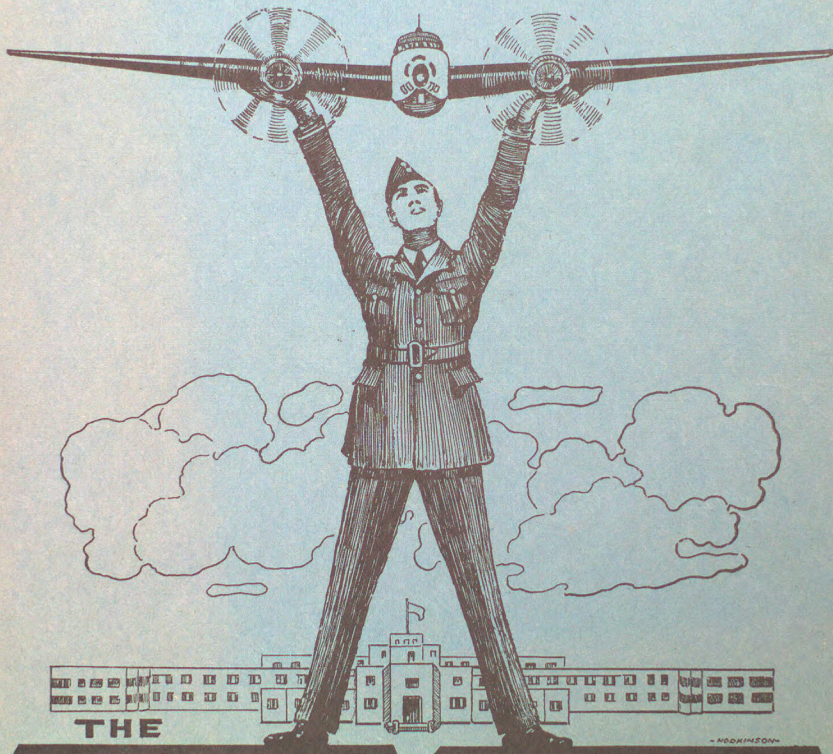


THE *Aircraftman*

VOL. 1 - NO. 11

JUNE 1, 1941

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* * *

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F/O W. L. Marshall (Secretary)
F/Lt A. G. Vince
F/Lt E. D. Armour
F/Lt N. K. Skelton

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WO/2 Arden (President)
F/Sgt Adair (Secretary-Treasurer)
Three Members

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Cpl. Symington (Secretary-Treasurer)
Cpl. Judge (Chairman)
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Three Members

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F/O E. Hendry, 2 Wing
AC/2 Friedman, 1 Wing
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F/O D. Armour
Two Airmen representatives

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F/O E. Hendry
F/O A. R. Little
F/Sgt Harvard
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Cpl. Maybie
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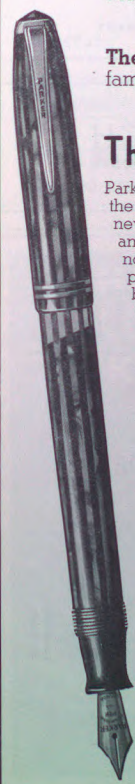
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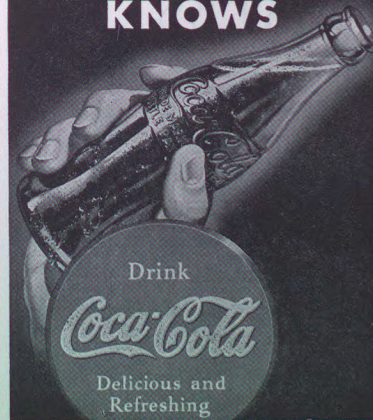
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VOL. 1 - JUNE 1, 1941 - NO. 11



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"DESERVE VICTORY!"



In a busy square in London, England, there stands a huge portrait of Winston Churchill . . . his right arm raised, and finger outstretched . . . pointing. No matter where you stand, his eyes are on you, his finger pointing at you. And below the figure are two words . . . "Deserve Victory!"

« « EDITORIALS » »

THE WHEELS TURN

The wheels are turning. The United States defence steam roller, ponderous, powerful, implacable, is on its way, gathering momentum. Already U. S. warplane production for 1941 approaches figures for all of 1940. The first Rolls-Royce motor is off the Packard assembly line, one of 9,000 to power Spitfires and Hurricanes. The Buick plant, to build Pratt & Whitney aircraft engines, is nearing completion. Ford Motor Company has already delivered 1,500 six-speed forward and two-speed reverse reconnaissance cars; 1,800 army staff cars, and many bomb service trucks. The Ford Company's scheduled program is tremendous. Continental Motors are working on trainer plane motors, truck and utility engines; altogether 6,000,000 horsepower. In two months the huge Chrysler tank factory will be humming along 24 hours a day, three shifts, preparing some of those blitzkrieg weapons Hitler likes so much . . . when they are on his side. G. M. plants in Saginaw, Mich., and Flint, Mich., are already turning out machine guns by the hundreds, soon to be thousands and tens of thousands. Fisher Body Corporation is about to produce bombers on production. Briggs Body, Hudson Motors and Murray Body Corporation are already producing defence materials, or are close to it. Thousands of smaller factories are busy, too. The wheels are turning!—wheels of justice—not to stop their inexorable grind until the whine of the last shell dies away.

Action is the keynote in American industry today. The hectic adolescence of the twenties has gone. Now we have the stern and thoroughly competent maturity of the forties. The tossed-together, clumsy, box-like contraptions formerly called automobiles, radios, refrigerators, timepieces and aircraft have changed. Beauty and utility have been made compatible to the great improvement of the article as a whole. Everything is reduced to essentials and the essentials improved. The products themselves tell of greater factory efficiency. Consider the 1941 cars, for instance—sleek, powerful thoroughbreds compared to those of ten years ago—better throughout. The enamel finish is faultless and practically indestructible; the plastic steering wheel and fittings inside are works of art; the power plant purrs along with effortless ease. Notice the airliners passing overhead regularly, on schedule, trim,

dependable, assuring. And so it is with thousands of products: good to look at, good all over. Right now United States industry knows how to make things as well as anyone in the world. It was not always so.

During the first world war much of U. S. war materials turned out to be duds, like the billion-dollar airplanes never used in combat. Many of the products of the twenties were none too good, either. They were examples of expediency rather than of good workmanship.

There have been some changes made since then. William S. Knudsen, Walter Chrysler, Charles Kettering and Henry Ford, capable practical machinists all, have been doing things. The Douglasses, the Boeings, the Fairchilds and others equally prominent, have had their noses on the grindstone. Major James Doolittle, General William Mitchell and Major Al Williams have been speaking up, criticizing constructively. The General Motors Technical Institute in Flint, Mich., has been functioning, also Ford's extensive training plan, Chrysler's, the M.I.T. and many others. America has come of age, industrially. Uncle Sam is prepared to deliver the tools Mr. Churchill asked for—good tools, and ten for every one Germany can make.

