

THE *Aircraftman*



THE
TECHNICAL TRAINING
ST. THOMAS **SCHOOL** ONTARIO



THE AIRCRAFTMAN

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EARLY IN SEPTEMBER PRIME MINISTER WINSTON CHURCHILL SAID:

"We must regard the next week or so as a very important week for us in our History. It ranks with the days when the Spanish Armada was approaching the Channel and Drake was finishing his game of bowls, or when Nelson stood between us and Napoleon's Grand Army at Boulogne."

« « EDITORIALS » »

FIRST IMPRESSIONS

By A.C./2 Rorke, E. M. (E. & A. T. S.)

A short time ago a trainload of airmen quietly slipped into Crafts unheralded. Silently we stood in the noonday sun gazing at the imposing buildings comprising our new home. As others who stand in this spot for the first time, we experienced a mingled feeling of uncertainty and anticipation as to what lay behind those glistening white walls. We had come from all parts of Canada—from banks, from stores and from offices—to form the Second Pay-Accounting Corps. Behind most of us lay the exciting first days of army life; the new and strange experiences that dog the footsteps of a raw recruit. Before us was a thrilling plunge into a new way of life.

Settled comfortably in quarters palatial by contrast to our last "digs," we began our training. Lectures on the handling of accounts, methods of recording and checking do not compare in breath-taking drama to riding a silver-winged Pegasus through the sky. But while our lucky brothers do the flying, we do the office work and rejoice that to their deeds of valour an efficient pay staff makes its contribution. When you think of the Air Force, you immediately call to mind thundering motors, helmeted pilots, quick-fingered gunners and keen-eyed observers. In the maintenance of one such machine and its crew the part of a clerk accountant may not loom large. But one plane is not an Air Force. Neither is fifty or one hundred. It is only when you think and build in terms of thousands of machines that you can lay claim to possessing an air arm. When you envisage air effort on a big scale, problems of servicing, maintenance and equipment play their part. Today we are out to build the largest Air Force in the world. That means the problem of equipment will be tremendous. Mountain loads of material must be available and delivered on the hour. Men must be skilled in their service and happy in their task. Contributing to an airman's welfare is undoubtedly his pay. So we accountants come into the picture—in a roundabout way, perhaps—but come in we do, justifiably and necessarily.

Sometimes when we think about this massive organism, the Royal Canadian Air Force, and our part in it, we are reminded of the story of the workmen and the cathedral. One man working on the great task answered the ques-

tion as to what he was doing by saying he was earning a dollar-thirty a day. Another replied that he was cracking stone. A third man declared that he was building a cathedral. While it is not wings for us, but desks, ledgers and ink-pots, still we are helping to fashion that blow which, when fully delivered, will cast the yoke of slavery from the necks of oppressed people.

* * *

THROUGH DISCIPLINE TO VICTORY

An ardent young man fell desperately in love with a professor's daughter. His passion quickly swept the maiden off her feet, and the young lover approached the girl's father to ask for parental consent to marriage. He poured his ardent tale into the ear of the man of science: "Sir, I love your daughter as my life. I live for her smile," and other kindred statements.

The father looked and listened, and then brought forth this: "My dear young man; go away and study mathematics." The reply might seem terribly unsympathetic and mark the father as a crusty old bird, but actually he was advising a course of action that is most necessary to successful living. In his wisdom he knew that the first thing this young man's love needed was not satisfaction, but discipline. His affection was in the stage of "gushy" sentiment, and it must be trained into a steadfast emotion. A plunge into mathematics would help. If his love survived the ordeal, then it would be a passion worthy of his daughter's hand and the parental blessing.

This is a parable. It fits our present situation exactly. We are at war. We are enthusiastic about it. We believe in our cause. We have faith that we will win. But between us and victory is a long, hard, arduous journey which will require discipline.

The discipline of the dictator; a state imposed authority; a government required obedience—is not enough to spark Democracy's war effort. There has to be from us a willing acceptance of discipline—a freely given devotion to the cause. The drill sergeant may work an awkward squad into the King's Regiment, but there are tasks that he cannot accomplish. There are awkward, undisciplined aspects of our nature that only we ourselves can subordinate and bring into line. That man is a drag on

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the chariot wheels of victory whose life is a disorder of conflicting inner emotions. To win the war it is not enough to take the kinks out of our parade muscles; we must have a mastery of our spirits. A disciplined body; a disciplined mind; a life in every part serving the cause of the liberation of man is the need of the hour.

"Go and study mathematics!" was the challenge to the young lover. "Through discipline to victory" is the road we must travel to freedom.

* * *

"A LETTER HOME"

Amongst the personal belongings of a young R.A.F. pilot in a Bomber Squadron who was recently reported "Missing, believed killed" was a letter to his mother—to be sent to her if he were killed.

"This letter was perhaps the most amazing one I have ever read; simple and direct in its wording but splendid and uplifting in its outlook," says the young officer's station commander. "It was inevitable that I should read it—in fact, he must have intended this, for it was left open in order that I might be certain that no prohibited information was disclosed.

"I sent the letter to the bereaved mother and asked her whether I might publish it anonymously, as I feel its contents may bring comfort to other mothers, and that everyone in our country may feel proud to read of the sentiments which support 'An average airman' in the execution of his present arduous duties. I have received the mother's permission and I hope this letter may be read by the greatest possible number of our countrymen at home and abroad."

Here is the text of the letter:

"Dearest Mother,

"Though I feel no premonition at all, events are moving rapidly and I have instructed that this letter be forwarded to you should I fail to return from one of the raids which we shall shortly be called upon to undertake. You must hope on for a month, but at the end of that time you must accept the fact that I have handed my task over to the extremely capable hands of my comrades of the Royal Air Force, as so many splendid fellows have already done.

"Firstly, it will comfort you to know that my rôle in this war has been of the greatest importance. Our patrols far out over the North Sea have helped to keep the trade routes clear for our convoys and supply ships, and on one occasion our information was instrumental in saving the lives of the men on a crippled light-house relief ship.

"Though it will be difficult for you, you will disappoint me if you do not at least try to accept the facts dispassionately, for I shall have done my duty to the utmost of my ability. No man can do more, and no one calling himself a man could do less.

