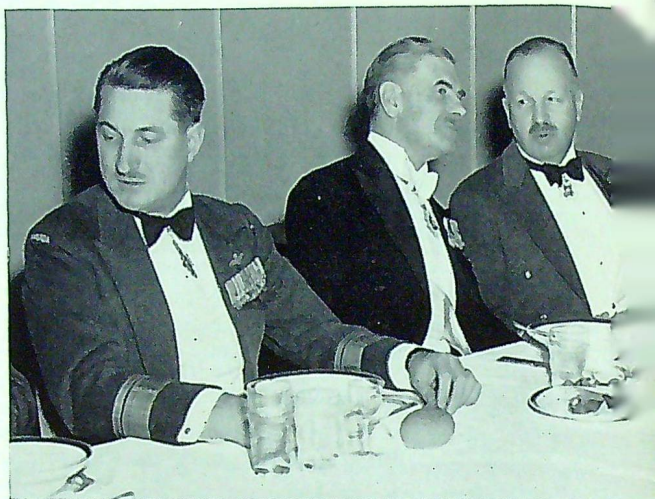


- WE ARE MAKING A SURVEY.** We need more time to think of an answer.
- NOTE AND INITIAL.** Let's spread the responsibility of this.
- SEE ME (OR LET'S DISCUSS).** I'm assuming you're as confused as I am.
- GIVE US THE BENEFIT OF YOUR PRESENT THINKING.** We'll listen to what you have to say as long as it doesn't interfere with what we've already decided to do.
- WILL ADVISE YOU IN DUE COURSE.** If we figure it out, we'll let you know.
- TO GIVE SOMEONE THE PICTURE.** A long, confused and inaccurate statement to a newcomer.
- SPEARHEAD THE ISSUE.** You be the goat.
- POINT UP THE ISSUE.** To expand one page to fifteen pages.
- THE ISSUE IS CLOSED.** I'm tired of the whole affair.

(*"The Record"*, No. 1 Supply Depot.)

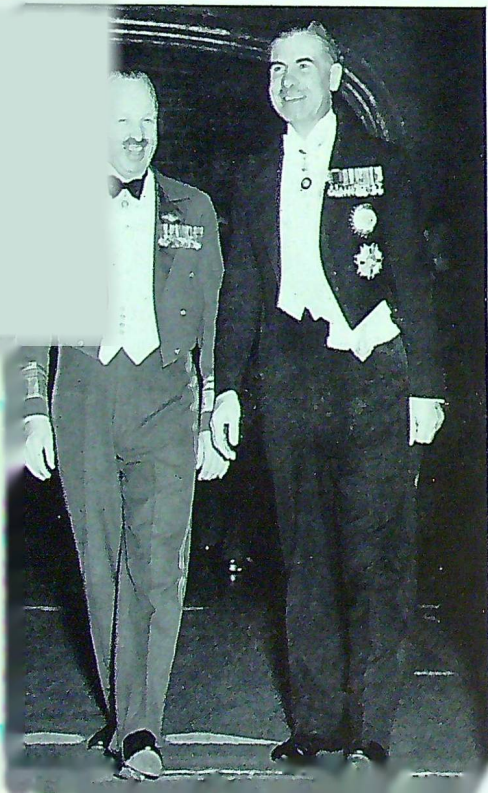
# Mess Dinner at A.F.H.Q.

Since the November mess dinner at the R.C.A.F. officers' mess, in Ottawa, coincided with the annual conference of Air Officers Commanding, the occasion was one of unusual interest. The guest of honour was Lt.-Gen. Sir Archibald Nye, G.C.S.I., G.C.M.G., G.C.I.E., K.C.B., K.B.E., M.C., High Commissioner for the United Kingdom. The talk which Sir Archibald gave, after being introduced by the Chief of the Air Staff, was no less distinguished for its whimsical humour than for the originality and freshness of the views expressed on the future of tri-Service co-operation; but equally remarkable, in the opinion of many of his audience, was the skill with which he rekindled his cigar without interrupting the flow of his words by the delay of a single syllable.