No ogre of bureaucracy and inefficiency such as almost scuttled the U. S. plan of 1917-18 looms today. President Roosevelt and a few able aides are keeping a close watch on the "grab boys." As for the practical side, there is plenty of technical brains available to keep up the standards. Labor trouble, never really serious, has already sank to negligible proportions, with indications that reason is to prevail.

Our great neighbor and ALLY, almost caught napping, is awake, lending a heavy hand on the good side. Together we can't lose.

—M. W. H.

THE LIFE WE LIVE

"It is right, then, that we should turn our boldness against death, and our fearfulness against the fear of death."—*Epictetus*.

"I should like to know a man who just minded his duty and troubled himself about nothing; who did his own work and did not interfere with God's. How nobly he would work—not working for reward, but because it was the will of God."—*Geo. MacDonald*.

« « SPORTS » »

Station Sports

Well! Here we go again, fellows; this time it is a Station Baseball Team. If it turns out to be just half as good as our other Station teams (which it will) it will be good enough for me. At the present time we have the nucleus of a very smart ball club, but we still have an opening for any of you fellows who can really play a good game of baseball. Our present plans call for exhibition games, the proceeds of which will be turned over to such institutions as the Red Cross Society, etc. A great deal of these games are planned to be played right here on the Station Grounds on Sunday afternoons. So don't forget, fellows, a little support never hurt any kind of a team.

* * *

Inter-Squadron Cross-Country Race

The Inter-Squadron Cross-Country Race run off on Sunday, May 4th, was one of the most colorful athletic events yet to be seen on the Station. The six-man team from 2 Squadron 1 Wing were declared the winners, with 1 Squad 1 Wing a close second. Forty-six runners, representing all the squadrons, competed and, except for a slight shortage of wind, all runners finished the four-mile course in good shape. From the standpoint of organization the race was letter perfect and WO/1 Stubbs is to be commended for the time and effort he put forth. From the display of enthusiasm shown by spectators and competitors alike, a repetition of this event would appear to be a "natural" for June or July.

* * *

Squadron Sports Dope

By A. Square Deal

3 Squadron 2 Wing have a base runner extraordinary in a certain Sergeant.

Headquarters have been showing signs of life now that sports are in the open. Could it be they didn't like it under cover?

E. & A.T.S. are also perking up out in the fresh air. At the present, they have the hottest Ball Club on the Station.

1 Squadron 1 Wing, as well as having a good ball team, are contributing AC/2 Hardy, unofficial chief of staff of Inter-Squadron Umpires.

2 Squadron 1 Wing have a real leather-kicking Soccer Club. Backboned by several R.A.F., they are going to be hard to beat.

3 Squadron 1 Wing have come up with a pitcher whose ball resembles a split pea as it crosses the plate.

2 Squadron 2 Wing have a championship horseshoer in AC Suter.

* * *

C.O.'S TROPHY

2 Squadron Repeats to Win Final Month of Indoor Sports in C.O.'s Trophy

Congratulations to the O.C., N.C.O.'s and men of 2 Squadron for April. 2 Squadron came from away behind to nose out 3 Squadron 2 Wing and 2 Squadron 2 Wing in April in the C.O.'s Trophy Series. Tying for first with E. & A.T.S. in the Drill Competition placed 2 Squadron 1 Wing six points up on 3 Squadron 2 Wing and nine points up on 2 Squadron 2 Wing. 2 Squadron men, led by the "Fog Horn," are a real bunch of sports and deserve this double victory.

The Trophy Series has now moved to its new quarters on the outside playing fields and every Squadron at the time of writing is energetically trying to sort Soccer players from Softball, Horseshoe players and Lacrosse players. With spacious playing fields available, the T.T.S. will be specializing in Inter-Squadron activities. Exhibition games in the various sports will be played from time to time with outside teams.

* * *

Station Sports

At a meeting held under the Chairmanship of Flight Lieutenant Armour, plans have been completed for the "Station" Baseball Team for the 1941 season. Last year the team was entered in the Intermediate "A" group of the O.B.A. and although not successful in winning the championship made a very good showing, as evidenced in the fact that Aylmer, the group winner, went on to win the Ontario championship.

This year the team will confine its activities to exhibition games with teams from the nearby area, and prospects are bright for a very strong team. More than fifty players from all

parts of the country and representing every Squadron have been battling for places on the teams and now, after about a month's practice, Coaches Happy Treleaven and Jo Keenan have cut the Squad down to about 20 players, who include a couple of boys from the U.S. The team is fortunate in having a capable executive in the persons of: President, WO/1 Foran; Vice-President, WO/2 Maxwell; Treasurer, F/Sgt "Nels" McMahan, and Secretary, Sgt. "Barney" Nielsen.

WO Child, from Florida, will probably do the master-minding and the boys are looking forward to some games with the best teams in this part of the province. Any new-comers to the Station who would like to try for a place on the team will be made welcome.

* * *
BOXING

Submitted by WO/1 S. Stubbs, M.B.E.

DEFENSIVE MOVEMENTS

(This is the second and concluding article on the subject)

16. Straight Left

The right hand should always be ready in anticipation of a straight left—it is already opened and moving in a weaving manner in front of the body.

The moment an opponent sends his left out, raise up the right hand and catch it in the palm, keeping the arms and elbow well into the side as the movement is carried out.

Other ways of defeating the straight left are: Slipping, ducking, swaying, breaking ground and deviating. When making these guards against the straight left, take advantage of all the openings that an opponent gives.

17. Straight Right

Similar to the guard for the straight left with the addition of a left forearm guard for warding off the punch.

18. Swings

Although swings, if landed correctly, are scoring blows, they are discouraged in present-day boxing because it invites a boxer to hit with the open and inside of the glove, which generally causes damage to the hands. It is very easy to make the swinging type of boxer miss. Methods for guarding swings are: Forearm guards, ducking, slipping, stepping back and swaying, also stop punches.

19. Hooks

Guards against hooks are forearm protection. Raise the left and right arms (bent at the elbows) as high as the top of the head in order to protect the sides of the face. Hooks to the body are best guarded with body swaying

movements—if an opponent is hooking with his left, sway to the right, lowering the right heel and leaning slightly back.

20. Guards for Uppercuts

Swaying, stepping back, or stop hits (straight timed punches).

21. Shadow Boxing

This is useful training for boxing as it gives the sense of imagination. When doing shadow boxing always imagine a real opponent is facing you and try straight lefts, rights, hooks, sways, ducks, etc. Treat each training spell seriously as this is the time to practice any movements in which one may be weak, such as leading, slipping, etc. Professionals do a large amount of shadow boxing when training for an important contest.