"I have always admired your amazing courage in the face of continual setbacks; in the way you have given me as good an education and background as anyone in the country; and always kept up appearances without ever losing faith in the future.

"My death would not mean that your struggle has been in vain. Far from it. It means that your sacrifice is as great as mine. Those who serve England must expect nothing from her; we debase ourselves if we regard our country as merely a place in which to eat and sleep.

"History resounds with illustrious names who have given all, yet their sacrifice has resulted in the British Empire, where there is a measure of peace, justice and freedom for all, and where a higher standard of civilization has evolved, and is still evolving, than anywhere else. But this is not only concerning our own land. Today we are forced with the greatest organized challenge to Christianity and civilization that the world has ever seen, and I count myself lucky and honoured to be the right age and fully trained to throw my full weight into the scale.

"For this I have to thank you. Yet there is more work for you to do. The Home Front will still have to stand united for years after the war is won. For all that can be said against it. I still maintain that this war is a very good thing; every individual is having the chance to give and to dare all for his principle, like the martyrs of old. However long the time may be, one thing can never be altered—I shall have lived and died an Englishman. Nothing else matters one jot nor can anything ever change it.

"You must not grieve for me, for if you really believe in religion and all that it entails, that would be hypocrisy. I have no fear of death; only a queer elation. . . . I would have it no other way. The universe is so vast and so ageless that the life of one man can only be justified by the measure of his sacrifice. We are sent to this world to acquire a personality and a character to take with us that can never be taken from us. Those who just eat and sleep, prosper and procreate, are no better than animals if all their lives they are at peace.

"I firmly and absolutely believe that evil things are sent into the world to try us; they are sent deliberately by our Creator to test our

mettle because He knows what is good for us. The Bible is full of cases where the easy way out has been discarded for moral principles.

"I count myself fortunate in that I have seen the whole country and known men of every calling. But with the final test of war I consider my character fully developed. Thus, at my early age, my earthly mission is already

fulfilled and I am prepared to die with just one regret and one only—that I could not devote myself to making your declining years more happy by being with you; but you will live in peace and freedom and I shall have directly contributed to that, so here again my life will not have been in vain.

"Your Loving Son."

* * *

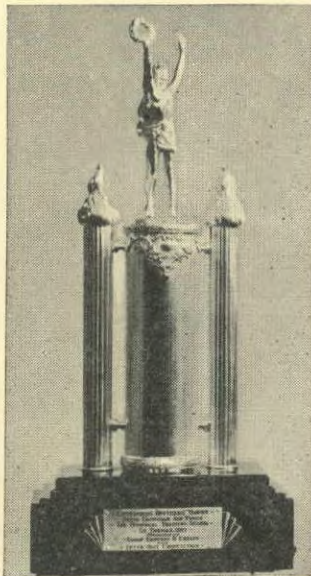
« « SPORTS » »

No. 1 SQUADRON, 1 WING, WINS THE COMMANDING OFFICER'S TROPHY

On Saturday, September 14th, Wing Commander Case, in the absence of Group Captain R. Collis, presented the Commanding Officer's Trophy to No. 1 Squadron, 1 Wing. This Trophy, donated by the Commanding Officer, is up for monthly competition and is presented to the squadron which compiles the largest number of points in the sports sponsored for the month.

This is the third trophy No. 1 Squadron has captured this season. On July 13th they won

The Commanding Officer's Trophy



the Hepinstall Trophy in their Wing Inter-Squadron Track Meet, when they defeated No. 2 Squadron in a close finish. On August 22nd

they again emerged victors in the Station Inter-Squadron Track and Field Sports.

The competition, however, was by no means one-sided. Close on their heels at all times were E. & A. T. S. and No. 3 Squadron, 2 Wing. The final results were as follows:

No. 1 Squadron, 1 Wing	10 points
E. & A. T. S.	7½ points
No. 3 Squadron, 2 Wing	7 points

* * *

OUR CRICKETERS WIN TWO TROPHIES

Our Station team defeated the London Nationals on September 7th, to win the Enterprise Trophy. The T. T. S. players had the game well in hand from start to finish. This victory not only gave our team the Enterprise Trophy but also the Moore Trophy, which is emblematic of the League Championship.

Following the game the two trophies were presented by A. W. Grundy and were received by Squadron Leader Macey, Captain of the Station Cricket Team.

The editors wish to take this opportunity to offer congratulations to the Captain and all the players for the splendid showing made.

The line-up of these enthusiastic players is as follows: S./L. Macey, Captain; Sgt. Thompson, Vice-Captain; Sgt. Jeffrey, Sgt. Clancey, Sgt. Ireland, Sgt. Edney, P./O. Kent, Cpl. Joyce, Cpl. Richards, Cpl. Hoare, A.C./2 Bradley. Reserves: Cpl. Read, P./O. Murrel. Umpire: Cpl. Hebden. Scorer: Cpl. Barling.

* * *

AQUATICS

The lack of a swimming pool on the Station has not prevented our swimmers from making a splendid showing. During the month of August and the early part of September swim-

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ming practice was carried out at Lake Pinafore, and with the weather cooling down, the swimmers are now making full use of the Y.M.C.A. swimming tank in St. Thomas.

On August 18th the aquatic team competed in the Service Championships at Sunnyside Beach, Toronto, and won third place in the backstroke and third in the medley relay. At the Service Meet held at the Toronto Exhibition the same team placed second in the 400-yard relay and third in the 100-yard free style.

The Y.M.C.A. have very kindly reserved a night for the airmen of this School who wish to join the swimming class. W.O./1 O'Neil is the Chairman in charge of this sport.

* * *

TENNIS

Tennis is proving to be one of the most popular games on the Station. So keen has been the interest manifested in friendly matches that the elaborate schedule calling for forty-two inter-squadron games has been cast aside and a simple seven-game knockout schedule has replaced it. This will give a maximum of playing time to tennis enthusiasts.

A Station Tennis Committee has been formed, consisting of representatives from each Squadron, Headquarters and E. & A. T. S. Corporal Palmer of the R.A.F., in No. 2 Squadron, 1 Wing, is Secretary, and letters of inquiry should be addressed to him.

The heavy rains of the past few weeks, while delaying games and schedules, have helped to settle the courts and harden the playing surface. Constant rolling will still be

* * *

required, however, before the grounds are in satisfactory condition.