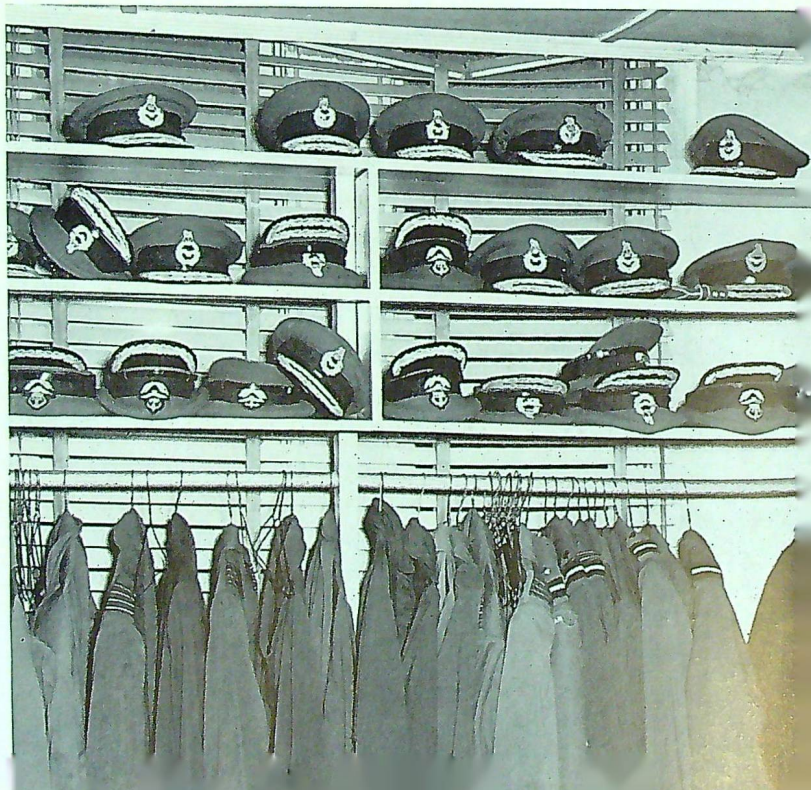


Left to right: Air Vice-Marshal H. L. Campbell, Sir Archibald Nye, Air Marshal W. A. Curtis.

The C.A.S. and the guest of honour.



A study in brass.





Facing camera (l. to r.): Sir Archibald Nye, Air Vice-Marshal C. R. Slemon, Air Vice-Marshal A. L. James, Air Vice-Marshal F. R. Miller, Air Vice-Marshal H. B. Godwin, Air Commodore A. P. Revington, Air Commodore J. G. Bryans, Air Commodore M. Costello. Backs to camera (l. to r.): Air Commodore W. A. Orr, Air Commodore R. C. Ripley, Wing Commander I. H. Barclay.



Top left: Air Commodore A. P. Revington (R.A.F.), left, and Air Vice-Marshal F. R. Miller.

Music before dinner.

## Letters to the Editor ★ ★ ★

### THE ALBATREAGLE

Dear Colleague:

As usual, your current issue has been received here with a great deal of interest, but I thought it might be just as well if I pointed out that the "Albatreagle" story so kindly reproduced by you from "Air Mail" really concerned *our own* badge — that is, the badge of the Royal Air Forces Association — *not* the badge which adorns the clothing of airmen (who sometimes refer to it as a peculiar species of hawk).

An interesting article under the heading of "Traditional Legends," by Group Captain A. H. Stradling O.B.E.,

appeared in the 1952 edition of the R.A.F.A. Annual. It reveals that in 1914-1918, on the formation of the Royal Air Force, a Minute of an Air Council meeting stated that the R.A.F. badge was to include an eagle. The official description of the Air Force badge is as follows:

*In front of a circle inscribed with the motto "Per Ardua Ad Astra," and ensigned with the Imperial Crown, an eagle volant affronte, the head lowered and to the sinister.*

This was registered on January 26th, 1923, after it had been submitted to the College of Arms on January 23rd of that year and after receiving King George VI's approval.

# Letters to the Editor (Cont'd.) ★ ★ ★

I hope that the above information may be of some help to you just in case one or more of your readers writes to refute the suggestion that the bird on the badges of the Commonwealth Royal Air Forces is an "albatreagle." In fact, it is only upon the badge of the Royal Air Forces Association that this distinguished bird alights . . .

Raymond J. Blunt,  
Managing Editor, "Air Mail" (U.K.)

*(We apologize to Mr. Blunt for the lèse majesté and thank him for his information. His reference to the badge which adorns the clothing of airmen will doubtless arouse nostalgic memories in all R.C.A.F. ornithologists who have served for any length of time with the Royal Air Force.—EDITOR.)*

## WHEN IS AN AIRCRAFT?

Dear Sir:

If you refer to Q.R.(Air), Chapter I, 1.02, "Definitions," you will find that an "aircraft," under the National Defence Act, can be a "guided missile." Therefore, the correct answer to question no. 7 in your October "What's the Score?" should be (a) or (b), not merely (b), as indicated in the list of answers.

Wing Cdr. C. B. Limbrick.