22. Ringcraft

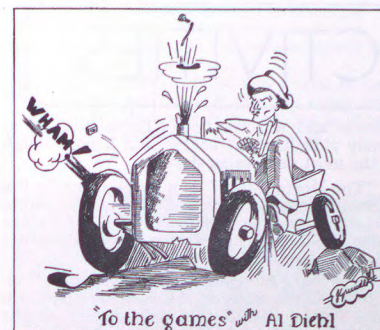
This is an art which cannot be taught but can only be gained with experience. An experienced boxer will use tricks which, although perfectly fair, will deceive an opponent. Always box with as many different styles as possible, as experience is gained by doing so.

Example of Ringcraft

If you are meeting an opponent whom you know is not as fit as he might be, the best plan is to let him do all the forcing and fighting; meanwhile, keep backing away, making him follow. After a couple of rounds he will start to feel the effect of his poor condition and will begin to tire, slow down, and show signs of wear. Now is the time for you to become the aggressor and force into him, eventually wearing him down. Many fights have been won by this method.

Other useful hints on ringcraft are: If you receive a heavy punch and get knocked down, don't get up immediately; take a couple of seconds' rest and this will give you time for your head to clear. (By this statement it is not meant that each time you fall or slip down a rest should be taken, but only when you have been stunned by a heavy blow.) Should you receive a shattering punch, try not to show its effects to your opponent as, if you do, this will encourage him. Try to maintain a calm exterior and this will dishearten your opponent and make him think his punches have no effect on you. Another useful hint is: while you are in a clinch with an opponent let him do all the pushing about, as by doing this he is using up his energy, while you are preserving yours.

* * *
"How many cowards, whose hearts are all as false as stairs of sand, wear yet upon their chins the beards of Hercules and frowning Mars?"—*Shakespeare*.



* * *
ATHLETICS

Submitted by WO/1 Stubbs

BASIC PRINCIPLES IN RUNNING

1. Body Poise

First thing to master: Avoid rounding back.

In Sprinting, incline body well forward from the waist.

Middle Distance, body more erect and relaxed.

Distance Running, body erect in most cases.

Strong loin muscles are therefore necessary and, besides practicing running, exercises should be performed to give the necessary strength.

2. Head and Neck

In natural position and never held back, as this chops the stride. Always practice to keep the head forward in sprints, especially at the finish.

3. Shoulders

Should be slightly tensed, and partly lifted to help fix the head and neck. Rolling shoulders forward alternately materially helps in lengthening the stride.

4. Arms

Should be flexed and swung from the shoulders. Do not alter the elbow angle in running. The angle of the elbow opens as the distance run increases.

5. Hands

Should be swung slightly inwards to the medial line of the body, but never across it. They should never be swung lower than the hip line. The forward hand should be level with the

opposite elbow, and the rear hand level with the hip.

6. Legs

Parallel foot action lengthens the stride, and the leg muscles function best with a straight leg drive. Moderately high stride, but the rear heel should never be higher than halfway up the back of the thigh. There must be harmony between arm and leg action to preserve balance and economy of action.

7. Foot

Running on the toes lengthens the stride and gives better ankle leverage. The feet should be carried straight forward, the heel and toe travelling in a straight line.

8. Faults in Running

1. Paddling—Throwing feet to side.
2. Winging—Throwing arms to side.
3. Ricking—Swinging in, twisting shoulders and body.
4. Pointing—Carrying foot too near the ground.
5. Wearing—Crossing feet over each other.
6. Dwelling—Keeping rear foot in contact with ground too long.
7. Pounding—Too heavy contact of foot with ground.
8. Trappiness—Too high knee action.
9. Hocking—Too high heel behind.
10. Bounding—Energy expended upwards and not forward.

* * *
To Our Airmen

By Nora Wilmot

Here's to Our Airmen,
May they fly as the Flag has flown,
Free; and with a spirit none will conquer.
Over land, over seas, and with pride,
May the folds of their banner
Each over an inscription there on,
Thru battle scars of freedom and victory won.

* * *
LONDON CHIMES

Spitfires and Blenheims,
Said the bells of St. Clement's,
Aren't built for five farthings,
Said the bells of St. Martin's.
Donations I pray thee,
Said the bells of Old Bailey,
On account of the Blitz,
Said the bells of Shoreditch.
Downhearted? not we!
Said the bells of Stepney;
Lor' love yer, No, No,
Boomed the big bell of Bow.

—PUNCH.

STATION ACTIVITIES

IT HAPPENED IN MAY

May was a great month for stage shows on the Station. On May 9th our old friends, the Number One Unit from London, presented an All Request Program.

The following week, on May 15th, the Beal Technical School of London brought down a mighty fine selection of young talent. This group had not been down for a year but their reputation was so good that a large crowd was on hand in spite of the fact that it was pay night.

One of the most ambitious programs yet presented here was given on May 22nd by the Good Deed Radio Club of Eaton's, Hamilton. There were over 80 youngsters in this party and the performance fulfilled all the promises of the advance publicity. We hope to see them again before too long.

May is the month of blossoms and in order that the boys from the West might have a break and see some of the real beauty of Ontario, a tour was arranged by the Y.M.C.A. and the First United Church, St. Thomas, on Sunday, May 11th. The tour took about two hours and included a tour of the fruit orchards of the area and a visit to Mr. Jones' Bird Sanctuary. It was a gala day for the camera fiends and there has since been a deluge of pictures of ducks and geese in all shapes and poses.

The Ladies' Auxiliary of the School must have heard of the fun the boys had because on May 21st they decided to make a similar tour. It is enough to say that they enjoyed it as much as the boys did.

LIBRARY CORNER

By A. Askew, Librarian

The enquiry is sometimes made of the Librarian as to why we do not get more new books. The answer, of course, is that the amount of money allotted to run the Library does not permit of buying many new books. And anyway, if all borrowers would return their books promptly our library service would be much more efficient. However, here are half a dozen new books right from the bookseller's.

Two of them are by that crazy writer, Thorne Smith, "Turnabout" and "The Stray Lamb." If life seems just a weary round of

lectures and lessons, read "Turnabout," completely ridiculous, of course, but a good laugh on the most depressing day.

"The Mortal Storm" is a novel of family life in Nazi Germany. Phyllis Bothome, who wrote the story, was in Germany just before the storm broke and has drawn freely from life there, as she saw it.

"Glorious Adventure," by Richard Haliburton, records many of the escapades and incidents in the life of this gay roamer of the seven seas, who has never been heard from since he left a South Pacific port in a Chinese "junk" to sail to San Francisco.

One of Ralph Connor's last books is "The Runner," a romance of the Niagara River when Canada measured its wealth mainly in furs. Plenty of action. Finally, a fast-moving "Western" that is wild enough for anyone, "The Flying W Strikes," by B. Bower.

Why are Britishers so sparse in the use of adjectives when describing objects? If "bad" language is included also in that statement, you will find "bloody" is the most overworked word in the dictionary and usually used very inaptly. In describing books most people say a book is "good" or "not so good." Next time someone asks your opinion on a book you have read, try to tell them, briefly of course, what you like or dislike about it, not just "good."