The Y.M.C.A. has already given us twenty tennis rackets and seven and one-half dozen balls, and they are expected to give us another ten rackets. This equipment is available at the Sports Stores to all airmen except on those evenings when scheduled matches are played.

The attention of players is called to the list of rules placed over the entrance to the courts. Your adherence to these is requested.

* * *

DOMINION SERVICE CHAMPIONS



This team won both the 440 and 880-yard relays at the National Championships held at Hamilton in August. From left to right: A.C./2 Murray, A.C./2 Hutchinson, A.C./2 Murray, Cpl. Richards, Sgt. Evans.

* * *

« STATION STATIC »

HEDGE HOPPIN' IKE WRITES TO HIS GIRL FRIEND

St. Thomas.

Dere Molly:

I promised I'd write you soon as I got settled, and since I been here two weeks and haven't got the hang of it yet, I thought I'd better write you anyway and let you know that I love you truly.

Gee, kid, you oughta see the house we're livin' in. It's like a bloomin' hotel, except that it doesn't go up so high in the air and it is more spread out. The poet would call it "a noble

pile," but the boys speak of it as a "swell dump." It's got the hotel back home licked a mile. There's bathrooms all over the place and Ma sure got a shock when I told her I took a bath every day. I heard her tell Pa that the Air Force was learning me clean habits. He said, "Oh, yeah! Well, you should take a look at his tongue; I haven't noticed anything very clean emanatin' from that organ." Now, what the blazes did he mean by that?

But to tell you more about the house we're livin' in. The boys tell me it used to be a "loony bin"—that means a "a jug for nuts," and since the Air Force didn't have no home when the

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War started, they run us in here for the time bein'. It's an awful big place. I got lost the other day on my way to bed and didn't know where I was till I got into the detention barracks. For every hallway above ground there's a tunnel underneath. To walk around these passageways takes a fellow half a day, and when you're finished, you think you're some relation to Oliver Twist.

I live in Wing 2, Squadron 3. When I say I live in a Wing, don't think of me going to roost like a bloomin' chicken. A Wing here means one side of the house. There's two Wings and a Middle. The Officers have workrooms in the Middle and the boys live in Squadrons in the Wings. Now a Squadron—I don't know hardly how to explain it to you—it hasn't anything to do with Squaws or Indians. I heard one fellow say it was derived from the word "Squab," which means a young pidgeon. Instead of calling us a flock of young pidgeons, we are known as a Squadron. I wonder what guy thought up that one. It must have been an R.A.F. bloke. They call things funny names. A guy in our Squadron was broke the other night and he went around trying to borrow a buck or two. I heard an R.A.F. Sergeant telling a Corporal: "Don't give him a penny. He's a bloody imposta and hasn't got a sausage." We thought it was rich.

Livin' swell like this sorta made me humble at first, but the boys got me off it. They say it's comin' to us—lookit what the R.A.F. is doin' every day to old Jerry. Before this war's over everybody in the Air Force will have a title and the country will be eating out of our hand.

A pal o' mine is yellin' for me to join him. He says he's got a coupla hot dates for the evening—whatever that means. I'm not up too well in the talk around here, but I'll write and let you know.

Your lovin' boy friend,

IKE.

P.S.—Remember me to your Pa and Ma. and tell them from me that we're working hard and everything is gonna be alright.

MOLLY'S REPLY

Valley Farm,
Mapleville, Ont.

Dear Ike:

Gosh, but I was glad to get your letter, but still it made me kind of mad, and I'll tell you right now it was the end of your letter that made me jealous—if I ever would get jealous!

You said your pal had a "couple of hot dates." Well, you may be dumb but you're not

so dumb as to think hot dates might be some kind of fruit—or visiting your pal's grandmother. I heard there was a lot of mothering done to the boys in the Air Force, so they wouldn't be lonely, but that sure don't look like mothering to me. Well, Ma says it's a man's world and they'll always get the best of it and that you are all like children and that you love getting into a uniform and strutting around. I'm glad to hear you have so many baths—but I don't see how that is going to help beat Hitler. I should think Saturday night would be enough—seems an awful waste of hot water to me. I read in a magazine somewheres that women spend two-thirds or four-fifths or whatever it was of the country's money and I just kind of feel if we could do some of the spending for this here war that we might do a darn sight better than men.

It must be fun living in a big place with lots of room to roam around in. Down here we all seem on top of each other—when I go to bed I can hear Pa snoring in the next room and the kids in the next room make such a noise it sounds like a blitzkrieg, or whatever that new word is. I always seem to lie awake for a while kind of day dreaming, thinking of what we will do after the War. Gee, it is lovely after the rain today—the raindrops looked so glistening in the sun and everything looked fresh and bright—even the pigs looked kind of pretty and cleaned up.

There's talk they may build another Air School near us and that would be some excitement. Then I'll start and do a little mothering myself to lonely boys. No, I'm not jealous—it's just that I'm your girl friend and I miss you so.

Write to me soon.

Your loving girl friend,

MOLLY.

* * *

THE SUPPER SQUABBLE

Cpl. J. B. Lome

Tonight at supper Chippie, our Cook, brought in the "dizzert," which was tapioca pudding. Corporal Gloop began the trouble by observing on the appearance of the dish, "Aw, heck, tapioca." Just three words, and yet a bomb couldn't have let fall a deadlier load. If he had said, "Oh, goodie, tapioca," he would have received a contemptuous stare from the boys and been thought a queer bird whose tastes might be off on women, cigarettes and horses. Following his exclamation a storm broke out at the table which almost disrupted messing. It wasn't that the boys agreed with him and followed his condemnation with still more damning epithets. What actually did hap-

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pen—and it is almost beyond belief—as one man (ad unum) they ran to the support of tapioca and waxed eloquent in its defence. Personally, I have never cared for “fish eyes,” as tapioca is known at our family board, but when the gang got through dressing it up I was really slavering around the mouth in my desire to give it a fresh try.

Chippie got sore first, and he says to Corporal Gloop, “What the hell,” says he, “Don’t you appreciate good grub? You need a course in diatetics—there is enough punch in this food to stack a guy up against a platoon of Nazis.” “You can’t fool me,” retorts the Corp. “I’ve been around, see, and I know what’s O.K. in the food line and tapioca is tapioca and I never sat down to the dish but what my stomach rolled over twice in a bid to get away.”

