

# The **C**ROWNDDEL

Vol. 4, No. 7  
JULY-AUGUST 1952



**ROYAL CANADIAN AIR FORCE**



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

VOL. 4 No. 7

JULY-AUGUST 1952

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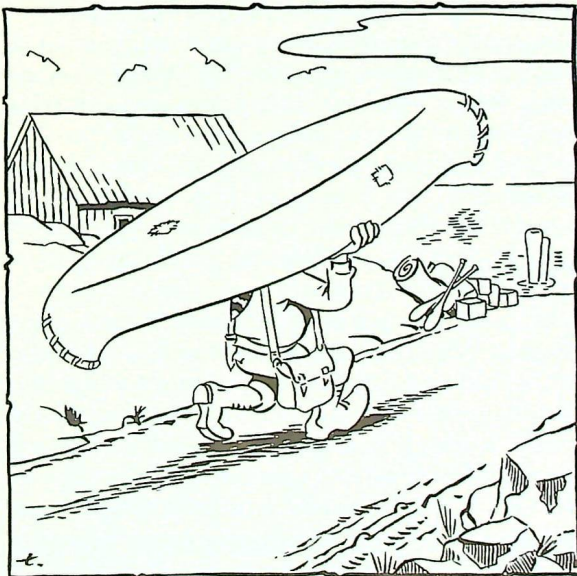
# Sgt. Shatterproof Hears the Call ★ ★ ★

Sir:

No man, I think, is more conscious of his duty than I. Nor have I ever underestimated the titanic nature of the task to which Destiny has summoned me. Nevertheless, during the coming month the R.C.A.F. must stand upon its own feet. Unguarded, the boys in the field must fend for themselves against the onslaughts of the Brass; unguided, "The Roundel" must navigate as best it may through the starless night of Service policy. I shall not be there to help them. I shall be away on leave.

This year, Sir, I am heading into our northern fastness. I am taking LAC Bladder on a trip in Sgt. Highball's old canoe. As you know, I have been grooming the lad to step into my shoes when I retire. Though well satisfied with his executive ability, I still feel, however, that both his physique and his initiative leave something to be desired. What better way to develop them than by exposing him to nature in the raw?

I have no time to write more now. LAC Bladder, looking somewhat exhausted but suitably attired in



battledress and a coon-skin hat, has just come to advise me that he has finished carrying all our gear down to the Station boat-house. Therefore, when I have finished my pipe, I shall rise to my feet, salute the busts of Caesar and Napoleon that stand upon my shelf, and march forth to the Mess to drink a final toast to our adventure. Meanwhile, LAC Bladder can make his first portage with the canoe, which is at present in Sgt. Highball's basement. The distance is about two miles, so it will be good practice for the boy.

Already, Sir, the pioneer blood of the Shatterproofs is beginning to pound in my veins. Clear and compelling, the Call of the Wild is echoing through my soul!

*Shatterproof*

# R.C.A.F. Sport Panorama

## Baseball

By Flight Lieutenant A. P. Heathcote

'TIS SUMMER; the voice of the umpire is heard across the land, interspersed with the crisp smack of hickory on horsehide, the chatter of infielders, and the derisive hoots of the grandstand managers. Dull thuds emanate from the background as sundry objects collide with umpirical skulls . . .

For various reasons baseball (hardball) has been less widely played by R.C.A.F. personnel than

*A.C.2 Krakauskas.*

other leading team-sports. Nevertheless, high-calibre teams have carried Air Force colours on the diamond, one or two of which have won league championships.

Individually speaking, two former airmen (there may have been more) have reached the ultimate in professional baseball endeavour by attaining big league prominence in the United States. Others have distinguished themselves in leagues of lower classification. All in all, organized baseball has been played by present and former members of the R.C.A.F. throughout the length and breadth of the North American continent, and even in Europe. This article will deal in the main with players known to have performed in professional leagues, and will make mention of one or two of the better-calibre Service teams of the past.

Sources of information are much too obscure to allow complete coverage of the R.C.A.F.'s diamond doings. For all we know, we may be only scratching the surface. Again, therefore, readers are invited to chastise us by letter for any gross oversights on our part.

### "Big-Leaguers"

Of the relatively few Canadians who have made the grade in the major leagues, two are known to have served in the R.C.A.F. Sixteen years ago (on May 26th, 1936, to be precise) one of these future airmen, a young southpaw graduate of Montreal and Hamilton sandlots, pitched a no-hit, no-run game for Brockville, Ont., against Oswego, New York, in a scheduled Canadian-American League contest. In so doing he struck out 16 batters. A



major league scout happened to catch his performance that afternoon, and the following season the name "Krakauskas" was added to the roster of the Washington Senators in the American League. With this team, a perennial second division outfit, Joe and his fireball were eventually to notch 23 victories before the end of the 1940 season, despite his being plagued with sore arm troubles in 1939 and '40. In his first big league season the rookie was at his best, strangely enough, against the world champion New York Yankees, a team which had shown marked homicidal tendencies toward the best and most experienced of pitchers. But they were just another ball team to big Joe, who practically blew over "murderers' row" (DiMaggio, Gehrig, Selkirk, Dickey) with his fast ball, allowing but seven hits and striking out eight men in the pinches. His offensive contribution to the 6-3 triumph was hitting two singles and scoring twice. Later that year he bettered his performance by humbling the champions again, 4-1, allowing only five hits. His poorest major league season was in 1940, when he failed to record a win until September. On that occasion his team won, 6-5, and the losers were — the New York Yankees.

In 1941 he turned up with the Cleveland Indians of the same league, whence he was "posted" to Syracuse, of the International League. A string of victories there, including a two-hit shut-out over Rochester, earned him a return trip to the big team for the remainder of the season. After another season with Cleveland and Baltimore (the latter of the International League), he joined the R.C.A.F. and became a radar technician. There is no record of his having returned to organized baseball after the War.

About a year ago the following excerpt was spied on the sports page of the Toronto "Globe and Mail": "With runners on second and third and one away, Guelph's new pitcher bore down, striking out Brantford's clean-up hitter and his successor, to retire the side.

"The fans at the Intercounty Baseball League game gave pitcher Phil Marchildon<sup>2</sup> a hand,



*Flying Officer Marchildon on ops. with No. 433 (Porcupine) Squadron.*

conscious of witnessing what might possibly be the beginning of a big-leaguer's comeback . . ."

Some eighteen years before, a keen baseball rivalry had existed between the towns of Barrie and Penetanguishene, Ontario, both of which were represented by teams in the Ontario Baseball Association's intermediate series. Very often the Barrie battery was Begg<sup>3</sup>, pitching, and L.A.C. McAskin,<sup>4</sup> catching. More often than enough (according to Squadron Leader Begg) the Penetang chucker was "Babe" Marchildon. Shortly thereafter, Begg followed his battery-mate into the R.C.A.F., and each made the Service his lifetime career.

But the Penetang pitcher had other ideas, at least for the time being. Convinced that he had a future in baseball, Babe kept persevering, and in a few years, though as wild as a March hare, the rough diamond began to take on a semblance of polish. In 1938 he emerged from the wilds of Northern Ontario, where, with Creighton Mines

<sup>1</sup>All footnotes appear at end of article



of the Nickle Belt League, he had gained a reputation as a strike-out artist. Recognizing his potentialities, the Toronto Maple Leafs of the International League immediately snapped him up, and he was sent to Cornwall, Ontario, of the Canadian-American League, for more experience. Six straight wins with that team made his stay there a brief one, and the following season he was back with Toronto where he won five more games, mostly in relief rôles. That season he led all Toronto pitchers in strikeouts, fanning 91 batters. One of his victims was slugger George Selkirk of the New York Yankees, whom he embarrassed during an exhibition game.

In 1940 he was the only Toronto pitcher to break double figures in the win column, having won ten games at the three-quarter mark of the schedule. Such a record with a last-place team excited more than passing interest in the parent Philadelphia Athletics of the American League, and Phil packed his bag for Philly, where he was to finish the season.

With the tail-end A's in 1941 (he had an affinity for teams with long-term leases on the league basement), Marchildon earned his big-league spurs with ten victories, despite his generosity with complimentary tickets to first base, in the form of walks. (He led the league twice in bases on balls.) Two of those wins were against the heavy-hitting Boston Red Sox and such redoubtable sluggers as Ted Williams and Jimmy Foxx. His 1942 record of 18 wins against 11 losses proved him to be not only the most effective Athletic pitcher, but also one of the best in the majors. Such a record was all the more remarkable, considering that his team mates used featherdusters for bats and wore water-buckets for baseball shoes afield. His value to the team could be gauged by the fact that those 18 victories represented almost half the number of wins recorded by the anaemic A's all season. Many months before another season had rolled around, Phil had discarded his baseball togs for the blue uniform of the R.C.A.F.

As a prospective air gunner, he soon switched interests from curves (baseball variety) to curves of pursuit. By 1944 he was on operations with 433 Squadron, of the R.C.A.F.'s 6 Group. Shot down

during a mining sortie on Kiel Harbour, he was ultimately a prisoner-of-war for almost a year.

From the weakening routine of prison camp to the energy-demanding grind of baseball's spring training camp was quite a transition, but by dint of hard work Phil made it. There was nothing wrong with the arm that won 32 games in 1946 and 1947. But the following year an arm ailment which was ascribed to his P.O.W. days caught up with him. He slipped to nine wins in 1948 and in 1949 couldn't win at all. Since then he has tried to regain his major-league form pitching for minor and semi-professional teams, including one at West Palm Beach, Florida. At present he is still trying with the Guelph team, with which he was quite successful last season, winning six and losing three.

#### Minor Leaguers

One of the batters whom Marchildon had to face as a Toronto pitcher in 1939 and 1940, whenever Toronto happened to be playing Syracuse, was Bobby Porter<sup>5</sup>. The big outfielder had broken into professional ranks with Marshall, of the East Texas League, in 1936. There he led his team in batting until late in the season, when he was claimed by the Toronto Maple Leafs. Whoever had recommended Bobby for the promotion undoubtedly squirmed in his seat when the protégé, before a home-town crowd, struck out on his first time at bat — with the bases loaded. The rookie lived it down, however, and managed to crack out a goodly share of basehits before the season's end. As for his fielding prowess, a catapult left arm made him one of the strongest throwers in the league. Many, therefore, were the surprised base runners who found that the ball had arrived at base or home plate from the outfield long before the expected e.t.a. It was the same left arm which was later to specialize in the throwing of forward passes on Eastern Canadian football fields.

In 1937, the Toronto team started off like a house afire, winning their first seven games, and one of the players showing the way was Porter. For instance, in one game he hit five straight singles. He wound up the 1937 season — his most successful in pro baseball — with a batting average



*A.C.2 Bobby Porter.*

close to .300. He saved the final game of the schedule to atone for his inauspicious debut in International company. In that contest he socked a mammoth homer over the centre field fence at Montreal's Delorimier Stadium — with the bases loaded.

After another season with Toronto he played with Syracuse of the same league, and compiled a respectable .280 batting average. His final year in the professional game was 1940, when he divided the season with Syracuse and Springfield, Mass. (the latter of the Eastern League). Thereafter he devoted his athletic energy chiefly to football.

One of Porter's teammates in 1937 was Art Upper<sup>6</sup>, a versatile ball player who was equally at home on the pitcher's mound or in the outfield, after eleven years of senior experience at both positions. In later years he continued to do double duty in the Cape Breton Colliery League, and in the Canadian-American League, with Rome, N.Y.

Other serving or former members of the

R.C.A.F. known to have played the game are: Bob Thomas<sup>7</sup>, a second-baseman during pre-war days with the Winnipeg Elks, and with a senior team in Vancouver; Walter Gibb<sup>8</sup>, Hamilton's ex-footballer, who is still pitching for the city's Cardinals in the Pony League (Pennsylvania, Ontario, New York); Eddie Bush<sup>9</sup>, ex-Detroit Red Wing defenceman, who once pitched a no-hitter for Stratford in the O.B.A.; and Freddie Thomas<sup>10</sup>, a stellar all-round athlete who starred in Inter-county baseball for several years.

#### **Service Teams**

Through the portals of R.C.A.F. Station Trenton have passed many outstanding athletes, and baseballers are no exception. It happened that in the summer of 1943 considerable diamond talent was available among Trenton personnel,

*Air Cdre. F. S. McGill gets a few tips on pitching from LAC Marchildon.*





*Former teammates (l. to r.): Sgt. Art Upper, Private Dick Fowler, and LAC Phil Marchildon reminisce before an R.C.A.F.-Army game.*

and this sport-conscious unit was able to field a team good enough to win the Command championship. Outstanding among the players was p.t.i. Sgt. Art Upper, the "old pro" who still doubled as pitcher and outfielder. He was no less adept at fanning batters than he was at driving out base hits. A teammate of his for many a season in civilian life, Cpl. Eddie Gerald,<sup>11</sup> gave the infield the benefit of his many years as a shortstop in senior company. Gerald was at the shortfield position in an exhibition game between the R.C.A.F. and the Army (won by the Army) at Utrecht, Belgium, shortly after V-E day.

Certainly the most interesting and exciting

game ever involving an Air Force team was one between Trenton's Flyers and an Army nine that summer. Very conveniently, L.A.C. Marchildon had been posted to Station Trenton on three weeks' temporary duty only a few days before. Co-incidentally enough, the Army pitcher was Pte. Dick Fowler, a former International and major-league teammate of Marchildon's who is still pitching for the Philadelphia Athletics. (It has never been fully proven that this bit of advance information from Intelligence prompted such action on the part of the posting authority.) At any rate, what unfolded was a choice bit of diamond drama. Featured by as thrilling a

pitcher's battle as anyone would ever care to see, the contest ended in a 1-1 tie. Individual service prestiges were unsullied, and everybody went home happy.

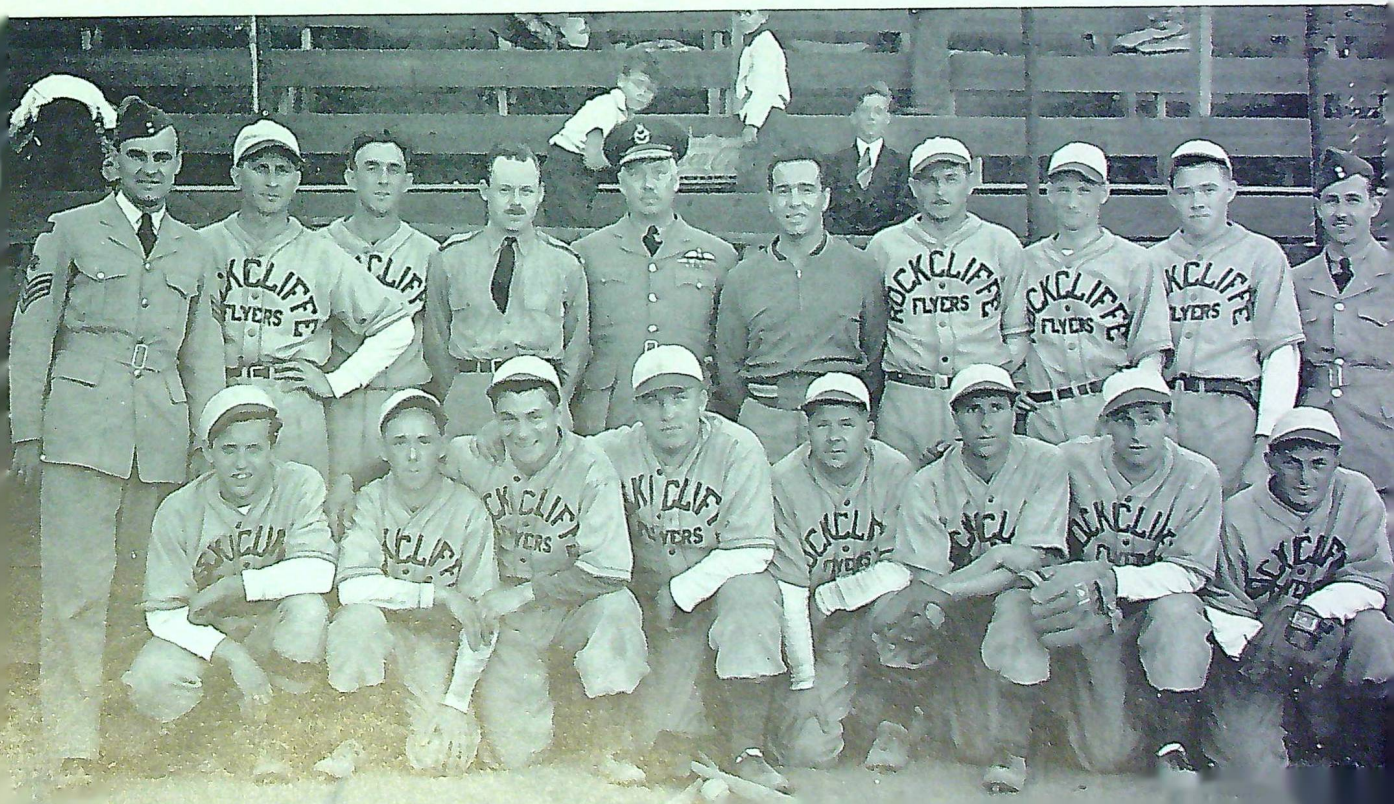
A year later it was Station Rockcliffe's turn to win a championship, when the Rockcliffe Flyers, competing with teams from Ottawa and Hull, took the "pennant" in the Interprovincial League. One of the team's sparkplugs was Cpl. Patrick ("Patsy") Guzzo<sup>12</sup>, who handled traffic at the difficult third base position, often appropriately dubbed "the hot corner." In one particular game things became even warmer than usual. With runners on second and third, a sizzling drive was rifled directly at the third sacker. Purely in self-defence he caught it, juggled it momentarily, stepped on third, and whipped the ball to second for the only triple play ever recorded in the league. In the batting department the corporal was second in the league, with a hefty seasonal average of .461. His hit output included seven home runs.