A Call to Freedom

By Freedman, M.

Yesterday I stood as they passed by—
Those men with zest, with chins up high;
Those men with courage high and body strong;
Those men who smiled and sang a song.
They marched away that autumn day
To fight for freedom, for love of life,
To crush all hatred, to end all strife.
Today I stand along the roads
With shoulders strong and strength to bear
their loads;
I and those who wish to see
Our Nation proud, bold and free.
To take the place of those whose bodies are now
of dust,
To say we have not failed them in their trust,
To shout that their spirits live in us again
To prove they lived and suffered not in vain.
'Tis freedom you and I are fighting for—

'Tis freedom that shall live for evermore—
To crush this beast, this murderer of men,
To show that truth and righteousness will conquer—and then

With this thought in mind and sword in hand
We'll struggle and fight, if must, in every land;
So that when darkness falls and day is done
The cry shall come that we have won.

* * *



WITH THE TWEEDSMUIR REVUE

When the Tweedsmuir Revue plays here next on June 12th, one of the most popular turns will be that presented by Jerry Slaughter on the traps and Sonny Brotherton on the accordion.

* * *

FASHIONABLE LINES

(With apologies to Ogden Nash)

In the midst of this international rumpus, and the epidemics of fever scarlet, fever spring, and mumpus,
There is another matter which should be viewed with alarm:
It is the ever-growing tendency amongst women to decorate their hats with things that were once in a cafe or aviary or on a farm.
And that is why most girls of today look as though they were on iron rations.
They spend less money on food and more on fashions.
What happens to the pay cheque?
Do they go out and buy a coat and skirt of gray check?
No. They spend their lunch hour crooning over a creation in beige, green, fawn and claret.
That is nothing more than six square inches of calico surmounted by the remains of a wretched parrot.

Every movie fan
Should ban
A hat
Like that

Until then, going to the movies might just as well be deferred.

Because how can you see what's on the screen if the creature in front of you has pinned on to her head the major portion of some unfortunate bird?

Before we know what's happening our wives will be squandering the house-keeping on grouse-keeping,

And we'll be searching the basement for the origin of an odor unpleasant.

Only to find that the Little Woman is engrossed in curing the carcass of an elderly cock pheasant.

Yes, I think the female of the species should offer an apology.

To ornithology.

Anonymous.

* * *

"VENGEANCE"

A One-Act Play

By A. N. Onimous

(Copyright. Anyone interested in the production rights of this play should see the Author in the usual place, at the usual time. The fee is 2 bits (two bits) cash, or nearest offer.)

SCENE I—(A.D. 1940) A Drawing Room.

Props needed: a chair, another chair, a table, a girl, and a little bald man.

Note: It looks much better if you have walls, as that stops the people seeing back-stage.

The girl sits at table, and so does the little man opposite her.

Girl: "I hope my husband doesn't find us here, Mr. Simpersomere."

Little Man (fervently): "So do I."

Girl (turning towards door): "Ah, hah! Here he comes now."

Sound eff; heavy footsteps (this effect is best produced by having a steam roller back-stage, to drive over high explosives at the critical moment).

Enter Tough Guy. He is 7' tall and 4' 8 $\frac{1}{4}$ " wide.

Girl (to Husband): "Hello, Marmadook." 7' x 4' 8 $\frac{1}{4}$ " Tough Guy glares, then walks round table to little man. His face turns purple with rags (that's a misprint), then draws his rifle and shoots little man dead.

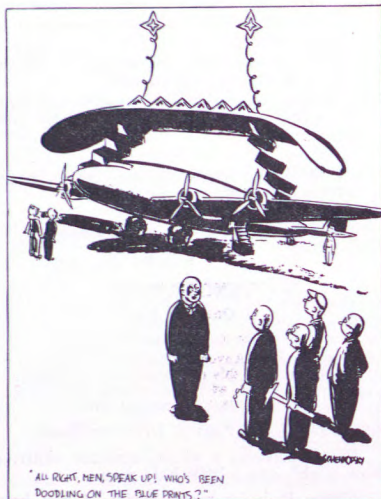
Enter Policeman. Looks at body (the dead one).

Policeman: "Ya' shouldn't ha' dun it, Marm." (Aside: "Gee, wot jealousy does for a guy!")

7' x 4' 8 3/4" Tough Guy: "Thnot jealousy, theese." (Bursts into tears.) "He'th thitting on my knitting."

CURTAIN

* * *



THE LIFE WE LIVE

There is no greater sign of a general decay of virtues in a nation than a want of zeal in its inhabitants for the goal of their country. —Addison.

Youth is to all the glad season of life; but often only by what it hopes, not by what it attains, or what it escapes.—Carlyle.

Man never falls so low that he can see nothing higher than himself.—Theodore Parker.

They never fail who die in a great cause. —Byron.

A king ruleth as he aught, a tyrant as he lists; a king to the profit of all, a tyrant only to please a few.

A woman's dearest delight is to wound man's self-conceit, though man's dearest delight is to gratify hers.—Bernard Shaw.

Any man may make a mistake; none but a fool will stick to it.—Cicero.

Straightway throughout the Libyan cities flies rumor: A huge and horrid monster covered with many feathers; and for each plume a sharp eye, for every pinion a biting tongue. Everywhere its voices sound, to everything its ears are open.—Vergil.

Each man is a hero and an oracle to somebody, and to that person whatever he says has an enhanced value.—Emerson.

* * *

AMONG THE SQUADRONS

SQUADRON 1, WING 1

By AC/2 Ollivier, S. J.

Time continues in its steadfast manner, to accomplish those things which are placed before it. Without realization of such facts, so has time brought the Aero Engine Mechanic Course to a close for quite a few of the entries in Squadron 1. Deep interest and growing concern for the knowledge we have achieved possibly accounts for much of our absent-

mindedness, but still the fact remains that Entries 44, 45 and 47 have completed their studies and must commence on the unbounded fields of aeronautical achievement. So, with startling abruptness, we pause to bid farewell to the many Instructors, N.C.O's, Officers and authorities who have made our stay so interesting, and to all our associates glad tidings as we leave, always hoping that we will meet again.

* * *

Why is it that this word "Galt" has such a delicate meaning so far as the 56th Entry is

concerned? The word is now practically unheard of, except by Instructors.

'Taint fair, 'taint, that this fellow Foster of the 50th Entry can have a blonde, a brunette and an auburn-haired sweetheart in London all at the same time. How about us other bachelors?

The manner in which Clark of the 60th Entry takes such a deep interest in the welfare of his fellow-members of the bay, one would be inclined to think he was the father of the boys. Or is he?

Girls, we suggest you look over this fellow, Ewen of the 57th Entry, who claims he is the "Cream of the Wheat from the West."

The fellows of the 56th Entry cannot just figure out how the Orderly Officer happens to know when the boys are getting that extra good meal, and drops in at the opportune moment.