“Looka here,” says Pop Whoozit, “if you were livin’ in Germany you’d be glad to finish off with tapioca. In fact, you’d be glad to make a whole bloomin’ meal off it. In my opinion it keeps in the running with lemon meringue pie, chocolate layer cake and bread pudding.”

It was here that some of us began to think that “fish eyes” was, after all, a dish for the gods.

“But G. roozlem, fellows,” says Corporal Gloop, “look at all the terrible things ‘tapioca’ rhymes with. You can tell a man by the relations he has, and tapioca’s near friends aren’t so interesting. Tapioca rhymes with ‘choke-a’, and it fills me up through the throat to the ears in a couple of mouthfuls. It also rhymes with ‘joke-a’,” continued the Corp, strengthening his case, “and that is what it threatens to make out of any guy who sticks up for it. And furthermore, if you chase down its family tree a little further you’ll find it rhymes with ‘croak-a,’ and who wants to be bumped off by anything less than a full Nazi blitzkrieg?”

“Wrong thinking,” continued the Corporal, warming to his subject. “Wrong thinking in certain subjects can be ruinous. You can think wrong about the horses and only lose a little dough; you can misjudge the women and only lose a little sleep; but misjudge desserts and give tapioca the glad hand and you’ll mess up your digestion, destroy your disposition and lose the war.”

Following this peroration, the Corporal sat down, and by the way that all eyes were fastened upon him it was obvious that his words had set us thinking.

* * *

FROM A MODERN PILOT

There ahead of me at last was my objective.
With a sigh of relief I switched off the automatic map feed,

Leaning forward from my luxurious seat I switched off George,

Turning to the wireless equipment I faded out Charlie McCarthy and faded in the R. T. operator;

Rapidly winding in the direction finder, I requested permission to land.

Switching with speed that deceives the eye, over to “Receive,” I got the “O.K.”

I turned on the infra-red landing light,

I wound in the aerial,

I wound out the telescopic section of the wing,

I protruded the retractable venturi,

I switched off the de-icer,

I switched off the cabin light,

I unlocked my slots,

I lowered both legs of my retractable undercart (I hope),

I wound down the retractable tail wheel,

I altered the set of my V.P. airscrew,

I performed an incredible contortion as the direct result of having to perform the last four duties concurrently because of the nearness of the aerodrome.

The aeroplane performed an outstanding manoeuvre as the direct result of this.

I switched off the cabin heater and wiped the sweat off my brow.

I wound down my slotted flaps,

I wound the tail adjusting wheel back;

Seizing a frenzied moment, I close the throttle and immediately began to wind out my landing lights,

I wound in my radiator,

Finally, as the immediate value of time decreased, I wound in my retractable oil-cooler.

Leaning back, I switched off the air-conditioner. A moment later, just as I landed, I leaned forward again.

* * *

It was the wrong aerodrome,

So, opening the throttle, I swiftly flew away again, winding everything in and out as I went.

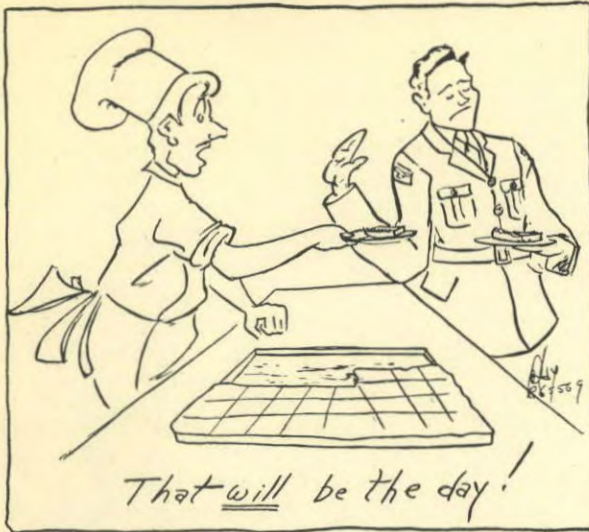
—Copied from the “Aeroplane.”

* * *

Answers to the Distressed . . .

“Q.P.”: Please attend more to your lectures. The word is “Coslettizing,” not “Corseletising.”

“Anxious”: You are most definitely misinformed. The lecture was on “Corrosions and Organic Protection Against.” It has nothing to do with birth control or hygiene.



* * *

“THE DAILY ROUND”

By M-K-M

When it's early in the morning
And the sun's still out of sight,
Our Corporal comes and bellers:
“It's time to light the light.”

We jump into our britches,
And to the washroom door,
We shave our day-old whiskers,
As we never shaved before.

We line up in the corridors,
To breakfast is our aim,
The gang grows large and larger,
You'd wonder from where they came.

And after breakfast's over,
Off to school we go,
We form squad on the parade ground,
And to respective classes flow.

You hear a sigh and hear a groan,
Then you hear the Corporal holler:
“Come on! Wake up! you sleepy mugs
And get into the collar.”

We struggle through from morn till noon
And thoughts of dinner in us loom,
We make a rush for the mess hall door,
It'll be the same old beef as we had before.

The bread is good, the butter's fine,
The rest we'll leave till another time,
Then dinner is over and back to school
Where we all learn “The Golden Rule.”

Then back in school we sit and think
Of what our Corporal said,

And wonder if we'll pass along
Or be listed in the “red.”

It's four o'clock and all is well,
To our instructors we bid farewell,
Then back to the barracks to study a little
While somebody rasps a tune on a fiddle.

This sounds like a sad and dreary tale,
But who are we to whine and wail;
We joined the force of our own free-will
And now we are going to show our skill.

We're proud of the force, we like our name,
We'll do our best to win it fame,
And when we're home after all is o'er,
We'll think of the boys at the mess room door.

* * *

**WHAT WE LEARNED AT SCHOOL
THIS WEEK**

That there ain't no “Ply Tree.”

That “Strut” is not necessarily a word con-
fined to the description of disciplinarian per-
ambulation.

That “Tractor Aeroplane” is not an aircraft
used to plow or cultivate the clouds.

That “Dope” is not merely a descriptive
epithet.

That “Aerofoil” is not what new planes are
wrapped in.