Two other team members were to perform professionally in 1945. Catcher Art O'Connor<sup>13</sup>

joined the Hamilton Cardinals, while first baseman Byron Murray<sup>14</sup> played with the Rome Colonels, of the St. Lawrence League. A third player, Jim Sherwood<sup>15</sup>, had pitched for Ottawa's pennant-winning Senators, of the Canadian-American League, in 1940, while a fourth, John Bennett<sup>16</sup>, had hurled for Ogdensburg, N.Y., the same year. The Sherwood-O'Connor combination was the Interprovincial League's leading battery.

In the meantime, inter-Service baseball was flourishing in the Halifax area, and representing the R.C.A.F. was a team from Station Dartmouth. Commuting regularly from outfield to pitcher's mound, and vice versa, was a new Dartmouth arrival, Sergeant Upper. (His presence on the premises was always a good argument in favour of a Station baseball team.) The sergeant, who did everything but play both positions at once, proved his versatility by winning the league batting title one year and the lowest earned-run average (pitching) the next. When he was in the outfield, the pitching chore was in the capable hands of LAC Les Edwards, who, on release from

*The Rockcliffe Flyers, 1944. Kneeling (l. to r.): LAC Tolmie, LAC J. Sherwood, LAC A O'Connor, A.C.2 J. Pelyk, Flt. Sgt. N. Taylor, Cpl. P. Guzzo, LAC E. Miron, A.C.2 Langelle. Standing (l. to r.): Sgt. A. Simser (mgr.), Flt. Sgt. D'Entremont, Cpl. Garvey, Flying Officer K. Hardy, Air Cdre. G. S. O'Brian, Flt. Sgt. Fulton, Flt. Sgt. McElligott, LAC J. Bennett, LAC Parks, LAC Henderson (trnr.)*



the Service, was to pitch for the Memphis (Tennessee) Chicks, of the Southern Association.

Nevertheless, as might have been expected, the lads in the bell-bottom trousers were very much in the league. In that spirited tug-of-war fashion so typical of inter-Service competition, Halifax Navy copped the loop title. Ironically enough, the man largely responsible for the Navy success was Ordinary Patrolman Robert Porter, who shortly before had transferred from the R.C.A.F. to the Navy.

#### FOOTNOTES

- <sup>1</sup>LAC J. V. R. Krakauskas (released)
- <sup>2</sup>Flying Officer P. E. Marchildon (released)
- <sup>3</sup>Sqn. Ldr. John G. Begg (R.C.A.F. Stn. Rockcliffe)
- <sup>4</sup>Flt. Lt. Joseph M. McAskin (R.C.A.F. Stn. Rockcliffe)
- <sup>5</sup>LAC Robert A. Porter (transferred to R.C.N.V.R.)
- <sup>6</sup>Sgt. J. A. Upper (released)
- <sup>7</sup>Wing Cdr. Robert I. Thomas, A.F.C., (R.C.A.F. Stn. Rockcliffe)
- <sup>8</sup>Cpl. Walter H. Gibb (released)
- <sup>9</sup>Cpl. Edward W. Bush (released)
- <sup>10</sup>Sgt. Frederick S. Thomas (released)
- <sup>11</sup>Cpl. A. E. Gerald (released)
- <sup>12</sup>Sgt. P. Guzzo (A.F.H.Q.)
- <sup>13</sup>LAC J. A. O'Connor (released)
- <sup>14</sup>LAC Byron T. Murray (released)
- <sup>15</sup>LAC J. E. Sherwood (released)
- <sup>16</sup>LAC J. Bennett (released)
- <sup>17</sup>LAC L. E. Edwards (released)

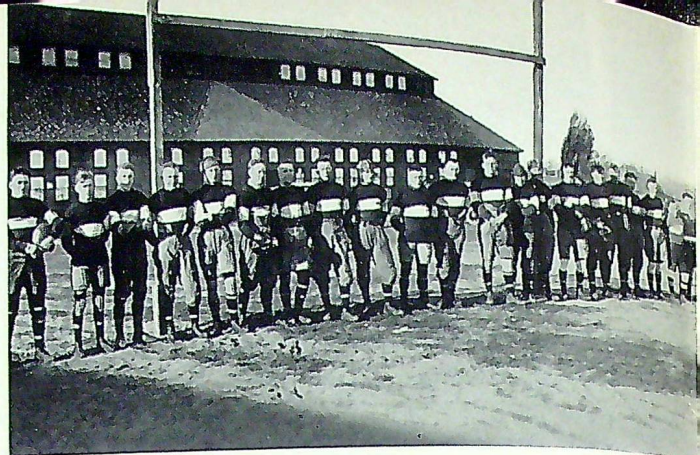
#### RETOUCHING THE PICTURE

*(The paragraphs which follow contain additional data from our readers and after-thoughts of the writer on material that has already appeared. — A.P.H.)*

A letter has recently been received from Duncan ("Jock") Cameron, now living in California, who played at flying wing for three years with the original Camp Borden Fliers. Jock has identified three former teammates of the 1924 team, shown in accompanying photograph, whose names are missing in "This Month's Cover" of the March issue. They are as follows:—

- "Mutt" MacKell, R.C.C.S., between A. Anderson and Trim;
- "Red" Gordon, between Wait and Edwards; and
- Robillard, between Edwards and Elliott.

In connection with the pictorial panorama of the Camp Borden team in the same issue, we



apologize for the mis-spelling of two names. The correct spellings are "MacKell" and "McEwen".

\* \* \*

To football fans who followed the Inter-collegiate grid whirl of the late twenties, and more especially to University of Toronto alumni, the name "Long John Sinclair"<sup>1</sup> is synonymous for derring-do on the striped field. His running and tremendous punting were undoubtedly the strongest offensive threats the Blues had to offer. Experts still include him among the all time greats of the Canadian game. He joined the R.C.A.F. as a medical officer in 1941.

In part II of the article (April issue) may be found the following words: "To the 1940 Argonauts had come A.C.2 Doug Annan and A.C.2 George Sprague, both key linemen." The gentle persuader who dragged both airmen to early-season Argo practice was inside wing LAC Chuck McLean<sup>2</sup>, a former Queen's teammate of theirs who at the time was stationed with them at Toronto. A year later, Flying Officer McLean was rescued from the Mediterranean after being shot down in an air battle near Malta.

Also, in Part II, an error has been noted in footnote 86, which should read "Wing Cdr. Jack Vincent Watts, D.S.O.; D.F.C."

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<sup>1</sup>Wing Cdr. John D. Sinclair (released)  
<sup>2</sup>Flt. Lt. Charles McLean (released)

## ORDER, PLEASE!

Civil Service has been defined as something you get in a restaurant between wars.

*("The Blip": No. 1 R. & K. Unit, R.C.A.F. Aux.)*

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# ROYAL CANADIAN AIR FORCE

# Association

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## NATIONAL CONVENTION POSTPONED

A number of factors conspired to make advisable the postponement of the Third Annual Convention, scheduled to take place in Ottawa on May 22nd and 23rd. Chief among them were the illness of the National President and the principal guest speaker, the inability of the Minister of National Defence to attend, and the difficulty of travel because of the gasoline shortage. At the time of writing, a new date has not definitely been fixed.

## NEW WING AT DRUMMONDVILLE

Officers elected in Drummondville's new No. 309 Wing were:

President: A. L. Schaefer  
Secretary: A. S. Bourque  
Treasurer: J. Gribben

Additional members will be added to the executive later.

## INTERNATIONAL REUNION AT WINDSOR

No. 412 (Windsor Air Force Club) Wing sponsored an international air force reunion in Windsor, Ont., on May 30th and June 1st. Some time ago Windsor developed friendly relations with the Detroit branch of the Air Force Association of the U.S.A., and last January proposed the idea of a reunion with its members. The three-day programme featured a dinner and stag on Friday night, a dance on Saturday, and a church parade and cenotaph parade on Sunday.

## U.S.A.F.A. CONVENTION

The national office of the American Air Force Association, Washington, D.C., has advised us

that a warm welcome will be extended to every member of the R.C.A.F. Association who cares to attend the former's national convention in Detroit, from August 28th to 31st inclusive. They will be free to attend any meeting or social event. Windsor Wing has agreed to try to arrange accommodation for Canadians attending. Communications should be addressed to: The Secretary, No. 412 (Windsor) Wing, R.C.A.F. Association, 66-80 Tecumseh Road East, Windsor, Ont.

*Cutting the cake at No. 250 (Saint John, N.B.) Wing's birthday party.*





*No. 305 (City of Montreal) Wing's new executive. Seated (l. to r.): L. Ascah, 1st vice-pres.; N. Mozel, pres.; Miss J. Gower-Rees, sec'y. Standing (l. to r.): M. Boucher, treas.; H. Cochrane, asst. treas.; G. Brady, 2nd vice-pres.*

#### TOUR BY GROUP CAPTAIN WEST

Arrangements were made for Group Capt. F. R. West, Chief Inspector of Accidents (flying), who was touring Canada to speak to Service personnel, to include Association members at his lectures. At Saint John, Fredericton, the Lakehead, and Calgary, Association Wings assumed responsibility for making arrangements for the illustrated address, while in Greenwood, Halifax, Summerside, Edmonton, Saskatoon and Winnipeg, the details were attended to by the R.C.A.F. and a special invitation was extended to Association members.

Sqn. Ldr. T. C. Kaye, D.F.C., A.F.C., accompanied Group Capt. West on the eastern part of his journey, and Flt. Lt. J. A. Elviss, D.F.C., on the western.

#### PUBLIC RELATIONS AWARD

The current Public Relations Award has been won by No. 306 (Maple Leaf) Wing, Montreal. Though the award was specifically made for the suggestion that sheet music should be collected by Wings for use at sing-songs by personnel overseas, it could be justified on several grounds, notably the Wing's enthusiasm, co-operation, and general endeavour. No Wing keeps better records, few Wings can boast of having made so much progress during the past year, not many Wings are as well organized. No. 306 also publishes an excellent bulletin and is very publicity-conscious.

#### WING NEWS

Another Wing showing signs of progress, particularly in the vital field of enlistment of new members and renewal of dues, is No. 700 (City of Edmonton). Edmonton is an example of what an energetic and enthusiastic executive can accomplish.

Winnipeg, Brandon, and the Lakehead Wings held an inter-Wing meeting at Port Arthur. Twenty members came from No. 502 (Brandon) and thirteen from No. 500 (Winnipeg). Air Cdre. J. G. Bryans, C.B.E., Air Officer Commanding No. 14 Training Group, and Group Capt. L. H. Randall, D.F.C., Commanding Officer of R.C.A.F. Station Winnipeg, accompanied the Winnipeg members. After a supper at the Prince Arthur Hotel, the meeting adjourned to H.M.C.S. "Griffin," where Group Capt. Randall spoke on his experiences as air attaché at the Canadian Legation at Moscow immediately following the Second World War. He later made a tour of other western Wings, during which other organizations were invited to hear his talk.

Six persons from Regina, two from Yorkton, and one from Moose Jaw flew to Prince Albert to attend the charter night of No. 604 (Prince Albert) Wing. Group Capt. R. S. Turnbull, D.F.C., A.F.C., D.F.M., Commanding Officer of R.C.A.F. Station Saskatoon, gave the feature address and presented the charter to President Forrest Mann. The "Wing Ding" film was also shown.

No. 306 (Maple Leaf) Wing collected over 1,200 hard-covered French and English fiction books for presentation to No. 1 Fighter Wing in England.

No. 252 (Fredericton) Wing held a farewell party for Mr. and Mrs. Jack Estey. Mr. Estey was president of the Wing until his transfer to Loggieville required his resignation. Wing Commander J. K. F. MacDonald, D.F.C., officer commanding No. 426 (Transport) Squadron, gave an address on the Korean air lift to a general meeting.

No. 200 (Summerside) Wing and 201 (Confederation) Wing held a joint meeting in the former's clubroom. It was decided that this

*No. 303 (Sherbrooke) Wing's 1952 executive. Standing (l. to r.): E. Power, treas.; G. Desjardins, additional member; L. Gingras, sec'y; S. Hart, additional member. Seated (l. to r.): K. Ross, additional member; F. Edwards, 1st Vice-pres.; E. Fuller, pres.; W. Richardson, past-pres.; F. Lord, 2nd vice-pres. Missing from photograph: E. Martin, additional member.*

meeting should inaugurate an annual provincial gathering.

Sqn. Ldr. J. D. Lindsay, D.F.C., officer commanding No. 413 Squadron of jet fighters which made a tour of eastern Canada, spoke to No. 200 (Summerside) Wing.

Sqn. Ldr. C. F. Westerman, D.S.O., D.F.C., a member of No. 600 (Regina) Wing, was appointed honorary aide-de-camp to His Excellency Vincent Massey, the Governor-General.

Recent speakers at No. 416 (Kingston) Wing's meetings included Sqn. Ldr. C. D. Bricker, D.F.C., officer commanding No. 439 (F.) Squadron, and Sqn. Ldr. P. A. Hartman, D.F.C., A.F.C., officer commanding flying at the Central Experimental and Proving Establishment, Rockcliffe.

No. 426 (Brockville) Wing held its annual Target Ball Dance.

Brantford, Ont., Air Force Association

reopened negotiations to become affiliated with the Association.

No. 502 (Brandon) Wing has made considerable progress with the establishment of "squadrans" in the smaller outlying towns.

Prospects of forming at least one squadron under the guidance of No. 426 (Brockville) Wing appeared bright for Prescott.

#### ASSOCIATION PUBLICATIONS

The current issue of "Wings at Home" contained 68 pages, printed on both sides. A new feature, "The Round-Up," was introduced to provide a means of tracing persons with whom the Association had lost contact on account of address-changes, and also as a personal service in locating members' war-time friends.

By an exchange-of-publications arrangement with the U.S. Air Force Association, the first copies of "Air Force" have been distributed to Wings.

# Personnel Movements ★ ★ ★

## OFFICERS: JANUARY

S/L L. W. Queale, D.F.C.—Staff Coll., Toronto, to T.A.G.H.Q., Edmonton.

## OFFICERS: APRIL

S/L H. F. Blatchly — 1 F.W.H.Q., U.K., to 30 A.M.B., U.K.  
 S/L F. L. Campbell-Rogers — C.J.S. Washington to A.F.H.Q.  
 S/L T. H. Christie — R.C.A.F. Stn. Hamilton to A.F.H.Q.  
 S/L J. H. Dempster, A.F.C.—C.F.S., Trenton, to C.J.S. London.  
 S/L A. C. Golab — A.F.H.Q. to R.C.A.F. Stn. Hamilton.  
 S/L H. J. Hemsley — 1 F.W.H.Q., U.K., to 314 T.S.U., U.K.  
 S/L R. J. Lawlor, D.F.C.—C.J.S. London to A.D.C.H.Q., St. Hubert.  
 W/C H. F. Marcou, D.F.C. A.F.C. — A.D.C.H.Q., St. Hubert, to C.J.S. London.  
 S/L B. D. McArthur — A.F.H.Q. to T.C.H.Q., Trenton.  
 S/L J. O. H. Neff — 2 T.T.S., Camp Borden, to T.C.H.Q., Trenton.  
 S/L S. A. Sprange — R.C.A.F. Stn. Goose Bay to A.F.H.Q.  
 S/L L. Spruston, D.F.C.—12 A.D.G.H.Q., Vancouver, to A.F.H.Q.  
 W/C F. H. Watkins, D.F.C.—R.C.A.F. Stn. Gimli to C.F.S., Trenton.  
 S/L C. Yarnell — 2424 A.C.W.U. (Aux.), Hamilton, to A.D.C.H.Q., St. Hubert.

## OFFICERS: MAY

S/L G. H. Aitchison — R.C.A.F. Stn. Winnipeg to T.C.H.Q., Trenton.  
 S/L E. S. Annis — Staff Coll., Toronto, to A.F.H.Q.  
 S/L J. W. P. Baril — Staff Coll., Toronto, to 1 Gr. H.Q. (Aux.), Toronto.  
 S/L T. Benson, A.F.C.—Staff Coll., Toronto, to A.F.H.Q.  
 S/L C. D. Bricker, D.F.C.—439 (F.) Sqn., Uplands, to 1 F.W.H.Q., U.K.  
 W/C J. Buchan — T.A.G.H.Q., Edmonton, to 1 F.W.H.Q., U.K.  
 W/C A. G. Dagg — Staff Coll., Toronto, to M.G.H.Q., Halifax.  
 W/C W. F. Davy — Staff Coll., Toronto, to C.J.A.T.C., Rivers.  
 G/C G. P. Dunlop, A.F.C.—R.C.A.F. Stn. Trenton to A.F.H.Q.  
 W/C L. P. Dupuis, D.F.C.—Staff Coll., Toronto, to R.O.S., Kingston.  
 S/L T. J. Evans — C.E. & P.E., Rockcliffe, to A.F.H.Q.  
 S/L T. H. Fletcher — Staff Coll., Toronto, to T.C.H.Q., Trenton.  
 W/C M. W. Gall — Staff Coll., Toronto, to R.C.A.F. Stn. Aylmer.  
 S/L N. Grant — Staff Coll., Toronto, to R.O.S., Kingston.  
 S/L A. F. Green, D.F.C., A.F.C.—Staff Coll., Toronto, to R.O.S., Kingston.  
 W/C W. B. Hodgson, D.F.C.—C.J.A.T.C., Rivers, to R.C.A.F. Stn. Claresholm.  
 W/C R. B. Ingalls, D.F.C.—Staff Coll., Toronto, to R.O.S., Kingston.  
 S/L J. Johnston — A.F.H.Q. to C.J.S. Washington.  
 S/L H. W. Keane, D.F.C., D.F.M.—1 O.S., London, to 1 A.R.O.S., Clinton.