A collection will be taken up shortly to purchase a much-needed new pair of lung pipes for Beck of the 47th, who is their Right Guide.

It has become an understood fact that the 45th Entry is now a white Entry, since so many of the 44th have leaked into it.

Oh dear, oh dear, everything happens to Mothe of the 56th. Here he was, every day, the first man, and darned if they did not rearrange things, so that he is now in the middle. There ain't no justice.

Our deep concern was felt for Golding of the 50th, who was subjected to C.B. at a time when Carrie and he were planning that big party. Carrie had to look after both escorts that night, while Golding chewed his fingernails. Get up, big boy; get up.

Why does little "Ack" of the 56th say: "The less you bet, the more you lose when you win."

It is an understood fact that when Cowley of the 57th Entry patronizes the Wet Canteen he becomes immediately domesticated and insists on sweeping out the bat at 2 a.m.

* * *

"All that a man achieves and all that he fails to achieve is the direct result of his own thoughts."—James Allen.

Timely Sayings

By Ollivier, S. J.

There was a well-known character from the 44th Entry who said that when he was in at the Trade Board he argued on a point. He stated that he argued so well that he darned near believed it himself.

The past has a bad habit of running ahead of the future and turning around to peer at you.

While it is not in our power to instruct you regarding the course as to the right and wrong way to do things, yet here is a few tips that may aid, if you do not say them.

Don't say: Hard water is a substance that when subjected to cold atmosphere below 32° F. it becomes to the ice state.

That a magneto is a little black box full of sparks.

That to keep from burning a hole in your pants, while pressing them, do not turn the iron on.

That when a switch is on, it's off, and when it's off, it is on.

That a carburetor is a device, incorporated into the design of an engine, for the sole purpose of twisting all the mechanics up.

That the stage coach goes through certain Western Towns only once a week. Because now they go through twice a week in some busier sections.

* * *



SQUADRON 2, WING 1

By Cpl. Maybie

COMINGS AND GOINGS

After fourteen months on the Station, F/Sgt Desjardines has gone to Montreal. We hope Montreal appreciates him. The Flight was one of the most popular Senior N.C.O's on the Station and all the men of Squadron 2, as well as his many other friends in these parts, wish him the best of luck.

Another "old-timer" in the Squadron has gone. Cpl. Heuser has been one of the familiar sights here for the last eight months. The place will not seem quite right without him.

We hoped he had not gone, and he isn't exactly a newcomer, but after 34 days out of circulation owing to the subversive activity of a certain germ which must remain unnamed, F/Sgt Rowley is now with us again, and it certainly seems good to have "Rusty" back. Hope he can duck any more rampaging "bugs."

The Peaceful 42nd and the Lightning 43rd have now departed (may they rest in peace), but they will long be remembered around No. 2 Squadron Orderly Room for their (1) Friendship, (2) Scrounging and (3) Beefing.

Those of us with jumpy nerves were most happy to note that a certain Airman whose habit it was to set off firecrackers (the bigger the better) around 0230 hours has gone to the West. Perhaps the Prairies will offer him more scope.

"Were Their Faces Red?"

It is still a touchy subject with the 61st Entry but the rest of the Squadron got quite a laugh. It happened this way: The 61st was new and innocent in those days. It stood in fear and awe of Senior N.C.O's. Two of the members of a veteran Entry decided that a little initiation was in order so with appropriate camouflage they undertook to set the newsters in order. Orders came thick and fast. All the cleaning equipment in the Squadron was commandeered and for two and a half hours of blood and toil the illusioned 61st washed walls, scrubbed floors and muttered dire threats.

But were their faces red when they found that their efforts had all been for the purposes of satisfying the sadism of the pseudo N.C.O's

and to teach the 61st that humility is indeed a virtue much to be desired!

* * *

Sports

Thanks to Basketball, Baseball, Soccer, Horseshoes, Volleyball, Badminton players and the Track men for the display of prowess and sportsmanship which they have shown. We are in there pitching again and have very definite plans concerning the resting place of the Trophy for the next month.

* * *

Popularity

We like our Squadron. We think that life in our Squadron is as happy as in any Squadron on the Station. We like to think that we are popular and don't like to be too selfish in our comfort but we would like to know how it is that we are so popular that we are called upon to entertain guests at frequent intervals. However, that is over (we hope) and life is resuming its former orderly and happy course.

* * *

SQUADRON 3, WING 1

Along the Sport Line

To the sports of this Squadron we send our thanks for they are really out there playing and doing their best; but to the supporters we can say very little for there are never many there. So, boys, if you want to see the C.O's Trophy in our Squadron, GET OUT and BOOST. With an ALL-OUT effort on the part of the supporters as well as the teams we can soon win the Trophy.

There is not a sport that one can name and play that is not played or will not be catered to, so there is no reason why we can't be in the front line of sports.

The boys of the Squadron are wondering if there isn't some way in which they could "get up, shave, dress, clean their bays, eat their breakfast, and have a short smoke in that seemingly short time from reveille and the time the Out Whistle blows."

Most common words around the Squadron are: "Scrounger," "Out," "Cpl. when," "Cpl. why," "Hurry," "Mail" and "End of the line."

Over 200 years ago Mother Shipton wrote a poem that now has in most respects come true. It was in this poem that it was mentioned that

"Old Friends"

By Cpl. Stanley, W. S.

men would fly, and it was also stated some of the colors that they would use. I would like to quote a few of the lines:

*"And in the air men shall be seen,
In white, in black, as well as green."*

The white could easily be the silver of our planes and the black and green could be taken as the camouflaging.

* * *

WE WONDER WHY?

Some men get all the breaks, and why some are always broke.

We always find a few scroungers.

We aren't issued with lighter caps for the summer issue.

* * *

BOOKS TO READ

"The Dust Storm," by Gustov Wind.
"The Conflagration," by Howitt Burns.
"A Russian Now," by Epsom Salts.
"A Flying Stunt," by Turner Loop.

* * *

WANT ADS

"For Sale—A gramophone, by an Airman with many records."

"For Sale—An engine, by a man with a new head."

"Wanted—An airy room, by an artist with a bay window."

"Lost—A bulldog, by a lady with a short tail."

* * *

My Best

By Melville A. Shafer

Here in this place I serve,
And may I well observe
The rules of right, and give
My best, while here I live.
May I perform the tasks
Which Honor clearly asks,
And kindly interest take,
As though rank were at stake.
Since what I do while here
May in some future sphere
Fix destiny for me,
I must act splendidly.
From chance or god or man
Can come no advance plan
For me, unless I do
My best the whole day through.
May I perform each hour
The right with all my power.
And smile, and think, and work—
Nor duty ever shirk.
Thus may I concentrate
My life today, and wait;
No tide, no force, no ill,
Can stray an active man.