That “Gyroplaner” is an A.C./2, A.F.M.
(Wood), whose support is derived chiefly from
the reaction of the air on one or more freely
revolving root beers.

* * *



THE C. D. C.

Cpl. R. B. Lackey

Attached to this here station
Is a unit very small,
But very, very strangely
It is dreaded by them all.

Yes, each A.C./2 will shiver
When he sees on D.R.O.
That today he'll suffer plenty—
To the dentist he must go.

There's no reason for his moaning,
Nor cause for all his fuss;
Why should a little filling
Make him kick, and shriek, and cuss?

But the dental clinic's branded
By the airmen who go there
As a legal torture chamber
Where their teeth are given care.

Damn it; if they'd only realize
That the dentist means no ill,
But is carrying out his duty—
These cavities he must fill.

Those dental lads are really fine,
Their hearts are stout and true;
If they wouldn't hurt a tiny fly
I'm sure they won't hurt you.

We mentioned that the unit
Was very, very small,
But were it not for dentistry
You'd never eat at all.

Now, airmen, please remember,
When your tooth was very sore,
That those who took the pain away
Were the Canadian Dental Corps.

* * *

AT RANDOM

He sits depressed and dejected,
Dull and vacant his stare;
It is so distressingly obvious
He hates to be there.

The mail, the guard, the ailing
Are all his thankless lot,
And a long wait till the still of the night
Is all the future he's got.

So, as you recline in the parlour,
Quaffing a careless jug,
Think of the Orderly Corporal,
Poor, disconsolate mug.



BOY! IS "THUR" SHOOTING LOUSY!!

* * *

A FEW FLASHES FROM No. 3 SQUADRON, 2 WING

By A.C./1 Carroll, A. W. J.

When I was asked to be editor of this column, I was thrilled. My spirits soared among the clouds. I had visions of doing it up in true Shakespearean style, but when I took hold of the controls my motor began to splutter, jerk and gasp—it was evident that my tank was empty. Now that I am down to earth, I will make a try.

I must not neglect to congratulate our athletes for their good showing in the Commanding Officer's Trophy Series last month. They are doing well again this month, and with our good friend Corporal Lee at the sports helm, we feel confident that we shall win.

I am making a special appeal to all you "ten second" men who were world beaters in your prime back home. Corporal Lee needs champions like you to fight for the squadron.

Our Tug-of-War coach thinks his Team would pull the whole Station if they had proper boots.

Overheard in No. 3 Squadron: "If brains were dynamite, you wouldn't have enough to blow a whistle."

Congratulations to the lads who have joined the ranks of wedded bliss. May their road be

long, happy and successful, and their troubles little ones.

A thoughtful airframe mechanic, seeing me struggling with this column, kindly contributed this little poem:

*These Airframe blokes
Are simple folks,
They're not much good at riggin';
If they're not careful
They will find
That trenches they'll be diggin'.*

* * *

WONDERS OF No. 3 SQUADRON 1 WING

A.C./2 Norman

We wonder . . .

Why the little short guy in E. E. 15 has to stand on a table and hold a tool box.

When "Andy" of Bay 10, B Floor, is going to buy some cigarettes and shoe polish.

Why "Harry" didn't get a pencil.

Why so many boys have muddy shoes in the morning.

Why we can't go to Florida this Winter.

Why "Slim" can't get a bed to fit his form.

Why the S. P's are so hard on the poor airmen.

What makes "Red" think he is Air Marshal.

Why the Orderly Sergeants and Corporals don't believe all the stories the boys bring in.

Why we can't have more forty-eight hour passes.

Why "The Superman" didn't wake up on Sunday morning, September 8th.

Why so many airmen on B Floor with so many hours flying are engine mechanics.

Why the "Chief" looks so depressed these days.

Why "Al" is leaving us.

Why those two classes were a half hour late getting out of the lecture room.

Why "Smokey" doesn't get out of bed when he should.

Why "Swackhammer" never gets out of the right side of his bed.

Why "The Superman" goes to London so often.

Why "G. S." looks so happy this last while.

Why "Doc's" bed broke down at two o'clock one morning.

Why we don't run out of bacon some morning.

Why No. 2 Wing comes to our mess when we are on early routine.

Why that red-headed Corporal is so cranky.

Why the boys from the East always argue with the boys from the West.

What is a foo-foo valve on an aeroplane engine.

Why that certain artist in No. 3 Squadron doesn't draw a picture for our paper.

How many of us will be G. D's after our final trade test.

* * *

THE EDITOR'S LAMENT

A lot of people think that editing a newspaper is easy, but from experience we can say that it is no picnic, because readers are hard to please.

If we print jokes, people say we are silly.

If we don't, they say we are too serious.

If we clip things from other newspapers, we are too lazy to write them ourselves.

If we do, we are stuck on our own stuff.

If we don't print contributions, we do not appreciate true genius.

If we do print them, the paper is filled with junk.

If we make a change in the other fellow's write-ups, we are too critical.

If we don't, we are asleep.

Now, like as not some guys will say we swiped this from some other newspaper.

And we did!

* * *

The Trade Test Board interviews A.C./2 Snooks:

Corporal: "What is ordinarily used as a conductor of electricity?"

A.C./2 Snooks (all at sea): "Why - er -"

Corporal: "Wire. Correct! Now tell us, my bright young man, what is the unit of electric power."

A.C./2 Snooks (confused): "The what, sir?"

Corporal: "Exactly, the watt. Very good, that will do."

* * *

New Record Set Up

An Airman: "How does that clock go that you won at the Service Championships?"

The Champ: "Absolutely fine. It does an hour in fifty minutes."

STATION ACTIVITIES

THE APPLE HARVEST TOUR

By A.C./2 Neddow, L.

Three hundred boys from the Prairie Provinces spent an enjoyable afternoon on Sunday, September 8th, as guests of First Church United, St. Thomas, when they were taken on an interesting tour through Elgin County. The outing was but one of several which have been organized by the Station Director of Y.M.C.A. Services.

The tour was led by W. H. Mills, M.P., Group Captain R. Collis, Mr. L. B. Birdsall of the Times-Journal, and Rev. Mr. S. Edworthy, Pastor of First Church.