S/L N. A. Keene, D.F.C.—1 (F.) O.T.U., Chatham, to 401 (F.) Sqn. (Aux.), St. Hubert.  
 S/L L. W. C. Limpert — Staff Coll., Toronto, to R.C.A.F. Stn. Claresholm.  
 W/C K. C. MacLure, A.F.C.—A.F.H.Q. to R.C.A.F. Stn. Trenton.  
 S/L D. L. S. MacWilliam, A.F.C.—Staff Coll., Toronto, to A.F.H.Q.  
 W/C W. R. Mann — Staff Coll., Toronto, to A.M.C.H.Q., Ottawa.  
 S/L W. Y. Martin — Staff Coll., Toronto, to A.F.H.Q.  
 W/C J. D. McCallum, A.F.C.—A.F.H.Q. to R.O.S., Kingston.  
 S/L W. McLeod — Staff Coll., Toronto, to 1 I.F.S., Centralia.  
 S/L A. H. Moody — Staff Coll., Toronto, to R.O.S. Kingston.  
 S/L A. Morrison — R.C.A.F. Stn. Claresholm to K.T.S., Aylmer.  
 S/L S. R. Radcliffe — A.M.C.H.Q., Ottawa, to A.F.H.Q.  
 S/L R. Ratcliffe, D.F.C.—C.N.S., Summerside, to 2 A.N.S., Winnipeg.  
 S/L A. R. Ross — Staff Coll., Toronto, to R.O.S., Kingston.  
 S/L T. T. Scovill — Staff Coll., Toronto, to C.J.S. London.  
 S/L W. J. Smith, D.F.C.—R.C.A.F. Stn. Trenton to T.C.H.Q., Trenton.  
 S/L P. J. Thibault — 438 (F.) Sqn. (Aux.), St. Hubert, to A.A.F.C.E., Paris.  
 W/C R. M. Trites, M.B.E. — Staff Coll., Toronto, to A.F.H.Q.  
 S/L D. Warren, D.F.C.—R.C.A.F. Stn. Chatham to 410 (F.) Sqn. U.K.

## WARRANT OFFICERS: APRIL

WO2 F. G. Buckley — 3 (A.W.) O.T.U., North Bay, to R.C.A.F. Stn. North Bay.  
 WO2 C. J. Capern — 3 (A.W.) O.T.U., North Bay, to R.C.A.F. Stn. North Bay.  
 WO1 W. G. Carroll — 5 S.D., Moncton, to 6 R.D., Trenton.  
 WO2 C. E. Charlesbois — 11 S.D., Calgary, to R.C.A.F. Stn. Lachine.  
 WO2 J. G. Dickson — 3 (A.W.) O.T.U., North Bay, to R.C.A.F. Stn. North Bay.  
 WO1 H. M. Goode — 1 F.W.H.Q., U.K., to 314 T.S.U., U.K.  
 WO1 G. J. F. Gougeon — A.M.C.H.Q., Ottawa, to 11 T.S.U., Montreal.  
 WO2 A. G. Grant — 3 (A.W.) O.T.U., North Bay, to R.C.A.F. Stn. North Bay.  
 WO2 M. J. Haider — 2 F.T.S., Gimli, to R.C.A.F. Stn. Gimli.  
 WO2 D. J. Hunt — 3001 T.T.U. (Aux.), Montreal, to 3050 T.T.U. (Aux.), Hamilton.  
 WO2 A. M. Jamieson — 11 S.D., Calgary, to A.M.C.H.Q., Ottawa.  
 WO2 H. A. Kirkpatrick — 10 T.S.U., Calgary, to 11 S.D., Calgary.  
 WO2 J. I. F. Masse — A.D.C.H.Q., St. Hubert, to R.C.A.F. Stn. Toronto.  
 WO2 D. C. McNicol — 25 A.M.B., Calgary, to A.M.C.H.Q., Ottawa.  
 WO2 E. R. Milford — A.M.C.H.Q., Ottawa, to 11 T.S.U., Montreal.  
 WO1 H. H. Provost — A.M.C.H.Q., Ottawa, to 5 S.D., Moncton.  
 WO1 C. W. Pye — 2 F.T.S., Gimli, to R.C.A.F. Stn. Gimli.  
 WO2 J. A. Ramsay — 1 R.C.S., Clinton, to A.A.S., Trenton.  
 WO1 T. Roumbanis — A.D.C.H.Q., St. Hubert, to C.A.R.D.E., Valcartier.

WO2 G. P. Simboli — R.C.A.F. Stn. Claresholm to R.O.S., Kingston.  
 WO2 R. N. Swift — C.E. & P.E., Rockcliffe, to S.E.S.U.  
 WO2 H. Vernon — R.C.A.F. Stn. Winnipeg to 1 R.C.S., Clinton.  
 WO1 J. J. Wingate — A.M.C.H.Q., Ottawa, to 30 A.M.B., U.K.  
 WO2 W. J. Yeo — 3 (A.W.) O.T.U., North Bay, to R.C.A.F. Stn. North Bay.

#### WARRANT OFFICERS: MAY

WO2 J. Cobain — 2 M.D., St. Johns, to R.O.S., Kingston.  
 WO2 J. J. Cook — 416 (F.) Sqn., Uplands, to 1 F.W.H.Q., U.K.

WO2 O. J. Devooght — Royal Rds., Victoria, to 2 M.D., St. Johns.  
 WO2 W. H. Falls — A.M.C.H.Q., Ottawa, to 1 S.D., Weston.  
 WO2 R. L. J. Keogan — A.M.C.H.Q., Ottawa, to S.H.A.P.E., Paris.  
 WO2 N. J. Mathews — 439 (F.) Sqn., Uplands, to 1 F.W.H.Q., U.K.  
 WO2 J. B. McDowall — 1 T.T.S., Aylmer, to A.M.C.H.Q., Ottawa.  
 WO2 F. J. Robson — R.C.A.F. Stn. Goose Bay to R.C.A.F. Stn. St. Hubert.  
 WO2 J. A. Slater — C.E. & P.E., Rockcliffe, to 408 (P.) Sqn., Rockcliffe.  
 WO2 A. O. Smith — C.E. & P.E., Rockcliffe, to 4 (T.) O.T.U., Lachine.  
 WO2 P. A. Thompson — 439 (F.) Sqn., Uplands, to 1 F.W.H.Q., U.K.

#### KEY TO ABBREVIATIONS

A.A.F.C.E.	— Allied Air Forces Central Europe	I.F.S.	— Instrument Flying School
A.A.S.	— Air Armament School	K.T.S.	— Composite Training School
A.C.W.U.	— Aircraft Control & Warning Unit	M.D.	— Manning Depot
A.D.C.H.Q.	— Air Defence Command Headquarters	M.G.H.Q.	— Maritime Group Headquarters
A.D.G.H.Q.	— Air Defence Group Headquarters	O.S.	— Officers' School
A.M.B.	— Air Materiel Base	O.T.U.	— Operational Training Unit
A.M.C.H.Q.	— Air Materiel Command Headquarters	(P.)	— Photographic
A.N.S.	— Air Navigation School	R.C.S.	— Radar & Communications School
A.R.O.S.	— Air Radio Officers' School	R.D.	— Repair Depot
(A.W.)	— All-Weather	R.O.S.	— Reserve Officers' School
C.A.R.D.E.	— Cdn. Armament Research & Development Est.	S.D.	— Supply Depot
C.E. & P.E.	— Central Experimental & Proving Est.	S.E.S.U.	— Suffield Experimental Station Unit
C.F.S.	— Central Flying School	S.H.A.P.E.	— Supreme Headquarters Allied Powers Europe
C.J.A.T.C.	— Canadian Joint Air Training Centre	(T.)	— Transport
C.J.S.	— Canadian Joint Staff	T.A.G.H.Q.	— Tactical Air Group Headquarters
C.N.S.	— Central Navigation School	T.C.H.Q.	— Training Command Headquarters
(F.)	— Fighter	T.S.U.	— Technical Service Unit
F.T.S.	— Flying Training School	T.T.S.	— Technical Training School
F.W.H.Q.	— Fighter Wing Headquarters	T.T.U.	— Technical Training Unit

### "Only"

"Only" is a tricky word. "I only rise to speak for a few minutes" says an MP, getting on his feet in the House of Commons. "I only", meaning he and no other rises; or "I only rise," meaning he does nothing but rise to speak, doesn't run and jump and skip about. Had "only" been put in another place the MP would have said he was rising "to speak only," that is, he had no thought of singing or doing somersaults. But put the "only" after "for" and we have the member's intention clearly — "I rise to speak for only a few minutes."

(*"The Ottawa Journal"*)

# The Stove

By Squadron Leader N. W. Emmott, D.F.C.

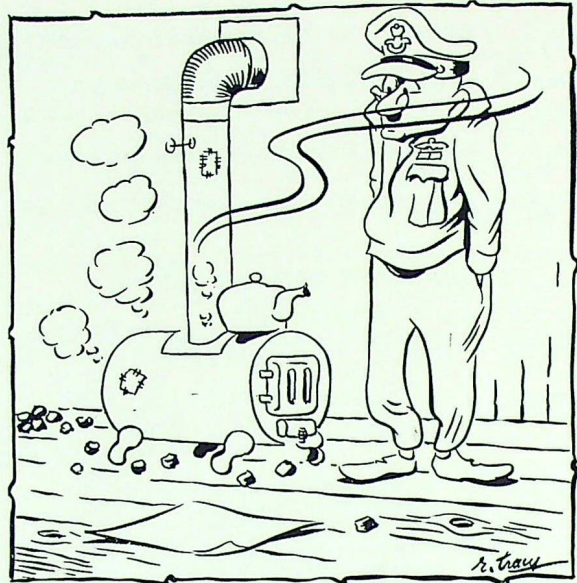
MY FATHER is English, and my mother was the daughter of a soldier who wore the bottle-green of the Royal Irish Rifles half-way round the world. I was brought up in a household where, after thirty years of life in Canada, the word "home" never meant anything but England. The "Illustrated London News" and the "Children's Newspaper" were my first reading-matter.

I would have thought, therefore, that the English blood ran as thick in my veins as if my father had never taken ship at Southampton to seek his fortune in the far-flung reaches of the Empire. But apparently it isn't so. I shall never know how I lived through that terrible English winter of 1943.

I landed in England in June, and was sent immediately to the R.C.A.F. reception centre at Bournemouth. There, I basked in the warm rays of the South Coast sun. I looked at the neat houses with the roses climbing around their doors and at the thatched cottages on the tidy farms, and knew why Englishmen have defended their country with such desperate valour for so many centuries. It was a lovely summer; but it could not last for ever. In the autumn I was sent, along with a number of my compatriots, to an Operational Training Unit near Worcester.

The pilot for whom I was the navigator, our bomb-aimer, and I, all bunked in a little sheet-iron Nissen hut that had all the comforts of a barracks at Dachau. Having been hardened by a winter stay at Rivers, Manitoba, where I had been quartered in a hangar whose doors had cracks through which snow blew over our blankets, I thought I could stand the Nissen hut without much trouble.

October came, and all over England the sturdy yeomanry — and the even sturdier Land Army —



garnered cabbages by the million and Brussels sprouts by the tens of millions. The sun sank every evening a little further south of west, and the nights grew long and cold. As they grew colder, the awful truth struck home.

The British race has shaped bows which outdid guns for a hundred years. It has made sailing-ships whose topsails have leaned against all the winds of the seven seas. It has built the greatest steamships the world has seen, aircraft which have sought out the very angels in their heavens, and automobiles that are at once the epitome of quality and conservative ostentation. But with all his inventive genius, no Briton has ever made a stove.

The British soul is so firmly wedded to the fireplace that every stove, to place in the money, must resemble a fireplace as closely as possible. It must have a little stovepipe right in the center of the top, where it —

- sucks off all the heat right up the chimney,
- is of such small diameter that it will not give enough draft to keep a stick of dynamite alight, and
- blocks off the whole stove-top, thus keeping you from boiling a kettle for a cup of char.

Moreover, it must have an open front, in order—

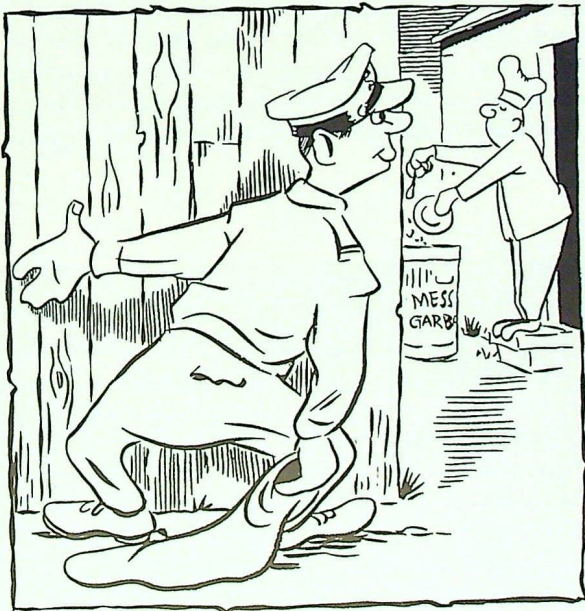
- to make it look more like a fireplace,
- to puff smoke all over the room,

- to spray live coals all over your clothes, and
- to prove the incontrovertible fact that any stove with an opening in the front damps the flame to the point where only the first cornetist of the local band could blow long enough to keep a fire in.

The experienced sufferer will try to induce a slightly better draft by holding a newspaper over the grill in front. This usually works for a while, until the newspaper catches fire. A burning newspaper in a Nissen hut (particularly if one of the boys has just unpacked a parcel and has littered the floor with wood-wool) is good for all sorts of fun and games.

We were supplied with stoves in our rooms, but we were not supplied with anything to burn in them. In the dark of night, disguised as saboteurs, we would steal around to the back of the mess hall to pinch coal from the pile there. Periodically a large lock would appear on the compound, until the corporal would forget to put it on. Threatening notices appeared in orders every week or so, telling us not to swipe any more coal; but they deterred us no more than a "No Chewing" sign would have deterred a starving man in a pie factory.

When our runways were lengthened, a few noble old English oaks were bulldozed down. I



borrowed a horrible little hatchet called a "chopper" from our batwoman and tried to cut some firewood. After two hours and six blisters, I managed to chop off about six ounces of wood before I gave up. But, at least while I was doing it, the exercise warmed me.

Our room was equipped with wash-hand-stands (an invention of the devil designed to supplant the good old-fashioned bucket) and wooden towel-racks. We burnt them all up in about three weeks. Considering that there were only three of us down on our knees blowing hard enough to get glass-blower's cheeks, I must say they burnt fairly well. We contemplated the idea of getting hold of an oxygen bottle and puffing oxygen at the anaemic flames, but we never got around to it. The thought always seemed to come to us after we were in bed.

Then, one glorious day, we were actually supplied with coal. It was marvellous until we tried to burn the stuff. It was the most unflammable type of real estate any of us had ever seen. We would stuff the stove full of paper and cardboard from our parcels, put in some dry straw, any wood available, and, on one occasion, a dozen precious briquettes one of us had found by a roadside. Then, very carefully, we piled on a tiny handful of coal. Invariably it put the fire out.

Our pilot had contacts. One day he managed to wheedle a bottle of petrol from the motor transport section. Gathering all our inflammables, we piled them carefully in the stove, Boy-Scout-fashion, with air spaces here and there in case any draft did get in by accident. We then lined ourselves up so that as soon as one man had exhausted himself by blowing, another would instantly take his place. We laid out several sheets of the "News of the World" ready to slap over the front of the stove. Finally, with all the ceremony of a high priest anointing an emperor, we poured the petrol upon our pile of combustibles.

We touched a match to it. The flames roared up the chimney. With streaming eyes, we blew. The newspaper sheet caught fire and was stuffed into the pyre. Another sheet took its place. The wood, our two hoarded briquettes, a handful of real coal we had found by following a coal truck, and our cardboard — all burnt away, leaving a bed of

cheerfully-glowing coals in the bottom. Hopefully, prayerfully, we added our issue coal.

The fire burnt down. Flames played for a few moments at the edges of the black pile, and sank gradually lower. All trace of red disappeared. Without a word, we took off our overcoats, jackets, chamois vests, sweaters, mufflers, long winter underwear, two pairs of socks, and went to bed.

At two o'clock that morning we awoke, dreaming we were in the nethermost hell. The air was quivering. Perspiration streamed down our faces. We threw off our blankets and opened our pyjama jackets. There in the middle of the room stood the stove — cherry-red! For some perverse reason of its own, that coal had somehow caught fire. For fifteen minutes we lay, soaking in the heat. Then, as the fire died, we drifted off into a contented, dreamless sleep.

When we awoke the fire was dead, our blankets were still thrown back, and it was another cold morning. My bomb-aimer went down with tonsillitis, the pilot developed pleurisy, and I contracted a septic sore throat.

\* \* \*

A few years later, back in Canada and still in the Service, I had occasion to navigate an aircraft to Sawmill Bay, on Great Bear Lake, in the Northwest Territories. The officer commanding (an ex-R.A.F. type) was there to greet us as we landed.



The temperature was thirty-six degrees below zero. Everybody was wearing parkas, double mittens, flying boots, and sheepskin trousers. The chill factor was up in the thousands. Everybody looked cold.

Everybody, that is, but the Englishman. His parka hood was thrown back; his shirt was open at the throat, exposing a hairy chest; and he was wearing ordinary leather boots and a pair of battledress trousers. Other than a gentle stamping of his feet, he made no concessions to the climate.

Worst of all, he looked warm!

## 85 YEARS AGO

Instruction to recruiting officers: "Hereafter, boys under 21 will not be enlisted except for the purpose of learning music, and then only under authority from the Superintendent of Recruiting Service, or the Adjutant General of the Army, after the written consent of the parent, guardian or master has been obtained."

("Army Navy Air Force Journal": U.S.A.)



# Space Flight

*(Although it may be a few years yet before the R.C.A.F. has a detachment based on Ceres or operating out of the Mare Serenitatis, the theory of space travel is being developed rapidly and seems to have reached a stage where we may reasonably hope to see it put to practical experimental application within the next two decades.*

*Last fall, those attending the Congress on Astronautics, in London, listened to the reading of papers by noted astronomers, rocketeers, and aerodynamicists. Below we give a digest, culled from a report in "The Aeroplane," of some of the papers' contents. The diagram of Hoepfner's rocket is copied from "Aviation Week." — EDITOR.)*

## SPACE SHIPS

**D**R. L. R. SHEPHERD, Technical Director of the British Interplanetary Society, who is a nuclear physicist working at Harwell, pointed out that rocket developments in the last 20 years had at last resulted in the prospect of space flight being taken seriously. In fact, the performance of existing rocket motors was not far short of that required to put a manned vehicle into an orbit, and 10 or 20 years of "vigorous development," he estimated, would close the gap.