Where'er the Air Force Flag doth fly,
Emblazoned 'gainst a pale blue sky,
There'll be Old Friends from distant towns—
From English Bay to Owen Sounds;
Boys with whom you used to fool,
And play in olden days at school:
With these, who now have grown to men,
You stand beneath the Flag with them:
Open your door and set a place
For that dear, old familiar face,
So that when they've gone away,
"We really did enjoy our stay."
Don't let friendship cease or lag
Beneath our own emblazoned Flag—
Do this for God, Country and King—
Let Friendship be the REAL THING.

* * *

SQUADRON 1, WING 2

NOISES IN THE NIGHT

A grinding, nerve-wracking noise which we find on awakening is Frenchy grinding his teeth in his sleep. He will soon be down to his gums.

And then there is that man who blows his bugle after we are all tucked in.

The Airman who talks so loud in his sleep should stay awake or he will soon be paying hush money to the boys.

We must not leave out the mystery man who sleeps in most of his clothes, all his blankets and even his greatcoat over top of all; to finish the picture, he places his head under the pillow always, never on top of it.

I would like to take this opportunity to thank the boys in the Y.M.C.A. Office and the car owners who gave up their time to take some 90 Airmen on a tour on Sunday, May 11th. I know I speak for everyone when I say that we enjoyed the tour immensely and that we came back with a far deeper appreciation of the surrounding country than we would ever have had if we had been left to our own devices. My personal thanks to Mr. Ken Butler of this district for showing us many beautiful spots close by and for the visit to his farm.

Good Luck to THE AIRCRAFTMAN!

* * *

TID-BITS

By Warhurst, W. and Gibbs, D.

The 58th (now being more or less veterans) would like to extend a cordial welcome to all

THE AIRCRAFTMAN

following entries, and will advance any information on request.

"Blackie" Sanderson, self-appointed chairman of the WELCOME Committee, normally the gushing type, merely remarked, "Too bad."

The "58th" are the pride and joy of T.T.S. Is that right? Or is it?

Daily Routine Rumors

D.R.R.'s say—

That "Fire Piquets" for Alma College (for girls) fell through because of the lack of volunteers.

That all disciplinary orders will now be given in sign language, due to nerve strain on our delicate systems.

That "line-ups" will cease to exist.

That all "trainees" will henceforth eat in the Sergeants' Mess to avoid indigestion and congestion.

Who was the trainee (initial G) in the 58th who thought that you had to "de-moralize" metal after annealing?

And then there was the trainee who got a "sleeping out pass" but kept his bunk, and fell out of it sleeping at noon hour. This caused considerable displeasure to the lower occupant. We suggest that he "Briden" up a bit in future.

Definition of an Airplane: An infernal machine designed to give A.F.M. Trainees a headache and lose a considerable amount of sleep due to increased pressure on the chord line.

We sympathize with "Red" H. of the 58th on the loss of the "Scrub" occupying the area on his upper lip. Perhaps if he was to stay away from the issue razor longer than three months at a time he might show an appreciable "hedge" to match his red hair. Could it be the loss of his "first love"?

Anyone suffering from acute pains in the leg during the early hours of the morning would do well to consult Dr. Hitch in the 58th Entry. The approved method, apparently, is to grasp the big toe in a very tenacious manner and pull back with tremendous force.

* * *

THE SPORTING GESTURE

A philosopher once said, "Gold is where you find it," but everyone acknowledges the difficulty there is in finding it.

Well, we are seeking for "Gold," meta-

phorically speaking. The gold in this case being athletic talent.

So far we have made a fair showing in sports and we are showing more improvement lately. However, I feel as I know you all feel—that it is not good enough. It never will be good enough until we gain the C.O.'s Trophy and are able to hold it against all comers.

So let's uncover that "hidden gold" and show its true worth. Let's have every athlete backing the Squadron to the limit.

I believe—in fact, I know—the color of our "gold" is better than that of any other squadron.

Let's prove it to all.

I here wish to thank all those who have already supported us by turning out with the teams. George Weese seems to be doing an excellent job with the Basketball.

Can you play Basketball, Volleyball, Softball, Lacrosse, Tennis, Horseshoes or Soccer? Let us know if you can.

Application has already been made to Flight Hutchinson for an extra bunk for the "drug-gist's" son in the 58th who doesn't seem to think one bunk is large enough for him and ALL his belongings.

Bunkmates of "Jim C." would appreciate him more if he went straight to bed when coming in at 2 a.m. after going out with "stolen" property.

The 58th Entry, having duly finished their first week of "Theory of Flight," are left puzzled as to how they might obtain a thousand dollars in three years. They are confident that they have plenty of what it takes.

* * *

Man is a tool-making animal.—*Franklin.*

* * *

SQUADRON 2, WING 2

Sporting News

2 Squadron made a glorious comeback in the C.O.'s Trophy Series for April, only to be nosed out on the stretch drive. Cpl. Cassidy had all the teams in there fighting every game. The 42nd Entry posting deprived the Squad of some valuable men, but on looking over the new entries we have seen some very likely replacements. Softball, Lacrosse, Soccer and Tennis players will be in demand for the next three months. Slogan for May and June: "Another trophy for 2 Squadron."

Save and Lend for Victory

To assist the Government of Canada in a larger sale of War Savings Certificates, the T.T.S. in common with all other R.C.A.F. Stations, has arranged for Officers and Airmen to pay for such Certificates through reductions from pay in amounts to be designated by the individual.

The right of an Officer or Airman to spend his pay as he pleases is well known, and the Service continues to stress that right, but in the midst of a mighty war it is considered a duty and a privilege to co-operate with the Government in urging all members of the R.C.A.F. to contribute to the war effort further by the purchase of War Savings Certificates. The Service undertakes to act as "trustee" in the purchase of such Certificates through regular payroll deductions.

The costs of war must be met. Participation in that financial phase of the war must be shared by every member of the community, but particularly by those who are gainfully employed while their colleagues take up arms overseas.

To secure this common contribution toward the cost of the war, the Government resorts, in part, to outright taxes on every member of the community who can afford to pay such taxes. Officers have already been called upon to pay National Defence and Income Taxes.

Taxes will not, in themselves, meet the entire cost of the war effort. A wise government has made arrangements to borrow part of the money that it requires immediately, with a promise to pay at a future date. If it succeeds in securing sufficient contributions of this sort, its citizens will be relieved of the necessity of meeting an immediate burden of taxation that might prove crushing. Indeed, its citizens are to be enabled to recoup their present contribution, with a premium, at a later date when the money may be badly needed.

The importance of our participation in the war is fully realized by the Governments of Great Britain and Canada. Every Canadian shares to the fullest in that participation. His individual job is vital to successful prosecution of the War. Let no one underestimate the rôle

he is playing by constant attention to his daily task.

It is not the wish of the Service that undue pressure be put upon any member to subscribe more than he can afford to the purchase of War Savings Certificates. It is desired, however, that each Officer and Airman clearly realize the situation that confronts all of us—and act accordingly. War-time financing is a means by which the nation shares its war-time burden.