*(We decline to cross swords on such a matter with A.F.H.Q.'s Director of Guided Missiles and Special Weapons.—EDITOR.)*

## "FIGHTER DESIGN . . ."

Dear Sir:

I am most heartened by Wing Cdr. Houle's article in your October issue, entitled "Is Fighter Design in a Rut?" It is gratifying to hear the voice of moderation in this day of luxuries, gadgets, and terrifying weight. For the past year I have been flying aircraft thus equipped, and although they provide everything but a silver tea service, these safety features do not save lives even during peacetime training. I have witnessed many fatal accidents that were a direct result of high wing loading and complicated cockpits.

I am puzzled by the reference to wing loading in the closing paragraph. Is not low wing loading one of the factors governing manoeuvrability at altitude? Would not low wing loading also save lives and aircraft all the way from training to operations?

Flt. Lt. H. R. Knight,  
3540 Combat Crew Training Wing (exchange).

*(We are not quite sure that we understand Flt. Lt. Knight's question in relation to the paragraph concerned, so we shall withhold any reply until Wing Cdr. Houle's return from leave. In the meanwhile, however, we cannot help feeling that Flt. Lt. Knight is guilty of a little exaggeration in his use of the phrase "many fatal accidents".—EDITOR.)*

## FOURTH DIMENSION

Dear Sir:

In "What's the Score?" of the November issue of "The Roundel" Q. 18 enquires . . . which lake has the longest area on the Canadian boundary?

Do you not know, Sir, that length and area are two different terms of measurement and cannot be combined? I should have thought that even an English Public School education would have made this clear.

What do you wish to know? — (a) which lake has the largest area within the Canadian Boundary, or (b) which lake has the longest shoreline on the Canadian Boundary? You cannot request the answer to both in one question.

I hope Sgt. Shatterproof takes you to task for this.

J. M. Macoun (R.C.A.F.A.),  
National Research Council,  
Ottawa.

*("The Roundel" reserves the right to subscribe to a non-Euclidean system of geometry.—EDITOR.)*

## "AES SEMPER NOBISCUM"

Dear Sir:

I trust that W.O.1 Gallstone will close his Q.R. (Air) and listen with impartial ear while I point out an obvious injustice that is being perpetrated against that Knight of the Ranks, our loyal friend and benefactor Sgt. Shatterproof.

Is not a man of his stature, replete with the ultimate in personal qualifications and Service knowledge, worthy of promotion? What is to happen to the morale of the boys in the field if he is compulsorily retired at the age of fifty, while he has still to reach the zenith of his career?

We at Greenwood are of the opinion that some insidious conspiracy was afoot when Sgt. Shatterproof last wrote his promotion exams and that an ordinary lead pencil was substituted for the special one provided.

Let us hope that he will live up to his family motto of AERE PERENNIUS and that we shall, in the near future, see his name signed "Shatterproof, Flt. Sgt."

Cpl. D. I. Shade,  
R.C.A.F. Station Greenwood.

*(We understand from the grapevine that when the old wardog read Cpl. Shade's letter he was observed to set down his pre-prandial pint and hastily dash away a manly tear that threatened to dilute it. Then, repairing to his room, he penned us the following brief note: "Please thank Cpl. Shade and his colleagues for their concern on my behalf. I would advise them, however, that the R.C.A.F. is not to blame. The only culprit is the Code of the Shatterproofs, which forbids me to expose the stored-up knowledge of years to analysis by a soulless and mechanical assessing-device. My examinations were written with the selfsame pen that has signed my letters, clearly and legibly, for more than two decades. As regards my family's motto, Cpl. Shade is slightly in error. It is AES SEMPER NOBISCUM, which may be translated alternatively as 'The sword is ever at our sides' or 'The Brass we have always with us'.—EDITOR.)*

★

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

1: (a)	2: (a)	3: (d)	4: (a)
5: (b)	6: (d)	7: (d)	8: (c)
9: (d)	19: (d)	11: (b)	12: (d)
13: (b)	14: (a)	15: (d)	16: (c)
17: (a)	18: (b)	19: (c)	20: (c)

# THE SPIRIT MOVES THEM

Two of the three accompanying photographs show interior and exterior views of the \$4-million Orenda plant of A. V. Roe at Malton, Ont., which was opened last September by the Hon. C. D. Howe, Minister of Defence Production. The event marked Canada's coming of age as a full-fledged aircraft producer.

The Orenda engine, which was named after an Iroquois spirit, has a thrust which compares favourably with that of the most powerful jet engines in use today. It is being produced to power the R.C.A.F.'s CF-100's and, possibly, its Canadian-built F-86's.

In the company's adjoining plant, the production of CF-100 airframes is proceeding apace. The third photograph depicts a number of these on the final assembly line, awaiting the installation of their "moving spirits".