He envisaged an orbit 310 miles above the Earth's surface, reached by a three-step rocket with an exhaust velocity of 6,700 m.p.h., having an initial mass 300 times its useful payload. This would mean that the propellants would cost \$27,700 per ton of payload, at current prices.

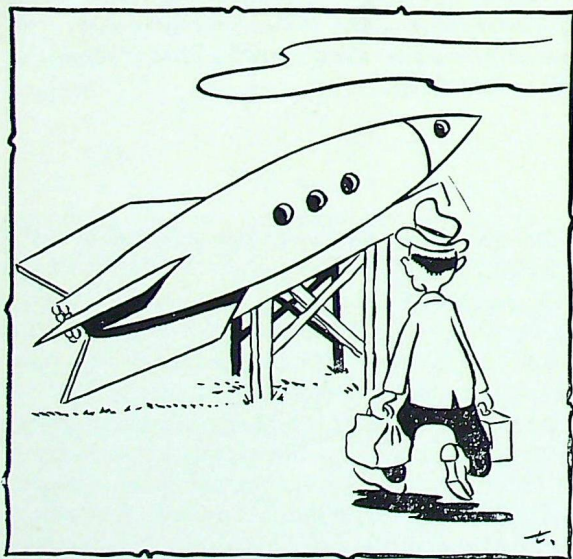
A direct voyage to the Moon and back, on the other hand, would demand an exhaust velocity of 22,400 m.p.h., far beyond that at present attainable. Hence the importance of an orbital vehicle as a stepping-stone for space voyages. To assemble a

space ship with enough propellants to go to the Moon and back, about 1,000 tons of material would have to be lifted from the Earth to the satellite vehicle. This would involve 300 voyages by rockets weighing 1,000 tons at take-off, assuming an exhaust velocity of only 6,700 m.p.h. While not impossible, this is certainly uneconomic.

An exhaust velocity of 11,200 m.p.h. would be economically reasonable, and Dr. Shepherd thought it might be achieved some day by chemical propellants. But it was more likely to need the application of nuclear energy, such as an atomic rocket using water as the propellant mass to be accelerated.

DR. WERNHER VON BRAUN, designer of the V-2 and former technical head of Peenemünde, now working in America, had worked out details of a large-scale expedition to Mars and back, but based it on present-day rocket techniques and chemical fuels. He has little use at present for speculations about atomic energy, and does not expect it to compete economically with chemical power plants for at least 25 years.

For the "Mars project," Dr. von Braun would require 5,356,600 tons of propellants. This, he says, is no more than 10 times the amount of high-octane petrol used in the Berlin air-lift. Moreover,



only 36,600 tons of it would be used on the actual interplanetary voyage: the rest is all consumed in carrying up supplies to the orbit of the Earth satellite vehicle before starting. Since the "Mars fleet" will set out from there with 70 men in 10 space ships, this preliminary supply operation will be formidable.

Although a compound rocket with more than three steps gives the optimum saving of weight when taking-off from the Earth, von Braun would limit the number of steps to three, because the large lower booster rockets would have to be salvaged and used again repeatedly for economy. The buoyant empty boosters would come down in the sea, retarded by steel-mesh parachutes and a final burst of rocket started by a proximity fuse.

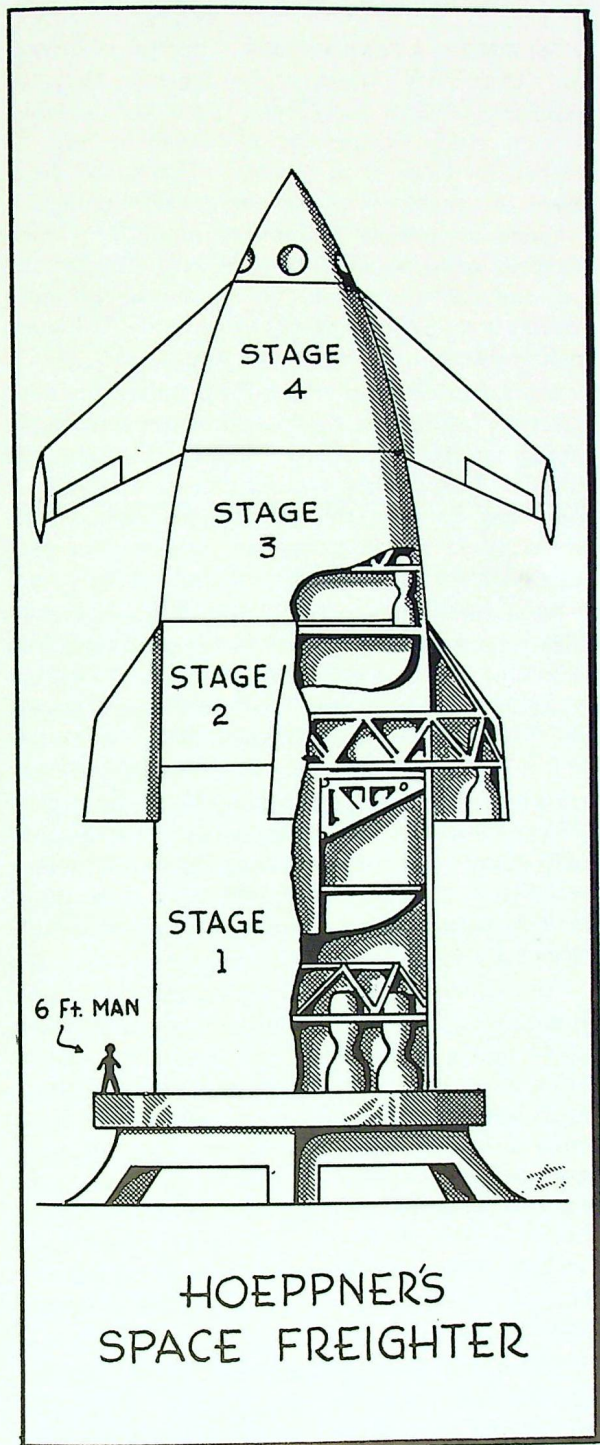
The last step could glide back to Earth with the help of wings. It would land at only 65 m.p.h. after a glide of 14,000 miles through the lowest 50 miles of the atmosphere.

Each of these three-step rockets would weigh 6,400 tons at take-off. There would be 46 of them for the supply operation, making 950 flights in all. The 10 space ships, travelling from an orbit round the Earth to one round Mars, could operate at low thrust; they would weigh 3,720 tons each at the start. Three of them would be left behind in the Martian orbit, so could carry stores, instead of fuel needed for the return journey.

From the Martian orbit 50 of the 70 men would descend to Mars in three 200-ton rockets, landing with wings at 120 m.p.h. They would carry enough stores to stay there about 400 days before returning to the orbit in two of the rockets. The whole expedition would take two years and eight months.

MR. TERENCE R. F. NONWEILER, aerodynamicist at R.A.E., Farnborough, has for some time been working on the problem of aerodynamic braking of a space vehicle entering the atmosphere at high speed.

A slow descent with wings was considered by Mr. Nonweiler, without the use of dive brakes, the effect of which cannot be calculated from present knowledge of supersonic flight. He has assumed 1,300 degrees C., which is 100 to 150 degrees below



the melting-point of steel, as the maximum allowable temperature.

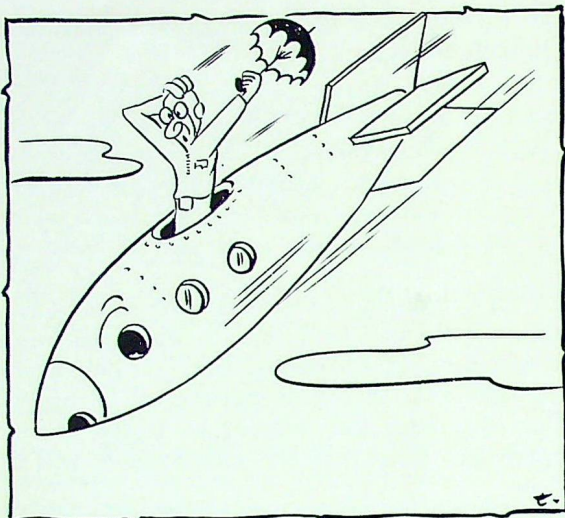
The heat transferred to the skin by friction has to be got rid of by conduction to the rest of the structure and by radiation. A thin, double-wedge wing section, with maximum thickness well aft, makes for the lowest possible temperature, which will be highest on the under-surface near the leading edge. At this point the limit of 1,300 degrees C. will not be exceeded if the wing loading is kept down to 6.15 lb./sq. ft., while the mean temperature of the wing surface will be only about 500 degrees C. These temperatures will be reached when the speed has dropped to 10,300 m.p.h.; before and after that the temperatures will be lower.

By keeping the indicated speed down to 134 m.p.h.— a very different figure from the actual speed in the early stages — Mr. Nonweiler considered that a payload of 5 tons could be carried in an aircraft of not more than 20 tons all-up weight, of which two-thirds would be due to the reinforced steel wing, which would be of delta form with high sweepback.

The complete descent from 50 miles high would take over three hours, during which the aircraft would glide twice round the Earth.

ING. H. HOEPPNER, of the German Society for Space Flight, read a paper on "The Optimum Satellite Freight Rocket." It would encircle the Earth in two hours at a height of just over 1,000 miles, and consist of four steps, the last one being winged. A special feature is that the first two steps act together, the second step discharging its gases past the outer wall of the first. The last stage would only come into action when it had nearly reached the intended orbit, so its motor need only give it a small acceleration.

MR. E. V. SAWYER, of the Pacific Rocket Society, described a new type of parachute brake which would serve usefully to bring a space ship down to Earth. Or rather, he had intended to describe it, but his style was somewhat cramped by the fact that the U.S. Navy had "classified" the device since he wrote his paper.



The device is a ribbon parachute, and the leading edges of each ribbon are weighted in such a way as to set the parachute in very rapid rotation, which can give a maximum drag three times that of a conventional parachute of the same diameter. The drag can be varied by a reefing line, and several types of automatic reefing control have been designed to suit different Mach numbers.

Before this "parabrake," as Mr. Sawyer called it, comes into action, the ship will have been decelerated by rocket power when first grazing the upper atmosphere, and then by small flaps. Finally a parachute cluster should be used, and at the last moment a spurt of rocket power.

#### PHYSIOLOGICAL ASPECTS

MÉDECIN-GÉNÉRAL PIERRE BERGERET, of the French Service de Santé de l'Air, was concerned with the physiology of space flight. The author went through all the problems which are shared by high-altitude aviation, and then mentioned weightlessness, which he said could be tried out for only 10 seconds at a time in an aeroplane, while  $\frac{1}{2}$  g could be experienced for 35 seconds at most. Screening from harmful radiation is another problem waiting to be solved.

#### ARTIFICIAL SATELLITES

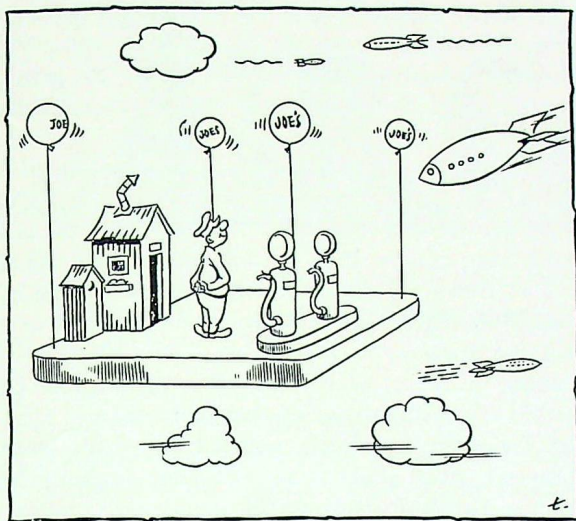
PROFESSOR LYMAN SPITZER., Director of Princeton University Observatory, agreed that an artificial satellite now seems perfectly possible, though much engineering development will be needed to realize it in practice. But to get from there to the Moon or a planet, and back again, requires an almost prohibitive amount of fuel. Even by using nuclear power to heat a propellant gas, the only advantage over chemically powered rockets is that lighter gases can be used. The same high temperature limits would apply.

A journey between orbits, Prof. Spitzer pointed out, does not require the high thrusts over a short period which are needed to get off a planet's surface. Low thrusts over long periods will do as well, and he suggested a new principle which would avoid the extravagance of chemical propellants.

An atomic pile would be used to produce electrical energy, which would in turn accelerate a stream of ions to a speed of about 224,000 m.p.h. A higher value than this would need more power, and a lower value a worse mass-ratio. A 10-ton ship is visualized as the smallest possible, weight being saved by using Uranium 235 or Plutonium 239 instead of ordinary uranium. It would produce 6,000 horse-power of heat, using heavy water as a moderator, which would be turned to steam to drive a steam turbine. This would drive a direct-current generator.

Full details cannot be given here, but the ship is expected to be accelerated to a velocity which would enable it to escape from its earthly orbit in a few weeks and to reach an orbit round Mars a few months later. A fin with an area of 1,000 sq. yards would be used to radiate away the heat produced by the pile. To protect the crew from nuclear radiation, Spitzer proposes that they should be towed behind the power plant at a distance of 62 miles by means of wires of 0.02 in. diameter, each weighing 300 lb., which would suffice to take the strain.

BARON GUIDO VON PIRQUET, who pioneered the satellite vehicle idea and made the first detailed studies of it some 20 years ago, reckons that some



years of experience with orbital rockets will be needed before setting up a residential orbital vehicle functioning in its own right as a scientific laboratory. Research would be done on physics, chemistry, astronomy, spectroscopy, observations of earthly weather, and radio, and it could also function as a strategic base in war.

Almost alone among the experts, von Pirquet disapproves of rotating the space station to provide an artificial substitute for gravity, on the ground that it would interfere with astronomical observations and make navigation difficult. He does not appear to think the crew would suffer from the effects of weightlessness.

Twelve trial orbital rockets are suggested by von Pirquet: three constantly in the orbit, three on Earth ready to start, three under repair or overhaul, and then three reduced versions of a space station.

DIPL. ING. H. KUHME, of Stuttgart, considered the flight through the atmosphere of an optimum satellite rocket. He divided its flight into four different aerodynamic regions: subsonic, transonic, supersonic and, finally, the condition at great heights where the mean free path of the air molecules is large compared with the dimensions of the rocket. As it will pass quickly through the

transonic region, straight wings, instead of swept-back, can be used.

In the uppermost region, at about 62 miles height, although drag coefficients are high, dynamic pressure is negligible and is useless even for braking during the descent. Maximum total resistance, Herr Kuhme estimates, will occur at 5-6 miles high, where the flight Mach number is about 1.5.

HERR H. H. KOELLE, from Germany, read an original paper discussing the costs of setting up a space station. He gave 518 million dollars as the overall cost of the project, of which, rather surprisingly, only 20 million would be needed for development work. Most of the remaining money was to be absorbed by the first and second stages of the step-rocket, which resembled that designed by Herr Hoepfner.

MR. R. A. SMITH, of the R.A.E. Rocket Propulsion Department at Westcott, stressed the difficulty of bringing two unstable bodies to relative rest in space, and advocated the transfer of personnel by jet-assisted free flight guided by life-lines, and of fuel by flexible pipe-lines. Drawing fuel from a tank in space might be awkward, as the tank has no bottom for the fuel to sink to.

To regard a space station as a suitable spring-board for an interplanetary flight is, in Mr. Smith's opinion, to confuse the issue. Fuel replenishment should be done from tanker rockets sent up for the purpose. He also discounted its use for military purposes, since the technical advances needed to establish a space station would render its destruction by guided missiles inevitable.

MR. K. W. GATLAND, of Hawker Aircraft, Ltd., read a paper written in conjunction with A. M. KUNESCH and A. E. DIXON on "Minimum Satellite Vehicles." Their first type was the smallest possible rocket, with a minimum of control instruments, which could be put into a stable orbit. Like the other models, it was to be a three-step rocket. Its weight worked out as 16.8 tons, length 51.1 ft., and max. diameter 6.23 ft.

The second type would have 221 lb. payload, mostly for telemetering scientific observations, and would weigh 62.4 tons. The third would have

165 lb. of additional control instruments for accuracy of course-keeping; and it would weigh 91 tons.

Mr. Gatland also described his own invention, the "expendable tank rocket," which saves weight by throwing off half-cylinder-shaped tanks from its sides and front, as they become empty. It would have the same all-up weight as the third model, but a better payload. Another feature is that the three rockets are arranged one within the other. This makes for greater rigidity and therefore better course-keeping.

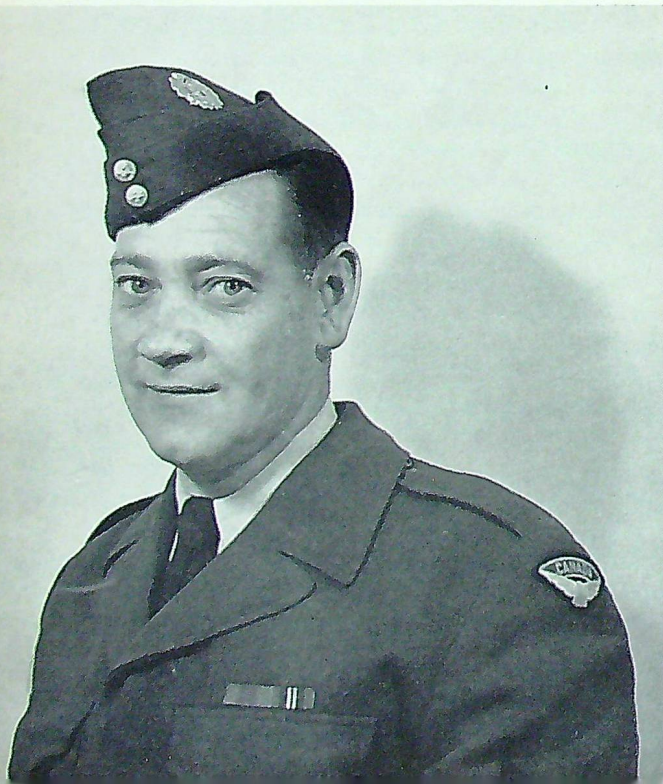
### METEORS

MR. MICHAEL W. OVENDEN, secretary of the British Astronomical Association, dealt with the hazards of meteor collisions with space stations. He took as his basis a paper by G. Grimminger, who investigated the subject on behalf of the Earth Satellite Vehicle project of the American Air Force. There are two sides to the problem: the astronomical one of the distribution in space of meteors of various sizes, and that of their penetration through the ship walls, which concerns ballistics.