You, alone, must judge whether or not you Buy War Savings Certificates Regularly.

* * *



* * *

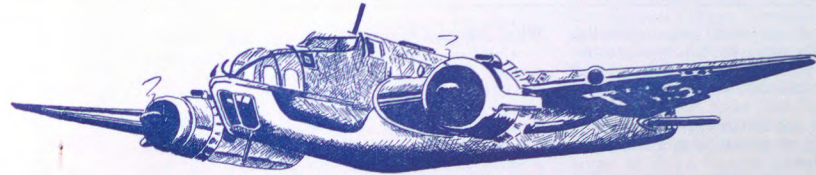
WAR SAVINGS COMMITTEE

G/CAPT R. COLLIS.....Chairman
F/LT A. G. VINCE.....Secretary
S/LDR A. R. SINCLAIR.....Treasurer

MEMBERS:

S/Ldr E. F. W. Peacock.....O.C. No. 1 Wing
S/Ldr J. S. Eley.....O.C., E. & A.T.S.
F/Lt H. N. C. Williams.....O.C. No. 2 Wing
F/Lt V. P. Cronyn.....O.C., H.Q. Sqdn.
F/Lt N. K. Skelton.....No. 1 S. No. 1 W.
F/O G. Ross.....No. 2 S. No. 1 W.
F/O A. R. Little.....No. 3 S. No. 1 W.
F/O J. M. Harris.....No. 1 S. No. 2 W.
F/Lt W. G. Cooke.....No. 2 S. No. 2 W.
F/O E. Hendry.....No. 3 S. No. 2 W.
F/O H. F. Morris.....E. & A.T.S.
Mr. Oliver.....Civilian

WORK



SAVE

3S-1W 25.94%

1S-2W 27.62%

H.Q. . 29.23%

2S-2W 32.52%

2S-1W 32.57%

3S-2W 36.76%

CIV. . . 40.19%

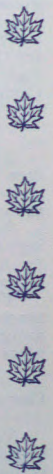
E.A.T.S. 63.01%

1S-1W 64.49%

LEND



H. E. Kestel



Save and Lend for Victory

Quite often we are put into a position whereby we can do some good towards someone, or something, we love or value. This usually entails some inconvenience or expense to ourselves.

Other times we are in the opposite position, of being able to do ourselves some good, possibly at a cost to others.

Rarely does the opportunity arise where we can help ourselves and by so doing help another worthy cause.

War Savings Certificates have created just this opportunity. By purchasing the safest investment that can be obtained in Canada, you do not only purchase an interest-bearing Government Bond, but make funds available for Canada's War. For this reason I unhesitatingly recommend the purchase of War Savings Certificates as an act of *good, sound business*.

Three Reasons Why Every Airman's Help Is Needed

First—Because, by investing in War Savings Certificates, he is helping to increase the output of planes and ships, guns and ammunition.

Second—Because, by investing in War Savings Certificates, he is building a cash reserve for himself—for his family—against post-war uncertainties.

Third—Because every dollar he spends unnecessarily helps to take people and machines away from war production, and thus directly gives aid and comfort to the enemy.

GENERAL INFORMATION

Can an Airman Buy War Savings Certificates for Someone Else?

Yes; an Airman may have the Certificates issued and registered in the name of any individual or non-profit-making organization that is specified at the time of purchase, unless such individual's or such organization's holdings would thereby be increased beyond the \$600 statutory limit.

Why Are War Savings Certificates Registered?

To protect the registered holder a record is kept at Ottawa of every Certificate issued, showing the name of its registered holder so that the Certificate itself is of no value to anyone else.

Can War Savings Certificates Be Given, Transferred or Assigned to Someone Else?

No; they are non-transferable and non-assignable; cannot be attached or used as collateral. They are redeemable and repayable only to the registered holder, except in the case of death.

What About Children As Registered Holders?

Children may hold Certificates in their own names. If a child is under twelve years of age at Certificate maturity date, the signature of parent or guardian is required. At ages under twelve years, redemption before maturity is not permitted, unless the Minister of Finance is satisfied by the parent or guardian that the money is urgently needed for the education, maintenance or benefit of the child. In the case of children over 12 but under 16, the signature of both minor and parent or guardian is required at maturity or prior redemption. The signature of any minor over 16 years of age is accepted.

What Happens If War Savings Certificates Are Lost, Stolen or Destroyed?

They will be re-issued three months after notice if satisfactory proof of loss is submitted. The registered holder should notify the War Savings Committee, Ottawa, immediately in the case of loss and provide details, if possible, as to when and where the Certificate was purchased, its denomination and registered number.

What Happens If the Registered Holder Should Die?

In the case of death, Certificates are considered to be part of the registered holder's estate. His legal representatives or heirs should immediately notify the War Savings Committee, Ottawa, and arrangements may then be made to have the War Savings Certificate redeemed for its appropriate cash value or transferred to the name of an heir.

Is the Increase in Value at Time of Redemption or Repayment Subject to Income Tax?

No; due to the difficulties of calculation, the small amounts involved and the limit on individual holdings, holders will not be required to report the difference between the purchase price and the redemption value of War Savings Certificates as income in making returns under the Income War Tax Act.

What About Safekeeping of War Savings Certificates?

The Bank of Canada will place Certificates in safekeeping free of charge. They may be withdrawn at any time.

What Is the Smallest Amount an Airman May Assign Monthly?

An Airman may assign as little as \$1.00 per month. At the end of four months he will receive a \$5.00 Certificate.

REMEMBER!

We must accomplish by voluntary action more than the enemy can do by compulsion.

THE AIRCRAFTMAN

AIRMEN OF ENGLAND

By A. E. E.

(Inspired by Thomas Campbell's wonderful poem, "Ye Mariners of England," and dedicated to our present-day brave.)

Ye AIRMEN brave of England,

That fly o'er land and seas—

Who come to us through Providence

To serve in times like these:

We look to you with confidence

To match a ruthless foe,

And through the skies, like eagles, rise

To guard the lives below.

God make you strong to carry on,

And point the way to go!

The spirits of your fathers

Who fought in days of yore

Are calling from the by-gone years

To carry on once more.

Go forth! Go forth and spread your wings,

With manly hearts aglow;

Ascend the height with skill and might

To overcome the foe!

* * *



* * *

OUR OFFICERS COMMANDING (The Old and the New)

It seems fitting at this time to pay a tribute to our former Commanding Officer, Flying Officer G. A. P. Brickenden. During the past twelve months the boys in the Squadron learned to greatly appreciate Mr. Brickenden. Under his encouragement this Squadron had the

unique honor of winning the Commanding Officer's Trophy for three consecutive months. Our former Officer Commanding did not confine his interest in sports solely to the Squadron but showed his interest in Station Sports by fulfilling the duties of the President of the Station Sports Committee. We are sorry to see him go but hope that he will be happy in his new duties as Auxiliary Officer at Regina.