One of the highlights of the tour was the visit to the Bombing and Gunnery School under construction west of Fingal, where the

Airmen were able to walk through and see the quarters for Officers and Airmen, as well as the hangars and runways that were nearing completion.

From here the great motor cavalcade moved on to the fruit district. Attention was drawn to the historic Quaker settlement in the peaceful valley of Sparta. The tour passed slowly through the Village of Sparta to give the boys an opportunity to observe the old Quakers' love for simplicity, which was expressed in the architecture of the older buildings.

The most exciting phase of the whole outing was the pause in one of Mr. Mills' orchards. The "stubble jumpers" lost no time eating their fill of the delicious apples, and at the same time tucking away a few to take home to pals who were unable to take the trip.

* * *

« DO YOU KNOW? »

That 1,500 Airmen have enjoyed the Sunday afternoon tours organized by the Station Director of Y.M.C.A. Services in cooperation with citizens of St. Thomas.

* * *

That you are invited to join the Fencing Club which meets every Monday and Wednesday. For particulars, please inquire at the Y.M.C.A. Office.

* * *

That the Baptist Church invites the Airmen to attend their Fireside Hour held every Sunday evening following the service.

* * *

That Airmen desiring accommodation for their wives and families in St. Thomas may secure a list of rooms for light house-keeping, apartments and vacant houses from Padre Porter, Padre Howard or E. R. McEwen, Y.M.C.A. Secretary. The St. Thomas Times-Journal has provided us with a list of over 100 places offering accommodation to Airmen. Many have found satisfactory quarters with a minimum of trouble through the use of our catalogue.

That you are invited to join the "Toc H" Club. For details, please contact Corporal Baker, No. 2 Squadron, 2 Wing.

* * *

That the R.C.A.F. Camera Club meets every Wednesday night at 1830 hours next door to No. 1 Wing Orderly Room.

* * *

That your uniform gives you full membership privileges in any Y.M.C.A. in Canada.

* * *

That your contributions to this paper will always be appreciated.

* * *

Wonderful Scientific Discovery by A.C./2 A. F. M.

Air is an invisible liquid two miles thick which goes all wavy. It is made of oxygen, nitrogen, viscosity and inertia.

* * *

The Easy Way

To tune an undercarriage, put her in rigging position and tighten your braces.

* * *

Medical Howlers

Neglect of a cold might develop "ammonia."

ALL RANKS



"REMEMBER - Never discuss military, naval or air matters in public or with any stranger, no matter to what nationality he or she may belong.

The enemy wants information about you, your unit, your destination. He will do his utmost to discover it.

Keep him in the dark. Gossip on military subjects is highly dangerous to the country, whereas secrecy leads to success.

BE ON YOUR GUARD and report any suspicious individual to your Squadron Commander or Civil Authorities."

TECHNICAL TOPICS

HYDRAULIC SERVICES FOR AIRCRAFT

Development, Description and Maintenance

* * *

Analogy

Before considering the very important and intricate problem of Hydraulic Services for modern high speed aircraft, let us compare bird flight with that of the aeroplane. Take as an example the Kitehawk, familiar to all who have served in the East.

This bird is noted for his fine flying abilities and his good work as a scavenger. Soaring aloft, he spots his prey, swoops down to earth to seize it and then, with prey in claws, he swiftly climbs to a safe height there to survey it. He may decide to make for a safer, more isolated spot, so tucking both prey and legs close in to his body he makes for his objective. "Retracting" his "chassis" reduces his head resistance and saves him a lot of effort. Arrived at his objective, legs and prey are lowered and he alights to enjoy his capture.

Development

Therefore, since man first conceived and flew an aeroplane, it has been an accepted fact that all exposed parts of it, with the exception of the aerofoils, produce only drag, one of the biggest enemies of the designer. This is particularly true of the undercarriage, which, although a necessary adjunct when the aeroplane is landing or taking off, produces more drag than any other component when the aeroplane is in the air. Various methods have been made in the past to reduce this drag, none of them very successful. In recent years, however, designers have been able practically to eliminate it by retracting the undercarriage into the wings or engine nacelle. This retraction is accomplished as follows:

(I) Mechanical, electrically operated; and

(II) Hydraulic, engine operated.

A third method, manually operated, has long been abandoned as being too slow and cumbersome.

Retractable landing gears involve increased weight and maintenance, but these disadvantages are more than offset by the reduction in head resistance with an appreciable increase in speed and also by the fact that the same installation caters not only for the landing gear

but for such additional services as wing flaps, and retractable radiators on commercial aircraft, and bomb doors, bomb carriers and gun turrets on fighting aircraft.

Of the two methods of operation, the hydraulic one has proved the most popular, both in Great Britain and the United States. It has proved popular because it can be adapted so easily to the designer's requirements inasmuch as he has only to deal with simple calculations in pressures and areas. It is peculiarly suited to the operation of services additional to the landing gear, while it reduces the operational work of the pilot and frictional losses to a minimum.

Principles of Hydraulics

The successful operation of all hydraulic systems is dependent upon long established hydraulic principles, the most important of which, from a reader's point of view, are:

(I) A fluid, practically speaking, cannot be compressed; and

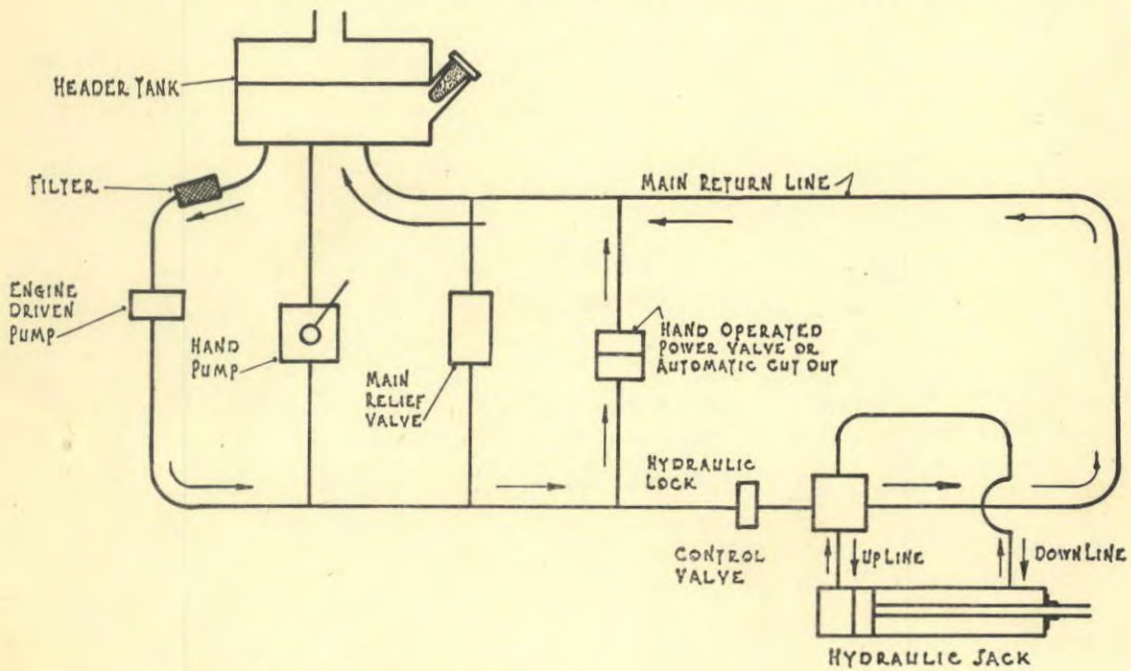
(II) Fluid pressure is distributed equally in all directions.

Thus, a pressure applied to one end of a confined column of fluid will be transmitted by the fluid to the other end of the column and to the walls of the container confining the fluid. Air present in the fluid will mean that the transmission of pressure will not be instantaneous, the air causing a time lag similar in effect to the slack in a rope or chain subjected to a tensional load.

Fluids used in aircraft hydraulic systems must conform to certain standards. They must act as a lubricant for the internal moving parts, be non-injurious to flexible parts and must not readily change their volumes when subjected to large variations in atmospheric temperature. It will later be seen that provisions for changes in volume are incorporated in all hydraulic systems.

A careful study of a number of aircraft hydraulic systems will show that certain parts or components are common to most of them. Thus it will be found that most systems have a header tank or reservoir, an engine-driven pump and a hand pump, a power valve and a control valve or their equivalents, hydraulic jacks, mechanical and hydraulic locks, relief valves, indicators, an emergency method of lowering the landing gear and usually some form of safety

DIAGRAM OF TYPICAL HYDRAULIC SYSTEM OPERATING ONE JACK



NOTE - ASSUMING THAT EXTENSION STROKE OF JACK RAISES COMPONENT

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control lock. These components and their functions are discussed below.

DESCRIPTION

Header Tank or Reservoir

Provides a gravity feed to both the engine-driven pump and the hand pump, acts as a storage container for excess fluid, and ensures an adequate reserve of fluid for use by the hand pump in the event of engine failure.

Engine-Driven Pump

The main pump of the system. It must be capable of producing a steady output which is sufficient to cater for all requirements of the system even at fairly low engine speeds. A steady output ensures that the services are not operated in a series of jerks. The pump may be of the Gear type (one, two, or three stages), the Rotary Annular Displacement type, or the Multi-Cylinder Plunger type.

Hand Pump

Enables the pilot to operate all the services when the aeroplane is in the air and the engine has failed, and the mechanic to ground test the services before and after flight. Most pumps are of the steady continuous delivery type, having a low output in order to keep the physical effort required to operate the pump as low as possible.

Power Valve

Since the engine pump is working all the time the engine is running, some form of valve must be introduced to enable the pump to circulate the fluid at little or no pressure during the periods when the services are not being operated. This valve is known as the "Power Valve" and its action may be hand controlled or automatic. When the valve is open, the fluid is said to be "idling," or being circulated by the pump under "free circuit" conditions, that is to say, the pump is delivering fluid to the power valve which allows it to return to the header tank. Closing the valve shuts off the pipe line leading to the tank and the fluid is now diverted, under pressure, by the pump, to what is termed a control valve or a selector valve, thus introducing the "power circuit."

Control Valve

The control valve determines the subsequent direction of flow of all fluid routed to it by the power valve, much in the same way as traffic lights control traffic flow. It is designed in such a manner that any "selection" may be obtained by moving the appropriate lever on the valve, movement of the lever being effected directly, or indirectly, using some form of remote control. Thus, to retract the landing gear, the pilot would move the landing gear

lever into the "up" position. Some aircraft have a separate control valve for each service, but modern practice groups them together in one unit.

Hydraulic Jack

The function of all the jacks on an aircraft hydraulic system is to convert the pressure developed by the engine pump into useful work, the work being to move the landing gear, the flaps or any other component into the position desired by the pilot. They comprise a piston and piston rod operating in a cylinder having pipe line connections, either directly or indirectly, at both ends.

Hydraulic Lock

In order to secure components in the positions desired by the pilot, devices, usually non-return or check valves, are incorporated in the system which trap the fluid in the pipe lines and jacks of the service it is desired to lock. Fluid pressure is used to release or by-pass the lock.

Mechanical Lock

The use of this type of lock is usually confined to the landing gear where additional security, especially in the "down" position, is desired. Engagement of the locks is usually automatic, release being effected either by the initial movement of the jack piston or by movement of the control lever.

Relief Valves

These are merely non-return valves, loaded to relieve at a certain pressure. Every system has a main relief valve which relieves loads caused by excessive pressures being set up by the engine pump, valves which allow for expansion of the fluid due to increases in atmospheric temperature and valves in the flap service which open in the event of the flaps being subjected to air loads liable to damage the structure.

Indicators

Mounted on or near the cockpit dashboard, the indicators show the pilot the position usually only of the landing gear and flaps. They take the form of red and green lights and models or pointers for the landing gear, and models or pointers for the flaps. As an added precaution, a buzzer is incorporated in the landing gear circuit which sounds if the engine throttle is closed with the landing gear retracted.

Emergency Extension of the Landing Gear

In the event of failure of the hydraulic system, i.e., both pumps being inoperative, various devices are incorporated on different aircraft which enable the pilot to lower the landing gear. The landing gear of aircraft

employing sideways retraction will usually fall under its own weight (Hurricane and Harvard), while others use compressed air or gas such as carbon dioxide. In all cases, care is taken to ensure the engagement of the mechanical "down" locks.