Ballistic experts have only collected experimental data up to speeds of 4,000 ft./sec., but meteor velocities are some 50 times as great, though most meteors are no larger than grains of sand.

On the basis that the depth of penetration of a meteor is proportional to its diameter, Mr. Ovenden worked out that the stony type will penetrate stainless steel to 2.81 times, and dural to 7.44 times, its diameter. For the iron type of meteor the figures are 5.82 for stainless steel and 16.01 for dural.

More difficult even than the estimation of meteor numbers is that of their masses, and this, Mr. Ovenden explained, may introduce an error of up to a factor of about 50 in collision probability times. The best estimate he could give, taking everything into account, was that a space vessel of 120 sq. yards area, with a hull thickness of 0.15 cm. dural or 0.06 cm. stainless steel, would be penetrated about once a year on the average. But a second shell, one inch outside the first, would catch and dissipate so many meteors as to reduce the collision frequency to one per 100 years.



### *The Suggestion Box*

Sgt. A. G. Fox, of R.C.A.F. Station Edmonton, has been thanked by the Chief of the Air Staff for his suggested revisions to Form E.159 (Internal Issue, Exchange, and Return Voucher). Designed to cut down on possible errors and to facilitate auditing by Accounts Sections, they will be incorporated in the next revision of the form.

Sgt. A. G. Fox.

# The ROYAL CANADIAN AIR CADETS



By Arthur Macdonald, Air Cadet League of Canada

## SUMMER PLANS

BY THE TIME this appears in print the Royal Canadian Air Cadets will be in the midst of another large-scale summer programme. Continuing the upward trend of the past few years, the summer of 1952 will be the busiest in Air Cadet League history. In addition to the ever-popular summer camps, specially-selected cadets will be taking summer courses in flying and technical trades while others will go abroad to represent Canada in the exchange visits scheme and the colorful international Drill Competition.

Major innovation this summer is the special trades training course for senior cadets, being held at R.C.A.F. Station, Trenton. The course offers seven weeks' instruction in the technical groundcrew trades along with exercises in "Service familiarization." A total of 51 cadets from all parts of Canada are taking the first course, although it is expected that this number will be greatly increased in future years. One purpose of the technical training scheme is to provide advanced instruction for senior cadets who are unable to meet aircrew medical standards. The course will also help to bring into proper balance the aircrew-groundcrew relationship.

The immensely successful international air cadet "Get Acquainted" scheme is being further broadened this summer. This plan, which started with a modest exchange of cadets between Canada and Great Britain in 1947, now includes the United States, Norway, Sweden, Holland and Denmark. A total of 58 Canadian cadets will make exchange trips this year — two to each of

the north European countries, 25 to the United States, and 25 to Britain. Return parties from each of the participating countries will be entertained by the Air Cadet League and the R.C.A.F. in Canada.

One of the brightest features of the exchange programme is the impact it has made upon the European countries concerned. After studying Canada's Air Cadet movement, Sweden launched a similar organization which already boasts a strength of more than 2,000 cadets. Another new organization patterned after the League has been started in Holland, and Norway is expected to follow suit shortly.

*Window display in Regina department store during Air Cadet Week.*





*The R.C.A.F. Central Band heading the Air Cadet Week parade up Sherbrooke St., Montreal, past the saluting-base at the United Services Club.*

The striking success of the exchange visits idea is a tribute to League honorary president C. Douglas Taylor, who has personally handled all external relationships for the League. Travelling at his own expense, Mr. Taylor has annually headed up a four-man delegation which visits the countries concerned and maintains the top-level contacts essential to the success of the programme.

As we write, 250 cadets are standing by for scholarship flying courses in July and August. More than 600 applications were submitted at the close of last year and the League had a difficult job selecting the cadets who would actually undergo training. All applicants were required to pass an R.C.A.F. aircrew medical and also obtain a high rating in a written exam. prepared by Training Command H.Q.

The four weeks' course offers 17 hours of air instruction plus 60 hours of ground-school tuition given by member clubs of the Royal Canadian Flying Clubs Association, and the 1952 version will raise to more than 1400 the number of cadets who have taken this training since 1946.

The 1952 edition of the International Drill Competition will be held at Minneapolis on August 23rd, in conjunction with the Minnesota State Fair. A Canadian precision drill squad, selected from Air Cadet squadrons in Ontario and Quebec, will compete against a U.S. Civil Air Patrol team and a kiltie-clad Scottish entry representing the Air Training Corps of Great Britain. At stake is the General Beau Trophy, currently held by Great Britain after three consecutive victories by Canada.



*Father J. McGivern, M.B.E., with the sharpshooters of 25 (Campion) Squadron. Father McGivern is one of the chief reasons why this squadron, reactivated two years ago, is now considered to be among the finest units in Saskatchewan.*

By summer's end, 5,000 cadets will have attended the special summer camps at Greenwood, Aylmer, and Abbotsford. This year's camps feature an intensified training programme, although there is still plenty of time for organized sports.

The scope and variety of this year's summer programme is expected to provide added punch for the fall enrolment campaign.

#### A PERSONAL TRIBUTE

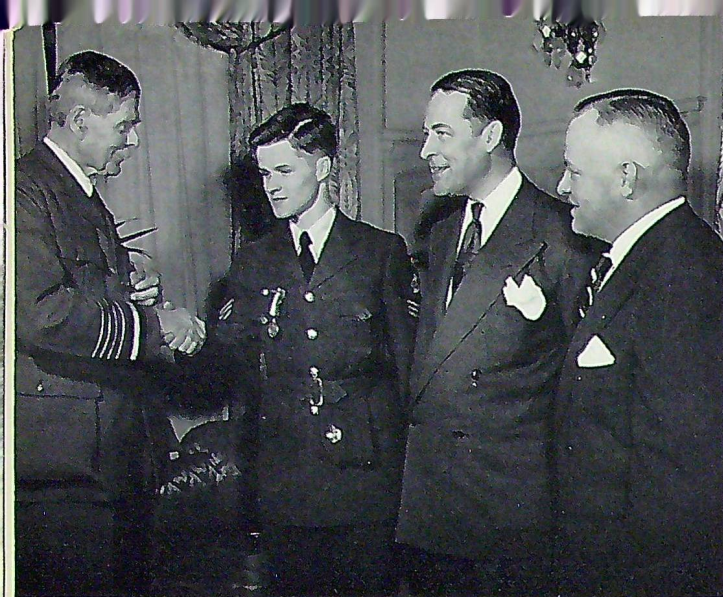
For some time we have wanted to say something nice in this column about a great friend of the Royal Canadian Air Cadets. He is Major Richard Loney of Moose Jaw, honorary president of the Saskatchewan Provincial Committee and grand-daddy of all R.C.A.F. recruiting officers. After several attempts, we finally succeeded in getting Major Loney to tell us something about himself.

No one seems to know for sure just how many birthdays Major Loney has celebrated, but we get a rough idea from the fact that he did his first

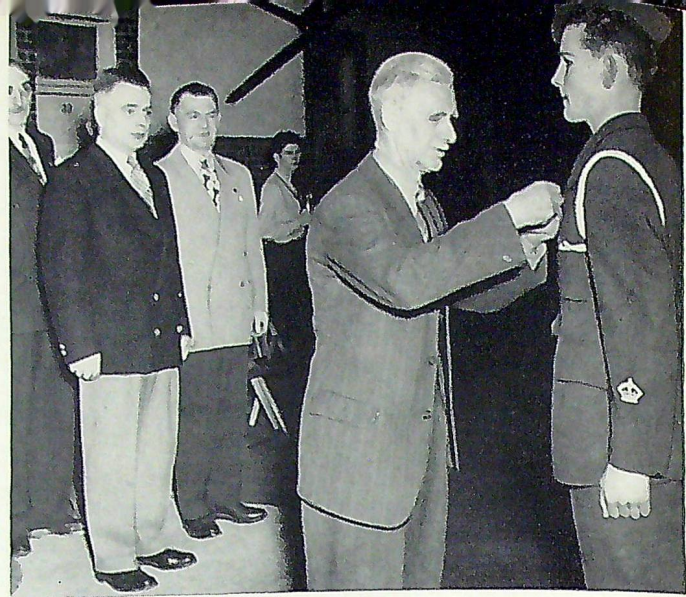
soldiering with the Governor General's Foot-Guards in Ottawa under the late Sir Sam Hughes. He later served in the South African War (1899-1902) and won the Queen's Medal with four Clasps. He was commissioned in 1911 and rose to Commanding Officer of the 60th Rifles of Canada, at Moose Jaw.

With the start of the First World War, Major Loney was informed that he was too old to go overseas with a combat unit, although he had already gone to work and recruited such a unit up to strength. He then turned his attention to the manpower needs of the Air Force and succeeded in enlisting over 200 men for the Royal Flying Corps.

Twenty-one years later the Major was back in harness again, this time handling recruiting for various branches of the armed forces in Moose Jaw. By late 1941, more than 1,200 men had passed through his office and were directed to the Navy, Army, or Air Force. From that time on



*Lord Trenchard congratulates John Lowe after investing the latter with the Air Cadet Award for Bravery.*



*Major R. Loney pins wings on W.O.2 Gorrie during a Parents' Night held in Regina.*

he concentrated on the needs of the R.C.A.F., and his records show that 1,854 men and 531 women came before him as applicants for the wartime Air Force.

Since the resumption of recruiting after the last war, he has handled more than 1,200 additional applications for the Air Force, and, according to his latest statement, "more are coming in every day."

Major Loney became Air-Cadet-conscious in 1943 and took on the job of honorary secretary for the Moose Jaw Committee. He still holds this position in addition to his appointment as honorary president of the Saskatchewan Committee. It surprises no one who knows this 80-year-old gentleman that he is one of the most active League members in Saskatchewan.

### NO. 89<sup>1</sup> SQUADRON RAISES FUNDS

A new approach to the problem of raising funds was tried out with considerable success by No. 89 (Victoria) Squadron this year.

With the assistance of the sponsoring body, the Victoria Kinsmen Club, The Air Cadets put on a master rummage sale at their training headquarters. A thousand pairs of shoes was just one feature of the sale, which also included three hundred coats, five hundred women's dresses, men's clothing and children's articles, radios, books, pictures, and many other items.

The articles were collected in a one-night drive by cadets after Kinsmen Club leaflets had alerted home-owners and asked them to have surplus items available for the youthful collectors.

### CIVILIZATION

A cartful of pasteurized milk for nurslings at four o'clock in the morning represents more service to civilization than a cartful of bullion on its way . . . to the vaults of a national bank five hours later.

*(Simeon Strunsky)*

# FLANNELGRAPH

By Flt. Lt. D. J. Cockrell

(Reprinted by courtesy of "Air Clues": R.A.F.)

(Any visual teaching aid which assists a lecturer to hold the interest of a class is very worthy of attention. The Flannelgraph is one of the cleverest and at the same time simplest devices that has come to our notice in recent years. It will also save many a gallant old pair of trousers from the ultimate humiliation of the garbage can. — EDITOR.)

THE working principle of Flannelgraph is that two pieces of hairy material will stick together, even when held vertically. If a board, such as an ordinary blackboard, is covered with towelling or surgical lint which has been dyed some appropriate colour, and pieces of similar material are glued to the backs of drawings on thick paper or cardboard, when these drawings are pressed on the board they will remain in position. They may be rearranged, added to, or taken down as the instructor desires in developing his lesson.

## Building Up Knowledge

The first advantage of this technique is that it is new. The class are interested and intrigued — and, perhaps, mystified — by the way the drawings remain in place on an apparently normal board. And though their thoughts may be occupied with the possible position of hidden magnets or concealed pins, at least they are watching what the instructor is about and their minds are at work. He, for his part, has a quick and sure way of illustrating his lesson. He does not have to spend valuable teaching time preparing an artistic masterpiece on the blackboard — with his back to the class, of course — or suddenly reverse the blackboard and present a *fait accompli* to his students. He builds up an illustration stage by stage as he talks.



To illustrate a Current Affairs talk on the Suez Canal, with emphasis on Egypt's interest, a map has been prepared by sticking shaped pieces of white flannel on a black backcloth. Other countries and particulars are added during the course of the lecture.

"We have the Air Council," he explains to some new recruits. "What do you think its duties are?" And as the class make suggestions, he chooses the ones he wants and adds them to his diagram. In this way, the class are doing the work, and the growing evidence of their efforts is visible to them all on the board. The instructor is not giving a lecture according to a hard-and-fast plan, but his

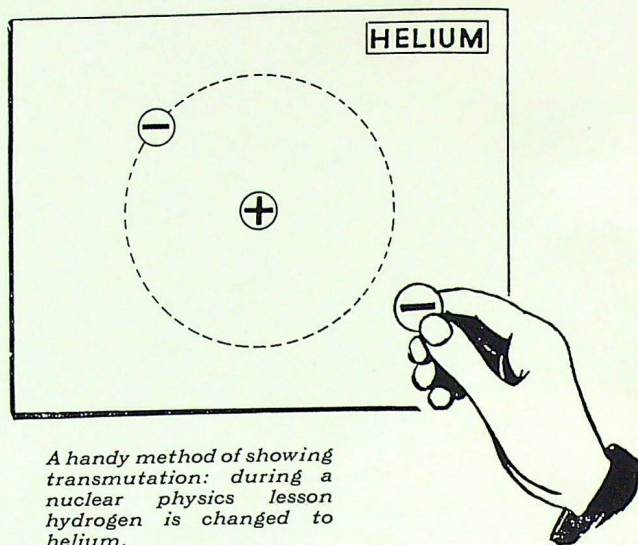
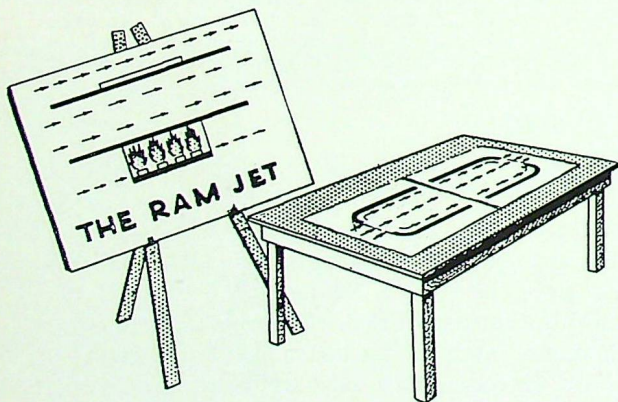
board is gradually forming such a plan; and when the pattern is complete, it is ready for the students to take down in their notebooks.

Flannelgraph, of course, has its disadvantages. It takes time and thought to prepare a sequence to illustrate a lesson adequately. It costs money, too. On the other hand, a sequence, once devised, can be used again and again, and comes fresh to each new intake of students.

The best application of the Flannelgraph is in illustrating the development, stage by stage, of some structure. Two examples would be the origins of magnetism, and the parts of a gas turbine. In both instances, there are numerous sequences which the instructor must introduce, and these can be shown by Flannelgraph as he describes them.

Naturally, there are non-technical applications, too. Children, for instance, who are so enthralled by Flannelgraph, are not only hearing a story but seeing it take place, and without being burdened by unnecessary detail. Again, when talking about a particular part of the world, what could be more convenient than to remove the unwanted — and

*Jet propulsion by Flannelgraph: in developing the theory of the ramjet, the instructor has explained that heating the air produces expansion and increase in its velocity. He is about to show why divergent entry nozzles and convergent discharge nozzles are used. These lie in readiness on the table and will replace the plain open-ended ramjet cylinders on the blackboard. Arrows representing airflow are attached to the backcloth as required.*



*A handy method of showing transmutation: during a nuclear physics lesson hydrogen is changed to helium.*

probably confusing — parts of the map until later on in the lecture? You can do this with Flannelgraph.

#### Let it Help You!

Flannelgraph has much to commend it. Not only is it more simple to use than blackboard and chalk, it is also more permanent — as permanent in fact as the wall chart, yet more flexible inasmuch as the complete picture need not be shown to the class all at once. Moreover, it dispenses with the film strip preliminaries of darkening the room and rearranging the chairs. Since the instructor himself makes the Flannelgraph for a specific lesson, it will illustrate each and every important point.

But a note of caution must be struck. Flannelgraph is a teaching aid to be kept for suitable occasions, not strained to illustrate every lesson. Its introduction does not mean that there is no further use for the blackboard, wall chart, film strip, bench demonstration, laboratory exercise, and the like; it is a complementary visual aid, to be introduced to build up a structure quickly.

From my experience of its use, I am sure the trouble you take experimenting with Flannelgraph will be amply rewarded by the alert interest of the class and your own facility in putting a subject across.

# It's in the Wind

## I. Almanacs

*(By permission of the Meteorological Division of the Department of Transport we are reprinting in "The Roundel" a series of "popular" met. articles by Mr. R. A. Hornstein, Meteorologist-in-Charge of the Dominion Public Weather Office at Halifax. Although they may not serve as a vade mecum for pilots or navigators, who have — or should have — studied met. in some detail, we feel that they will be of considerable interest to all our readers.*

— EDITOR.)



*Murphy has a weather-eye.  
He can tell, whene'er he pleases,  
Whether it's wet or whether it's dry,  
Whether it's hot or whether it freezes.*

WHENEVER a meteorologist ventures before the public eye, he is certain, sooner or later, to be involved in a discussion on the subject of almanacs. Sometimes, in all seriousness, he will be asked how much faith can be placed in the weather 'probs' which appear in those little books; at other times he is jokingly taken to task for being unwilling to provide a forecast for more than the next 24 or 48 hours, whereas the almanac does it for over a year in advance. Some of his friends refer to occasions on which the weather turned out to be exactly as called for in the almanac, and they hold vigorously to the opinion that the almanac is a trusted document; others are frankly sceptical as to its value but ask for the expert's opinion in order to find out if it supports their belief.

Near the beginning of each year many people spend an idle moment looking at the new crop of almanacs. By comparing them, surprising contradictions are discovered. For example, if you happened to read the same 1950 editions that I did, you would have found one stating that Christmas Day, 1950, would be a fine day, while a second said a snowstorm would occur on the same December 25th. As it is not very common to experience both clear skies and a snowstorm at the same time, that intelligence proved a bit confusing.

Suppose, though, we had tried another date . . . suppose it had been March first, which, in popular fancy, if not in fact, is supposed to come in either as a lion or as a lamb. Sure enough, according to one almanac it was to have commenced as a lion, but the other claimed it would be lamb-like.

Let us give them one more chance. For the day on which these words were written, one of the almanacs said that it would be clear; actually it was overcast, snowing and blustery in Charlotte-town, clear in Montreal, skies were overcast in



Winnipeg, and out in Vancouver there was a cold December fog blanketing the city. Thus, whereas it was right in at least one Canadian community, it was dead wrong in a great many others.

So it would go throughout the year . . . because, after all, these almanacs have a nation-wide distribution and the same forecast which is read by a resident of Halifax is read by other Canadians in Quebec City and Ottawa and Regina, as well as in countless other communities.

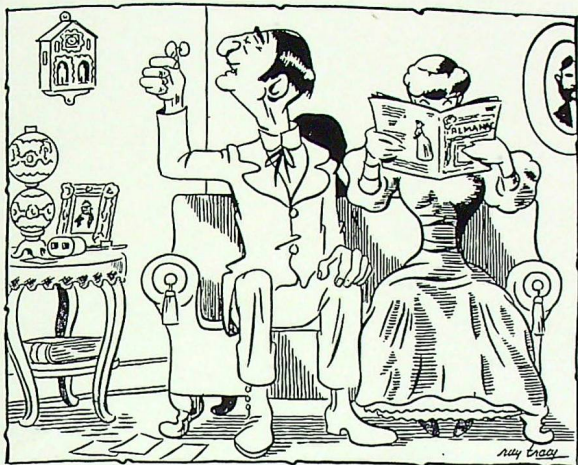
Every item found in the almanac would likely be right at some place in Canada, but at the same time it would be wrong in a great many other places because the weather is never the same all across the country in a land as large as ours.

There is one almanac which restricts itself to a particular locality, and to that extent it is on sounder ground. The "Old Farmer's Almanac" has been published every year for over 150 years, and its probabilities are intended for Boston and the New England States. Over a period of a hundred years or so, it is quite possible to strike an average of the kind of weather that prevails in any given week. By foretelling, for example, that the first four days in August will have thunderstorms, as both the 1949 and 1950 editions did, there is an excellent chance that it will be right, because that period usually has at least one thunderstorm somewhere in New England. This is really climatological information and it can be helpful in many ways.

If all almanacs would publish data of this kind designed for a certain region, they would be of considerable use. The reader would then have a ready reference to the kind of weather that is most frequently encountered at any particular time of the year. It would not be right every time, but at least the odds would be in its favour.

A request received in the Halifax Dominion Public Weather Office is typical of the many situations in which this kind of information may be helpful. In October, 1949, an advertising concern called to say that it wanted to publish newspaper advertising which would be timed to reach the public just before the first heavy snowfall of the winter. We were asked to supply the most suitable date for the publication of the advertisement in Halifax in order to meet this condition. We checked through our records of previous years and found that, although there is often snow early in November, the first big snowstorm of the winter usually arrives in Halifax on or about November 30th or December 1st. We provided this information to the company. When a snowfall of over 11 inches fell on December 3rd, 1949, the advertising was indeed perfectly timed. This does not mean, of course, that back in October we forecast that a heavy snowstorm would hit Halifax around December 1st; it simply shows that, by using records of past years, a reasonable basis for action can be secured for certain purposes over a certain restricted area.





Let us return for a moment to the "Old Farmer's Almanac." It was first published by Robert E. Thomas in 1792 and has appeared each year since. To make a reputation for oneself, it helps considerably if a statement can be proved right in some completely unexpected event. That happened early in the life of the "Old Farmer's Almanac" . . . on July 13th, 1816, to be exact. The probabilities for that day, prepared months in advance, said in plain English, "Rain, snow and hail." Snow in mid-July! . . . and yet that is just what it did in New England on July 13th, 1816. It rained, it snowed, and it hailed. According to the best information available, this startling piece of advance information was nothing more than a typesetter's joke. The story goes like this:

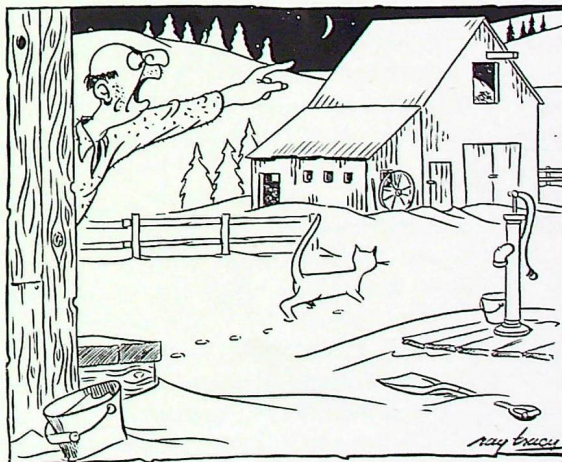
When it came time to set the type for the July page, the typesetter came into Editor Thomas' office and asked him what to put in. Mr. Thomas was busy at the moment and he replied absent-mindedly, "Oh, anything. Anything at all." As a joke the typesetter inserted, "Rain, snow, and hail," for the 13th of the month, fully expecting that the Editor would see the line in the proof and make the necessary correction. Somehow Mr. Thomas did not see it until the first lot of copies were printed and readers brought it to his attention. He immediately stopped the presses and later issues of that same edition simply predicted that the weather on July 13th would be "Dull." But those who received the earlier copies swore by

the "Old Farmer's Almanac" for the rest of their days.

Similarly, in England, in 1838, an Irishman named Patrick Murphy became famous when he printed an almanac foretelling that January 20th would be the coldest day of the winter. It so happened that he was right; furthermore, it was one of the coldest days ever recorded in London. Although, Murphy never was so lucky again, and although he was soon forgotten, the winter of 1838 was nicknamed "Murphy's winter" and gave rise to the verse at the beginning of this article.

The present Editor of the "Old Farmer's Almanac" is also very frank on another score. He admits that his job of weather forecasting is simple compared to that of the Weather Bureau. For example, he may forecast that a certain day will be "Warm" . . . but he never says how warm! On the other hand, the Weather Bureau issues forecasts of actual temperatures, and each of the descriptive words like warm, cold, mild, and so on, are tied down to definite values related to the normal temperature for the day in question. When the Almanac foretells snow it considers itself correct if you can see a cat's tracks across the barn roof. And so on down the line. In other words, the publisher leaves himself lots of leeway. Here are a few examples culled from the 1950 edition:

For the period from March 8th to 10th, the "Old Farmer's Almanac" says, "It could rain."



That is a safe statement by any standard. At that time of year it could indeed rain in New England. Also it could snow, it could be clear, it could be warm, it could be cold . . . it could be just about anything. But the Almanac says, "It could rain," and this, of course, does not rule out anything. Then if it does rain, it will be credited with great foresight and be pointed at as an outstanding example of long-range forecasting.

For December 4th to 8th we are told to expect "signs of rain or snow." That is a truly useless statement . . . "signs of rain or snow" . . . but is there going to be rain or snow following these signs? . . . or are there going to be signs of rain or snow which never comes? The Almanac does not say, so its readers will have to just wait and see.

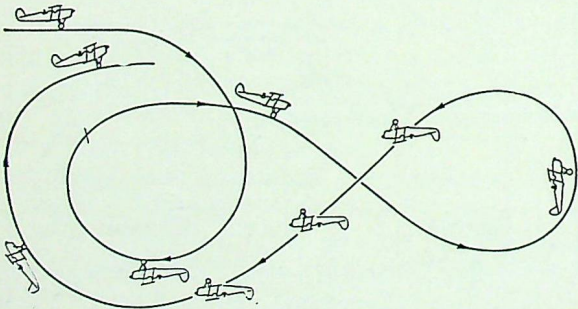
Then for the week or so from May 16th to 22nd, the Almanac says, "Heads it rains, tails it's cool." I believe the tip-off to the whole matter of almanac weather forecasts is found in that sentence.

As a matter of fact in one of the 1950 almanacs it was noticed that the publisher no longer specifies he is providing weather probs. In earlier years he did say that he was supplying the "weather probs," but in the 1950 issue he simply states that



he is printing the "weather," and he does not indicate whether it is supposed to be for the current year or the past year or an average over a period of years, or just what the statements are supposed to represent. In this way, of course, he is on quite safe ground.

## INVOLVED AEROBATICS



A correspondent of "Aeronautics" (U.K.) sent to the Editor of that publication the diagram which is reproduced here. The manoeuvre was executed by a French pilot flying a Stampe aircraft. From the observer's viewpoint, no perceptible height was lost.

# The Atomic Bomb

By Wing Commander I. H. Barclay

*(Nobel, the inventor of dynamite, considered that he had produced a weapon of such potency that men would fear to go to war lest their entire race be exterminated. Unfortunately, he was wrong. Homo sapiens merely devoted a part of his sapience to devising new means of self-protection, and continued blithely on his belligerent way. Similarly to-day, when weapons far more terrible than Nobel dreamed of are being stock-piled on both sides of the world's ideological fence, there are many people who believe that the employment of them would write "finis" to the history of mankind. In this brief and unemotional article, Wing Cdr. Barclay, who is Staff Officer Medical Services in Air Materiel Command, reminds us that the atomic bomb, unpleasant though it is, is still a bomb and not necessarily the harbinger of universal doom.—EDITOR.)*

## INTRODUCTION: THE BOMB

SINCE THE MOST feasible method of delivering an atomic bomb seems at present to be by aircraft, we of the Air Force should be able to answer some of the more simple questions regarding the bomb, its effects, and how best we may protect ourselves and our families.

\* \* \*

As far as science knows, everything in the universe is formed of ninety-two naturally-occurring substances called elements — alone, in combination, or in mixture. In addition to these, we now have four man-made elements as well. Two of these ninety-six elements have been used so far in the construction of atomic bombs. They are *uranium* (which occurs naturally) and *plutonium* (which is made by man).

The precise method by which an atomic explosion is created is a matter for the nuclear scientist

to worry about. Since no one in the R.C.A.F. is likely to be called upon to construct an A-bomb, a simple explanation of the basic principles involved will suffice us here.

All the elements are comprised of particles of matter known as "atoms," and every atom possesses a central core called a "nucleus," about which revolve small particles called "electrons."

A nucleus itself is composed of two main types of particles bound together by enormous quantities of energy. In the case of uranium and plutonium these binding forces, while very great, are less than those found in the other elements. Thus, under the right conditions, it is possible to split their nuclei and so release the contained energy. The splitting of one nucleus (fission) causes the splitting of the others (chain reaction). We may say, therefore, that the fundamental principle of the bomb is nuclear fission with the production of a chain reaction.



## ITS EFFECTS

All forms of energy are interchangeable, and the forces released by nuclear fission present themselves as:

### 1. BLAST 2. HEAT 3. RADIATION

(In passing, it is worthy to note that if all forces from the nuclei of one ounce of uranium could be released, the energy would equal in units an electrical energy of 50,000,000 kw. hours.)

Now, in order to get the effects of an atomic bomb into their right perspective, let us examine the casualties at Hiroshima and see what percentages of them were due to each effect. We find:

- 40% caused by blast (equal to 20,000 tons of T.N.T.).
- 45% caused by heat.
- 15% caused by radiation.

#### Blast: 40%

The two bombs on Japan were exploded at a height of about 2,000 ft., which was calculated to give the greatest amount of blast damage. The following figures afford a rough idea as to how great that damage was. (Distances are measured from the point on the ground above which the bomb burst.)

##### *Buildings of Average City Type*

Completely or partially collapsed up to 5,000 ft.  
Unrepairable structural damage up to 7,500 ft.  
Repairable damage up to 13,000 ft.

##### *Air Raid Shelters with an 18" Roof*

50% damage or collapsed up to 1,000 ft.  
No damage beyond 3,000 ft.

##### *Personnel*

Direct blast injury generally unimportant.  
Indirect effects (due to "jet-propelled gas-pipes" and "revolving toilet seats," etc.) caused the majority of casualties.

#### Heat: 45%

The effects of heat fall into two categories: flash-burns from the burst and flame-burns from the subsequent fires (which have been likened to a fire-storm).

##### *Building Materials*

Primary fire risk up to 5,000 ft.  
Ignition of wood (painted or unpainted) up to 6,000 ft.

Paint (on any material) ignited up to 6,000 ft.  
Poles scorched up to 10,000 ft.

Dark cotton cloth ignited up to 10,000 ft.

##### *Personnel (flash-burns of exposed skin)*

Serious or moderate burns up to 7,000 ft.  
Moderate and minor burns up to 13,000 ft.

#### Radiation 15%

Three types of rays are given off: alpha, beta, and gamma rays (with which last are included x-rays). Alpha and beta rays are relatively unimportant. They have little penetrating power and are readily absorbed by anything which is opaque to ordinary light. Gamma rays, on the other hand, penetrate deeply and cause many casualties.

##### *Buildings and Vegetation*

No apparent effect.

##### *Personnel not Otherwise Injured*

Nearly all exposed personnel killed up to 3,000 ft.  
50% of exposed personnel killed up to 4,000 ft.  
Some sickness, but recovery up to 10,000 ft.

##### *Shielding (by reinforced concrete 2,500 ft. from blast)*

18" thick: no protection.

24" thick: partial protection.

36" thick: almost complete protection.

Secondary radiation may be received from dust, or from water-clouds produced in the case of an underwater burst.

When the radiation is applied to the body from *without* (as at the instant of explosion), the exposed person is said to receive *external radiation*. If he swallows or breathes into his lungs radioactive materials, the damaging rays are given off *inside* the body, so that the victim is said to receive *internal radiation*.

## DEBUNKING RADIOACTIVITY

- Radioactivity was only responsible for 15% of casualties at Hiroshima.
- It is the only property (apart from the magnitude of the explosion) which distinguishes an atomic from an ordinary bomb.
- Injuries from radioactivity depend on the power of the rays and particles, on how long one is exposed to them, and how much of one's body is "hit".
- Radioactivity released at the moment of explosion is the most dangerous, but it only lasts a few minutes.



*Bikini.*

- The greatest danger of explosive radioactivity lies within a mile of the explosion.
- Buildings can shield one from radioactivity, either partially or completely.
- Canned and bottled food may be used after exposure to it.
- There is no evidence that exposure causes permanent sterility.
- Even if one gets radiation sickness, one has a better than even chance of recovery.

### THE EXPLOSION

At the instant of detonation of an atomic bomb (in the air) there is a terrific blast of light and heat followed by the appearance of a rapidly-expanding ball of fire rising at approximately 90 ft. per second. The intensity of the light becomes several times that of the sun, while the temperature at the

# DATA ON THE ATOMIC BOMB

	CASUALTIES (APPROX. %)	TIME	RADIUS OF ACTION FROM GROUND ZERO		TYPE OF ACTION	ACTION STRONGEST IN	PROTECTION
			INTENSE	LIMIT			
BLAST EFFECTS	40%	Prompt	1 mile	4 miles	Debris and secondary missiles causing ordinary injuries.	High burst	Deep shelters. Steel and concrete build- ings. Strong walls. Ground hollows.
HEAT EFFECTS (FLASH)	40%	Prompt	1 mile	3 miles	Intense heat.	High burst	Any interposing barrier. White, loose-fitting clothing.
HEAT EFFECTS (FLAME)		Prompt or delayed	1 mile	Downwind any distance	Ordinary flame- burns.	High burst	Avoidance. Fireproof buildings. Deep shelters.
RADIATION (EXT.)	15-20%	Prompt	1 mile	2 miles	Rays damage living tissue.	High burst	Deep shelters. Heavy walls. Distance.
RADIATION (INT.)	Small	Delayed	Where dust or spray falls.		Radioactive particles swallowed or inhaled.	Low burst	Respirator. Early personal decon- tamination.
RADIATION (GROUND CONTAMIN- ATION)	Variable	Delayed	Bomb craters and "fall-out" areas.		Internal and external effects.	Low burst	Avoidance.



centre of the ball of fire exceeds 20,000,000 degrees. Travelling outwards in all directions from the ball of fire, is a blast-wave. At the end of twelve to fifteen seconds the ball of fire has lost its brilliance, and, after a minute has elapsed, it appears as a large cloud of smoke which continues to rise, mushrooming out at 25,000 ft. It may rise as high as 60,000 ft.

### The Odds on Survival

Up to $\frac{1}{2}$ mile	Anywhere within $\frac{1}{2}$ -mile of the centre of explosion, the chances of escaping are about one out of ten.
$\frac{1}{2}$ to 1 miles	From $\frac{1}{2}$ to 1 mile, there's an even chance of living.
1 to $1\frac{1}{2}$ miles	From 1 mile to $1\frac{1}{2}$ miles, the odds on being killed are only 15 in 100.
$1\frac{1}{2}$ to 2 miles	At points between $1\frac{1}{2}$ miles and 2 miles away, deaths drop all the way down to only 2 or 3 out of each 100.
More than 2 miles	Beyond 2 miles the explosion will cause practically no deaths at all.

At Nagasaki, almost 70% of the people more than 1 mile from the bomb lived to tell of their experiences.

### DOMESTIC PROTECTION

The first warning is the blinding white light referred to above.

#### Protection Against Blast

Fall flat on your face.

If inside, flatten out close against cellar wall, inside wall, or under bed or table.

If outside, drop down alongside the base of a good substantial building or jump into a ditch or gutter.

Bury your face in your arms and keep it there for ten to twelve seconds.

#### Protection Against Burns

Try to find shelter where there is something between you and the bomb.

You can expect the bomb to be aimed at the city's largest collection of industrial buildings.