Safety Control Lock

Such a device prevents accidental movement of the control valve lever into the "wheels up" position and therefore inadvertent retraction of the landing gear with the aeroplane on the ground.

Maintenance of Aircraft Hydraulic Systems

In studying the development and description of aircraft hydraulic systems, the mechanic is but taking a natural step towards his ultimate goal, i.e., efficient and intelligent maintenance. This aspect of the subject cannot be described in any precise, rule-of-thumb manner, but there are certain generalizations and conclusions the mechanic would do well to learn. These are described under their appropriate sub-headings.

Draining

Draining means the running off or emptying of fluid from a complete hydraulic system or a part of it, necessitated by damage to components or pipe lines, or by the removal or components, such as the wings, from the complete aeroplane. The guiding principles of the operation are:

(I) Only the minimum amount of fluid should be drained.

(II) Allow the fluid to run into a clean container.

The fluid used in most systems is not only expensive but also an effective paint and varnish remover and every effort should therefore be made to make the draining operation as "clean" and economical as possible.

On some aeroplanes, the Fairey "Battle" for instance, special provision is made for draining, but the mechanic should remember that a considerable saving in time may often be effected by draining from other points. If special draining provisions are not available, the mechanic will have to disconnect pipe line joints. In all draining operations he will find that an intelligent use of the selector lever will enable him to isolate the part to be drained from the rest of the system.

Whatever draining methods are employed, the disconnection of one or more pipe line joints is almost unavoidable, and this leads to additional precautions summarized under the next heading.

Precautions After Draining

(I) Open ends of pipes and pipe line connections must be suitably plugged or covered to prevent the entry of insects and foreign matter.

(II) Where the joint involves the use of an olive or nipple, the mechanic must ensure that it is secured to the pipe or its connection in such a manner that it cannot be lost, or omitted when the joint is reconnected.

(III) Where more than one joint has to be disconnected, it is well to label all pipes according to their function. This prevents wrong connections from being made when the repairs or replacements are being effected.

(IV) Depending upon the extent of the draining, it may be necessary to prohibit the running of the engine and, therefore, the engine-driven pump, to eliminate the possibility of pump seizure due to lack of fluid and, therefore, lubricant.

Filling After Draining — Precautions Bleeding

The precautions to be noted under this heading depend, to a great extent, on the nature of the draining, and in some instances are a natural corollary to them. Thus, where pipes have been disconnected and their ends plugged, the plugs will have to be removed before the pipes can be reconnected.

(I) Ensure that all joints are *correctly* connected. This can be verified during the subsequent testing of the system.

(II) Fluid level in header tank must be maintained.

(III) Where only a small part of the system was drained, it may be filled by routing fluid to it by making an appropriate selection and using the hand pump.

(IV) Ensure that the correct grade of fluid is used.

The reader will already have noted that air present in a hydraulic system will mean a loss of efficiency, and while it is extremely unlikely that it will make the system inoperative, every effort must be made to eliminate it. This process is known as "Bleeding" or "Venting." The first name was borrowed from surgical practice where it was used to describe the operation of "blood letting," an alleged "cure" for fevers, practiced in the 18th century. Before discussing the cure "Bleeding," it is essential, however, that the surgeon, the "mechanic," must be able to detect the presence of the disease, "air." The following symptoms indicate the presence of air in the whole or part of the system:

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(I) Failure of the service to operate immediately after a selection is made and the hand pump is used.

(II) Jerky and uneven movement of the service.

(III) A "springy" feeling on the hand pump, i.e., pump handle springs back to its original position if freed at the end of a stroke.

(IV) Flaps drooping, i.e., partly lowered, under their own weight with the aeroplane on the ground.

(V) If, with the flap control lever in "Neutral," and the flaps preferably in an intermediate position, they can be moved by light hand pressure.

Bleeding naturally follows filling and it consists of forcing air from the affected part until pure fluid emerges. In general, the following precautions should be observed:

(I) Where a complete system is being bled, complete one service before proceeding with a second, and begin at the points which are highest and farthest removed from the header tank, since air, being lighter than the fluid, will tend to collect in those points.

(II) Always bleed the decreasing volumes, i.e., the pressure side of the piston in the case of jacks.

(III) The level of the fluid in the header tank must be maintained.

"Bleed" screws are fitted to the jacks and other components of most systems to facilitate bleeding, but in the absence of these, pipe line connections must be slackened as required.

On the completion of bleeding the system or its part should be tested by using the hand pump. In addition to testing for air, all the services or the affected service should be operated to their extreme positions, the number of strokes of the hand pump noted and compared with that usually to be found in the aircraft handbook. In the absence of such information, a good plan is to make comparisons with a system known to be efficient.

In many instances, air may be eliminated by repeated operation of the services, but the particular method of bleeding to be employed in a given instance is usually outlined in a publication accessible to the mechanic. When he is

satisfied that the system is functioning perfectly, all unions, bleed screws, etc., must be tightened and locked and a final check made of the header tank fluid level.

* * *

DON'TS

Don't forget, in all maintenance operations on the hydraulic system, absolute cleanliness is essential.

Don't forget, containers used for holding the hydraulic fluid or for the reception of drained fluid must be scrupulously clear.

Don't forget, Lockheed Fluid Type I must never be used in a Lockheed Hydraulic System if contaminated with the smallest percentage of another fluid.

Don't forget, filters must be cleaned with Hydraulic Fluid.

Don't forget, all cleaning and lubricating of the moving parts of all hydraulic components must be carried out with the hydraulic fluid used in that particular system.

Don't forget to check the flaps and bomb doors, etc., for correct position before testing Reservoir for fluid level.

Don't forget, whenever pipelines are disconnected, the unions and pipe ends should be blanked off against the entry of dirt.

Don't forget, when bleeding a system, the Reservoir must be kept constantly replenished with fluid.

Don't forget to inspect hoses for chafing.

Don't over-tighten pipe connections.

Don't forget to keep all electrical contact points clean.

Don't forget to see all control levers are in the neutral position before the engine is started up.

Don't be satisfied with one tightening of a union, try it again; it's better to be sure than sorry.

Don't ever operate undercarriage selection lever unless you are sure that the aircraft is adequately supported.

Don't start an engine with Hydraulic Pump fitted unless you are sure that the system is full of hydraulic fluid.