During a time of emergency always wear full-length light-coloured clothes. In addition, wear a hat: the brim may save you from a serious face-burn.

### Protection Against Radioactivity

The greater the thickness of material you can put between yourself and the bomb the better.

Canned and bottled foods may be used later as long as they have not been opened.

Do not use water unless it has been pronounced safe or has been boiled. Water in the pipe-system will be safe.

A-bombs exploded in the air leave no dangerous lingering radioactivity. Dusts are spread so widely they are not likely to harm people. It would take many thousands of atomic bombs to produce dangerous ground-contamination. None of the Japanese were harmed by lingering radioactivity.

(Underwater atomic bombs, on the contrary, produce serious lingering radiation. Therefore, after an underwater burst, you should stay under cover for at least an hour — and then avoid getting wet!)

If caught outside, cover yourself to avoid contamination with radioactive materials, and change your garments afterwards. Then scrub the body thoroughly. Be careful not to track radioactive materials into the house.

### CONCLUSION

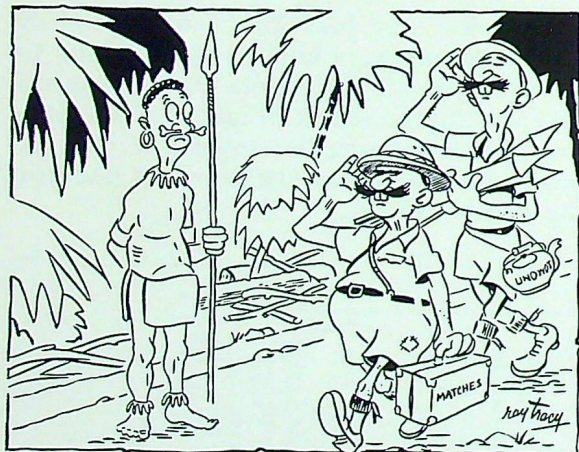
It should be remembered that the atomic bomb used at Hiroshima was not as large as some of the so-called conventional bombs, and that an aircraft need not be very big in order to carry an atomic bomb. Furthermore, smaller atomic bombs will probably be made, so that there may be numerous places in which one of them could be concealed by an enemy immediately prior to the declaration of war—for example, in the cargo of a merchant ship or a commercial aircraft.

We must not take the A-bomb lightly: 100,000 people were killed at Hiroshima. On the other hand, Hiroshima was utterly unprepared for the attack. We should remember, too, that a potential enemy will almost certainly seek to spread alarm by exaggerating the bomb's effects.

# ★ What's the Score?

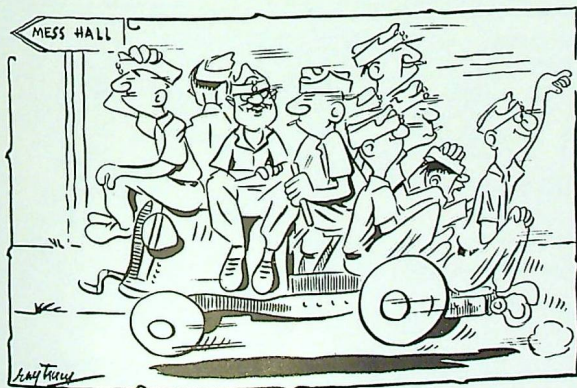
We gather that Sgt. Shatterproof (since Sgt. Highball's encounter with the Flying Saucer in June) is too occupied in preparing his welcoming address to the first exchange group of Martian senior N.C.O.'s to offer any comments on this month's questionnaire. Further we have received a signal from him to the effect that he will let us have an interplanetary "What's the Score?" in time to prevent the occurrence of any gross solecisms on the part of R.C.A.F. personnel when official contact between the two worlds is eventually established. Meanwhile, the answers to the following questions will be found on page 48.

1. The present monthly recruiting rate of the R.C.A.F. is:
  - (a) About 100.
  - (b) About 200.
  - (c) About 500.
  - (d) About 1000.
2. Air Intelligence in war exists in order to:
  - (a) Advise commanders on the enemy's situation and capabilities.
  - (b) Plan air operations.
  - (c) Make strategic and tactical decisions.
  - (d) Forecast the enemy's course of action.
3. The British long-range testing-ground for guided missiles is located in:
  - (a) South Africa.
  - (b) Canada.
  - (c) New Zealand.
  - (d) Australia.
4. A guided missile required to operate at any altitude would be powered by a:
  - (a) Turbo-jet.
  - (b) Ram-jet.
  - (c) True rocket.
  - (d) Pulse-jet.
5. The correct description of the accompanying illustration is:
  - (a) The R.C.A.F. crest.
  - (b) The R.C.A.F. coat-of-arms.
  - (c) The R.C.A.F. badge.
  - (d) The R.C.A.F. escutcheon.



6. Schnörkel is:
  - (a) A device for hoisting bombs.
  - (b) A new type of food used in emergency kits.
  - (c) An air intake device used by submarines.
  - (d) A type of periscopic sextant.
7. A Disciplinary Court Martial shall consist of not less or more than the following number of officers:
  - (a) One and three.
  - (b) Four and six.
  - (c) Three and five.
  - (d) Two and four.

8. A radar set measures the distance to a target by:
- Comparing the strength of the outgoing pulse with the strength of the echo pulse.
  - Measuring electronically the time taken by the signal pulse to return to the radar set.
  - Measuring the angle between the outgoing pulse and the echo pulse.
  - Counting the number of skips the echo pulse takes on its return path.
9. 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.
10. On graduation from 1 R. & C.S., Clinton, a Gp. I radio operator apprentice must be capable of sending and receiving Morse Code in plain language at a minimum speed of:
- 15 words per minute.
  - 18 words per minute.
  - 20 words per minute.
  - 22 words per minute.
11. A pilot attack instructor means when he speaks of "angle-off":
- The angle between his line of sight and the line of flight of his aircraft.
  - The angle between his line of aim and the line of flight of his aircraft.
  - The angle between his line of sight and the line of flight of the target aircraft.
  - The angle between the line of flight of his aircraft and that of the target.
12. The main cause of rapid front-tire wear on "shop mule" aircraft towing tractors is:
- Excessive speed.
  - The small outside diameter of the tires.
  - Under- or over-inflation.
  - Cramping front wheels sharply at high speeds.
13. If you die while serving, your widow (while your affairs are being wound up) may:
- Be paid a tax-free monthly payment for two consecutive months.
  - Not remarry without the Minister's permission.
  - Continue to occupy (or be allotted) married quarters for a period of ten months.
  - Be given an unconditional grant of \$1500.00 to cover your funeral expenses.
14. The first Director of the Canadian Air Force was:
- Wing Cdr. W. G. Barker.
  - Air Cdre. A. K. Tyler.
  - Group Capt. J. L. Gordon.
  - Air Vice-Marshal G. M. Croil.
15. The first Director of the R.C.A.F. was:
- Wing Cdr. W. G. Barker.
  - Air Cdre. A. K. Tyler.
  - Group Capt. J. L. Gordon.
  - Air Vice-Marshal G. M. Croil.
16. The first Senior Air Officer of the R.C.A.F. was:
- Wing Cdr. W. G. Barker.
  - Air Cdre. A. K. Tyler.
  - Group Capt. J. L. Gordon.
  - Air Vice-Marshal G. M. Croil.
17. The first Chief of the Air Staff, R.C.A.F. was:
- Wing Cdr. W. G. Barker.
  - Air Cdre. A. K. Tyler.
  - Group Capt. J. L. Gordon.
  - Air Vice-Marshal G. M. Croil.
18. You require an item of stationery and learn that the unit Supply Section has "nil stocks." To satisfy your demand, you should:
- Buy the item at the local stationery store and mail the bill to the S.S.O.
  - Pound the C.O.'s desk.
  - Submit an E42 to the unit Supply Section with a request to hasten the supply.
  - Send an A.O.G. message to the Supply Depot.
19. A laminar-flow wing is a smooth wing:
- With no flaps or ailerons.
  - With a sharp leading edge.
  - With the maximum thickness approximately half way between the leading edge and trailing edge.
  - Of triangular shape, with slotted leading edge.
20. On completion of an investigation into the disappearance of an aircraft which has not been located, all log books and L.14's pertaining to the aircraft are to be forwarded to:
- Air Materiel Command.
  - Group Commander.
  - Accident Investigation Branch.
  - Command H.Q.



## Can Fishes Fly?

THE ANSWER to the title query, in spite of unanimity of biological opinion to the contrary, is that they can, and they do.

Very shortly after the last war I found myself in charge of a hangar full of rice, the air engineer officer of an aircraft carrier, on its way to the relief of Hong Kong.

Having no aircraft to occupy my time and being a staunch teetotaler, I amused myself by watching the antics of the flying fish, otherwise known as *Exocoetus* and *Dactylopterus*. I had previously been under the impression that these creatures could not fly in the accepted sense; the biological boffins seem unanimous in propounding the theory that a flying fish "glides" through the air. No book I have yet seen gives this fish, Nature's aerial submarine, credit for being able to undertake a powered flight: and yet I have seen them leap out of the ocean to a height of only two or three feet, and keep airborne, executing turns the while, for distances of at least a hundred yards.

This order of "glide," of course, indicates a lift-drag ratio far in excess of that possessed by the most efficient sailplane, and although I have never introduced a petrified flying fish into a wind-tunnel and measured its L/D characteristics, it needs but a brief glance to see that its aerodynamic efficiency as a glider cannot be very great. If a fish were to glide only fifty yards from a

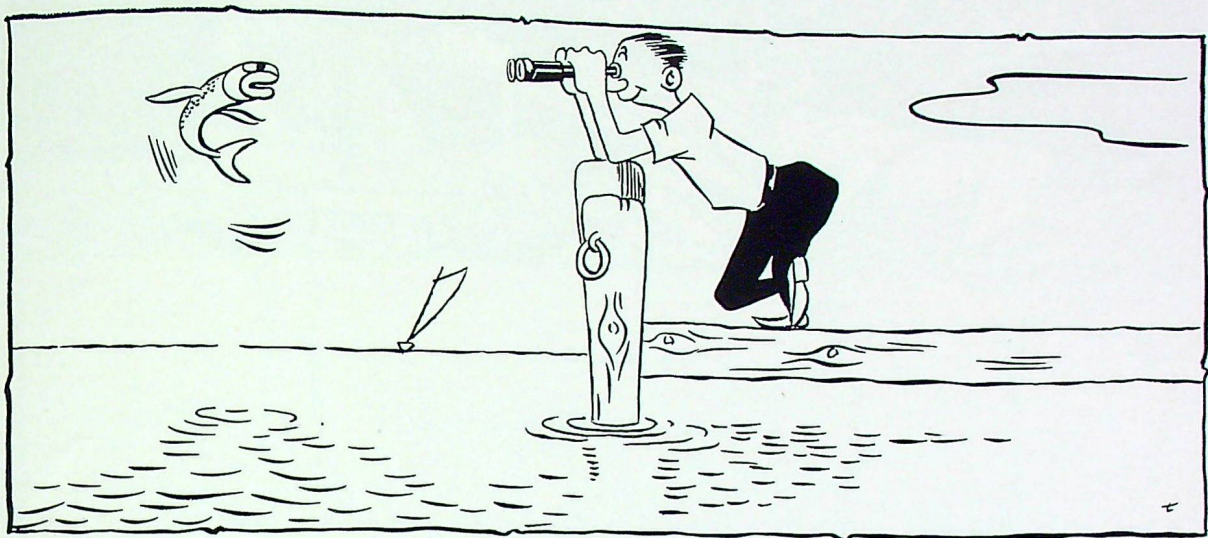
height of three feet, its angle of glide would be as little as one degree and a few minutes. A study of the picture of a flying fish in any encyclopedia soon convinces one that here is no layout for glides of anything approaching such efficiency.

On a more recent voyage through regions "where the flying fishes play," I was assured by the ship's Chinese butcher that on calm nights the sailors put a lamp on the lower deck. The flying fish, attracted by the light, zoomed up over the rail and were shortly lamenting their recklessness — in a frying pan. They taste like herring, I understand.

Now if these fish can remain airborne for such long distances and also climb in over a ship's rail, then it is unquestionable that they must use power for flight. Yet first appearances are against this because, on emergence from the water, the modified fins appear to cease vibrating and, of course, R.P. and jet propulsion are not evident. I say "appear" advisedly, as will shortly be made clear.

Before suggesting the actual means of propulsion let me quote an authority. Perhaps the reader can make sense of the following; I cannot. "The long pectoral fins, acting when distended as parachutes, rather than as wings, sustain them in the air against the wind, sometimes for five hundred feet."



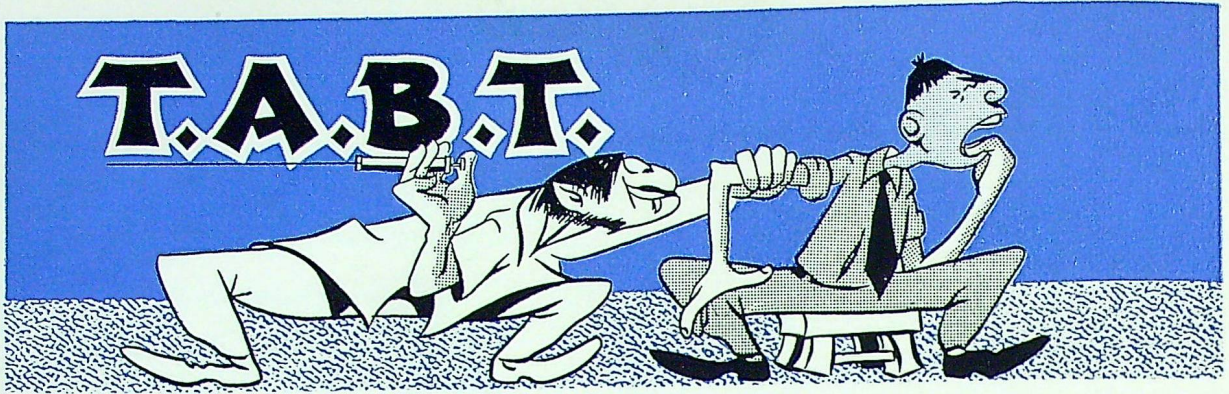


As the result of long observation (both by myself and a friend) sometimes with binoculars, sometimes without, I have come to the conclusion that flying fish carry out powered flights of varying duration up to distances of over a hundred yards. The manner in which this is done is as follows: The fish emerges from the water with a visible and violent beating of its wings, or modified fins. (The size of these appendages must be a compromise to suit the different densities of water and air. A large wing suitable for bird-like flight would be useless under water.) Immediately after emergence from the water, the small wings change their comparatively slow vibration — which was suitable for driving the fish from the water — into a frequency similar to that of an insect; so fast, in fact, that one gets the impression that the motion has ceased altogether. Certainly, the wings are still visible, but they are definitely blurred in outline.

Proceeding like this, the fish has a vertically sinuous flight-path, rising and descending to clear wavelets, and also, occasionally, makes small and erratic turns. Finally it plops, usually making a “belly-smacker,” back into the water again. The disappearance is always sudden and the wings are outstretched as the fish goes under. The effect is rather as if power had suddenly been cut off and a free fall made into the water. My co-observer and I are both of the opinion that the wings take on a sharp outline immediately before the fish falls, as if vibration had suddenly stopped.

In conclusion, although it must seem impertinent of a mere layman to contradict established biological opinion, I claim that I have, at least, the backing of the simple laws of physics, but the biological gentlemen’s explanations . . . well, read the above quotation again.

(L. W. Crawford in “Flight”: U.K.)



By Eric Nicol

(Reprinted by courtesy of "Torch": Can.)

THE M.O. called it a T.A.B.T. What I called it cannot be printed on anything as highly inflammable as newsprint, which is too bad because the kiddies would have loved it.

I remember one year, for instance, when I had my annual. It seems that my white corpuscles are congenital idiots requiring more than one inoculation to teach them to know a germ when they see it. Both of them have led a sheltered life and think everybody is their friend. A germ could walk in right now carrying a large sign reading, "I AM A GERM," and they wouldn't get it.

Unaccustomed as I am to reading D.R.O.'s, having only 20-20 vision and being unable to understand any language but English, I did not at first notice my name down for annual inoculation. This social note was joyfully drawn to my attention by my sadistic friends, who wanted to make sure that I got the point.

"You gotta have a T.A.B.T. inoculation!" they chortled, dancing around me with happy cries and nipping my upper arm anticipatively.

As it happened, I was a trifle late for the actual ceremony at the medical office, the S.P.'s failing for a time to discover that I had chosen to spend the afternoon in an abandoned boiler. I was quickly persuaded to join the gathering in the M.O.'s office, and soon was lending my teeth to the noisy chatter of the other guests.

For the occasion I had selected a charming ensemble in a shade that was proving very popular

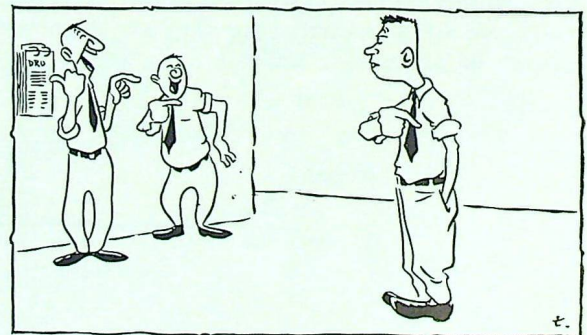
with us Air Force boys that Spring — robin's egg blue, with a dash of hen's yellow down the front of the tunic — crowned by a sheer white satin face. For accessories I wore a novel rope of hemp around my neck, pulled by page boys of the larger type from the guardhouse.

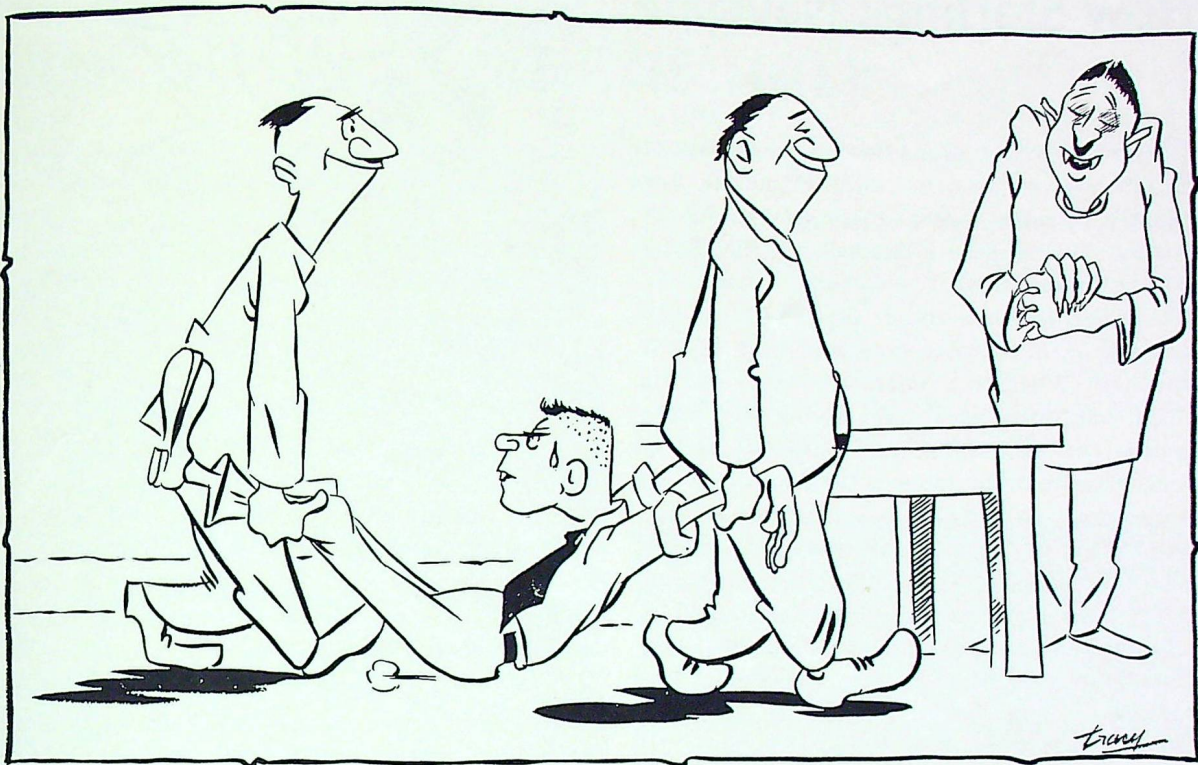
As the veteran of twelve previous knocks, I naturally knew what to do when the doctor approached me with the needle. I kicked him in the groin and ran like the devil.

Upon being dragged back, I proffered my left arm with an insouciant, devil-may-care smile. The doctor's assistant took a handkerchief from his pocket.

"Never mind the blindfold!" I cried, in a strong clear croak, but the assistant had already blown his nose and put the handkerchief away.

"Which arm do you want it in?" asked the doctor, making a couple of practise lunges.





"Guess," I shouted coyly, and crawled under the water cooler.

They dragged me out in spite of my protests that they were creating a disgusting scene. Nevertheless, I am glad to report that I didn't move a muscle when the doctor inserted the hypo, mostly because my muscles were temporarily embarrassed by the presence of a number of people sitting on my chest (although there were plenty of chairs in the room; a most uncalled-for exhibition, I thought).

The needle didn't hurt when it went in, or at least not the first foot and a half of it. It was only when the doc got his hand inside with it and started strumming rondelays on my collar-bone that my protests against the practices of the medical professions came to be heard by residents of Lower Vermont.

Besides, the minute the steel punctured my skin

there was the hiss of escaping air and my head started to deflate at an alarming rate of speed. Usually they put alcohol on the spot where one is pierced, but in my case they had to apply chalk, then glue, followed by a Goodyear inner tube patch hastily filched from a bicycle repair kit. I tried to tell them my body was connected by a non-union plumber but they scoffed at me.

The first reaction to a T.A.B.T., of course, was the feeling that your arm had fallen off. This feeling was greatly eased by the discovery that your arm had fallen off, and you even got to brooding about it. Later, after the T.A.B.T. you were obliged to crawl into your bunk, where you laid reminding yourself over and over again that you are immune to tetanus anyhow, and if you were to step on a rusty nail it might hurt like blazes but you wouldn't get tetanus, no sir, not tetanus.

## How Starlings Navigate

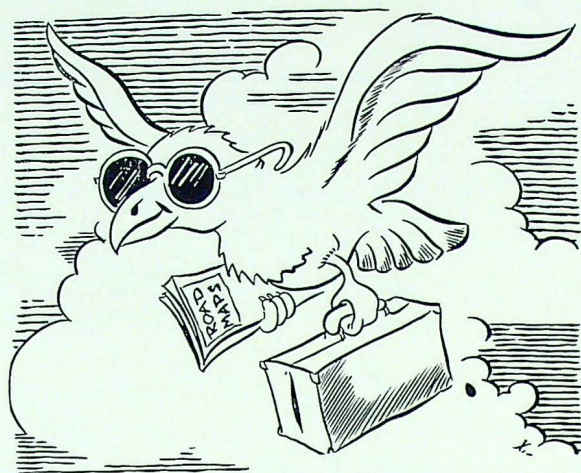
EVIDENCE THAT MIGRATING starlings orientate themselves by the sun, and not by some mysterious sixth sense, was produced by Dr. Gustav Kramer in a lecture to the British Ornithologists' Union.

Dr. Kramer had been experimenting with starlings in a circular rotatable cage of 2-ft. diameter. When the migratory urge was on, which happened each day during the winter months between sunrise and mid-day, starlings would repeatedly fly towards the South-west wall of the cage, this being the direction flown by most birds from N.W. Germany during Winter migration.

To find out whether starlings knew their compass points at other times, too, when the migratory urge was in abeyance, Dr. Kramer placed feeding boxes round the cage. He would put food into only one box at a time, and whichever box it was, the cage was rotated to bring it to the S.W. position. Although the bird could only find the correct box by poking its beak through a slit in a rubber membrane, it soon learned to make straight for the South-westerly box, showing that it still knew its compass points.

But the starling could only do this when it could see either the Sun itself, or a part of the sky within 20 to 45 degrees of the Sun. If some other portion of the sky was all that the bird could see, it lost its sense of direction; which proves that starlings cannot recognize the direction of polarization of light, as bees are able to do. Furthermore, if the sky is so thickly overcast that even a human eye cannot tell the sun's direction, then again the bird cannot orientate itself.

Having proved this much, Dr. Kramer then played tricks with the sun. He put the cage inside a round hut with six windows, each containing a mirror set at 45 degrees so as to reflect the sky from a direction 90 degrees different from that of the window. Sure enough, this put the bird



90 degrees out in its orientation. The next piece of trickery was an artificial sun in the shape of a 250-watt bulb, which deceived two birds out of three; so that, for instance, if the lamp was made to rise in the North and set in the South, the bird would mistake S.E. for S.W. and poke its beak into the wrong feeding-box.

Dr. Kramer claimed also that starlings must have an accurate sense of time, since they allow for the sun's daily motion. But this seems less certain, as the changing elevation of the sun could serve as well; in fact, it was found that if the artificial sun maintained a constant height as it moved round, the birds took no notice of it. Nevertheless, there is some evidence that the orientating ability can be retained through the night if the bird is allowed to see the sky at sunset; apparently its time-sense can then go on extrapolating till dawn.

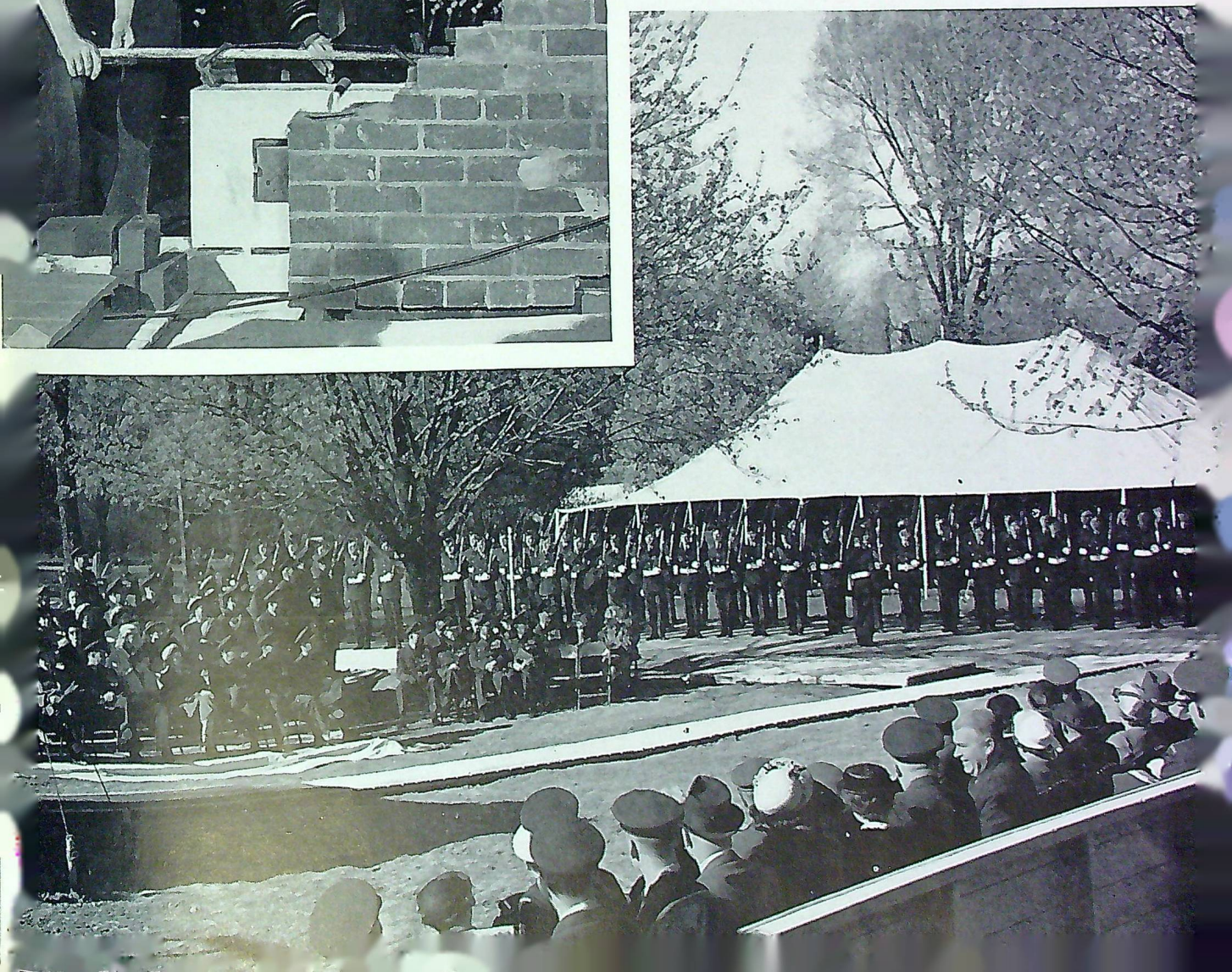
A question was asked about the Yeagley theory that birds can tell their position by using as co-ordinates the lines of equal magnetic and Coriolis forces. But Dr. Kramer produced a slide showing that, over most of Europe, these two sets of lines are virtually parallel to each other and therefore cannot serve as co-ordinates; yet migrating and homing birds can orientate themselves as easily in Europe as in North America, where the two sets of lines cross.— A.E.S.

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

# DEDICATION OF CURTIS HALL



Curtis Hall, the new Administration Building of the R.C.A.F. Staff College at Toronto, was dedicated by the Chief of the Air Staff on 2 May 1952. The first of the two accompanying photographs shows the C.A.S. pronouncing the cornerstone "well and truly laid," and the second gives a general view of the guard of honour and of the guests who attended the ceremony.



# Arctic Nature Note

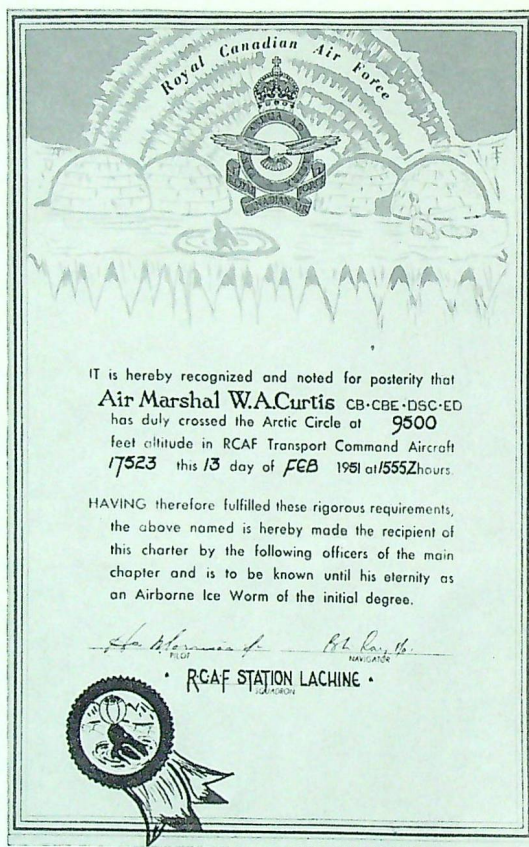
*"In the shadow of the Pole  
I shall clasp her to my soul.  
I'll be with her when the ice-worms nest  
again!"*

(Anon.)

IT HAS for some years been the custom in the R.C.A.F. (though we are uncertain as to the custom's origin) to invest with the order of Airborne Ice Worm those who have crossed the Arctic Circle by air. Its most distinguished Service member is, at present, the Chief of the Air Staff, a facsimile of whose parchment is shown herewith.

Hitherto we have regarded the ice worm as a purely heraldic monster, having no existence save in the minds of Transport Command personnel. Apparently, however, we were wrong. There is such a creature as an ice worm, and its proper name is Oligochaetes. From the "Polar Record," the official organ of the Scott Polar Research Institute, we glean the following skimpy facts regarding its habits.

It is sensitive to light, appearing on the surface of the snow in the late afternoon and retreating beneath it soon after dark. The reasons for its surfacing are three: to feed, to copulate, and to migrate. While the first two are understandable enough, we confess ourselves a bit buffaloes by the third. Assuming its ground-speed to be about a hundred yards a year, where on earth would an ice worm migrate to — or if you really get down to it, from? While we don't suppose it matters very much except to the ice worm itself (and even that's doubtful), we can't help being a little curious.



If any of our readers are really clewed-up on the subject of Oligochaetes, we'd like to hear from them.



## Roger?

EXEMPLIFIED HERE are three different R/T stances, all of which have been observed by those who study pilots in their natural habitat, the air. The oldest and wisest pilots always communicate in the manner shown in photograph No. 3, with their earphones over their ears and their lips almost touching the microphone. The pilot who is not completely at ease, on the other hand, frequently adopts a more forceful approach, as in photograph No. 1. He intends to make the other chap hear if it kills him, and at the same time keeps the earphones well clear of his ears so that he himself won't miss the point of any of the co-pilot's jokes. Finally, we have (in photograph No. 2) the modest fellow who doesn't think that what he hears or has to say is nearly as important as what he sees thro' the cabin window.



# An Eleventh Province

WE IN CANADA sometimes complain that Americans don't know enough about our country and its people. These complaints occasionally get amusing evidence to support them; such as the proposal of a Chicago Congressman that England should "sell" Canada to the United States, and that any war debts should be a credit against the purchase. That proposal resulted in a letter reaching me from New York from someone who apparently was a bit disgruntled about the Administration here in the United States. It ran as follows:

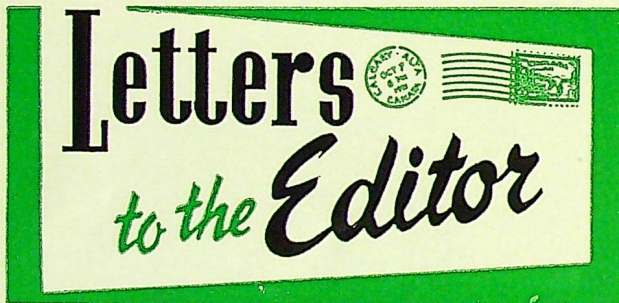
*"My dear Minister Pearson:*

*"I see that you turned down Rep. Sheehan's proposal that we annex Canada to the U.S.A.*

*"I have a better offer. I propose that the U.S.A. buy Canada at any cost . . . and that we pass a constitutional amendment to move the capital to Ottawa and to permit only Canadians-born to hold office, from President and the Cabinet down.*

*"I do hope that this offer will interest you."*

*(The Hon. L. B. Pearson, in an address given in New York.)*



## A PROBLEM IN MATHS

Dear Sir:

On 10 April 1951, Flying Officer D. C. K. Horne (reg. no. 33387) requested a parachute at R.C.A.F. Station Gimli. Said he: "I don't want a 'flexible back'. If you have no seat packs I won't take one at all." A brand-new seat pack was brought forth — and, to the amazement of all concerned, the parachute bore the serial number 33387. It would be interesting to know the mathematical probability of such a thing happening twice during the entire history of aviation. (Needless to say, the parachute in question is reserved for Flying Officer Horne as long as he is at this station.)

Flt. Sgt. W. V. B. Goff,  
R.C.A.F. Station Gimli.

*(The problem resolves itself, of course, into a simple question of spherical crystallography, a science of which there are said to be numerous exponents in A.F.H.Q. Doubtless one of them will come up with an answer in the future.— EDITOR.)*

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

- |         |         |         |         |
|---------|---------|---------|---------|
| 1: (d)  | 2: (a)  | 3: (d)  | 4: (c)  |
| 5: (c)  | 6: (c)  | 7: (c)  | 8: (b)  |
| 9: (a)  | 10: (b) | 11: (c) | 12: (d) |
| 13: (a) | 14: (b) | 15: (a) | 16: (c) |
| 17: (d) | 18: (c) | 19: (c) | 20: (c) |

*If with pleasure you are viewing any work a man is doing,  
If you like him or you love him, tell him now.*

(BERTON BRALEY)