We would also like to say a word of welcome to F/Lt Cooke, our new Commanding Officer: We hope that he will find his work in the Squadron enjoyable and profitable.

* * *

SQUADRON 3, WING 2

By Cpl. Jorgenson, G.

SPORTS

With the advent of summer sports 3 Squadron have found little change in the respective abilities of their athletes and now that the results are beginning to roll in, each phase of sport shows very promising material. The baseball teams have won their last four consecutive games and are improving daily. Much of this has been due to the effective work of the battery of AC Bradley and AC Berry, together with the support of a top notch team, including players like Crawford, Wasserman and "Hutch."

AC Grundle is back in the sports ring again as captain of the Lacrosse team, who have also made a very fine showing.

In Soccer and Horseshoes, headed by AC Smart and AC Brawley, respectively, more laurels are being added to our sports records each week.

Don't forget, boys, that the other squadrons are fast finding their place also and continued support is needed in all the branches of sport to keep the teams up in the top bracket. So come out to practices and games; the rest will come easily.

Sgt. White and Cpl. Goodmansson are giving their unbest energies in keeping squadron sports on top; you do your share.

* * *

SQUADRON GOSSIP

Between time spent in conversation with St. Thomas and working on his mystery box, the Corporal on "C" Floor hasn't much time left for anything.

Soon the Squadron will hum with the busy wheels of scientific research; molecules and

microbes alike will be subjected to the severest scrutinizing. If you hear of a new Theory on the Origin of the Species it will be "Gerry's" genius coming to the fore.

Pearson and Dean are still wondering what it's all about but according to all reports they're not doing too badly. Consequently we understand they're trying for Eastern postings.

* * *

Equipment and Accountant Training School

YOU'RE JOE

(With all due apologies to Sgt. Leduc)

For Air Force expressions there's time and there's place,
Some feature good humor — some bluntest distaste;

Some are for needed correction, 'tis true—
Some are descriptive of mortals like you;
But one that speaks horror to Airmen I know
Is that N.C.O.'s favorite—"Pal, YOU'RE JOE."

When Sergeant has paid you his first morning call

You heedlessly shun him—your face to the wall.

Your rest has been broken—you'd rather be still—

You make the decision of rising at will.
The orderly sergeant goes on with the show
And, now that you've asked for it, Buddy,
YOU'RE JOE.

There isn't a chance in the world to evade
The pitfalls for Airmen so carefully made.
When you've a shoeshine that couldn't be better—

Buttons that glitter like sun on the water—
Your Sergeant yells, "Standing, report so-and-so."

For a reason unknown to you Pal, YOU'RE JOE.

All through my life Air Force phrases will haunt me;

As I grow older their mem'ry will taunt me.
When I have chosen a lass for my bride
And from the altar she walks by my side,
In through the window an echo will blow—
Airmen reminding me, "Buddy, YOU'RE JOE."

* * *

Don't Let It Happen To You

By AC/2 McIntyre

Last year I asked my girl to be my wife and she gave me a negative reply, so to get even I

married her mother. Then my father married the girl. When I married the girl's mother and the girl became my daughter, so he became my son. When my father married my daughter she became my mother. If my father is my son and my daughter is my mother, who am I? My mother's mother is my wife and must be my grandmother and being my grandmother's husband I must be my own grandfather.

* * *

E. & A. T. S. Notes From Hither and Yawn

By Sgt. King, H. G.

It is with regret that we announce through THE AIRCRAFTMAN the posting of "Buffalo Bill" Fodey of our Orderly Room. "Buck" has been posted to the R.C.A.F. Station at Mountain View and with him go the best wishes of the E. & A.T.S. Staff and the trainees who knew him. "Buck Fodey Rides Again."

It is rumored that wedding bells will soon be ringing for WO/2 Watt. We rather expected that our stalwart W.O. would be able to resist the charms of the weaker sex who are responsible for breaking up the "old gang" after 5 o'clock. But no! Our Bill is just so much putty in her hands, and probably before you read this he will be signing "chits" for his meals in the mess, which speaks volumes.

We understand that Sgt. O'Leduc (of the Free French Leducs) has been treated for wax in the ear! Probably caused by the bees in his bonnet. Why doesn't he wax the handle-bars with it and save the Meds a lot of grief.

Who is the local gal who has Sgt. O'King and L/AC O'Doyle standing on their respective ears. At the moment our venerable Sergeant is taking the beating when it comes to escorting the gal home, but he does get most of the dances. By that time, maybe he's too tired to follow up the case. As well, youth will be served!

Our muscle-bound Corporal, Ivan (the Terrible) Pilkington, the mountain that walks like a man, entered himself in a golf tournament last bathday! The best our erstwhile pro could do was to finish second and earn himself three new golf balls as second prize. Perhaps he could cash them in on a flock of cigarettes and give us all a rest.

The latest Entry seem to be taking their studies very seriously. If you don't think so, just get yourself the job of Orderly Sergeant and watch the reaction when you wake them

HEADQTRS. SQUADRON

Pay-Offs From the Pay Office

"Fred" and "Ossie" will now render their duet:

"We dream of Jeanie with the very dark hair,
She turned us down for someone else and we don't think it's fair."

Is "Lochinvar" Grondin finally realizing that "Barnum was right" or will he continue to endow Alma College?

We understand the prizes for the winners of the fever pool in the expectant Father's Ward at St. Thomas were evenly divided between "Gabby" Wells and Bill Arnold.

The betting is pretty even as to whether L/AC Starling or L/AC Arnold has the largest stern displacement.

Heard at the "Y" dance:
"Happy waltzed 'round with a very nice blonde,
And the Band played on;
He knocked down six guys and stuck his elbow in their eyes,
And the Band played on.

He dances divinely on other people's feet,
The poor girls near swoon with fright,
Tho' some called him a clown, he made yards on each down (beat),
And the Band played on.

Q.—What's the difference between "Larry" Symington and a married man?

A.—Well, a married man gets a night out once in awhile.

Answers to Correspondents: No, "Pete," a jerry park is not a place under the bed. It's our new N.C.O., and we hope he parks with us for a long time.

Things We'd Like to Know Department:

What did Flight McMahan say when his Tee shot went in the ravine at X Union t'other day?

Is it true that Bill and Pete have a date when the circus comes to town?

* * *

THE R.C.A.F. COOKS

By AC/2 Gurney

From every corner of our great domain,
With never a thought of personal gain,

up at 6 a.m. Most of the boys wake up "swinging" and some of them reciting their lectures. Perhaps we could arrange a little anesthetic for the lads before the finals and watch them all pass with honors. After all, when the bars start straightening out and someone says his flannel shirt has shrunk on one side only, it's time for another inoculation.

* * *

SPORTS

By Sgt. Leduc

Congratulations to 16th Equipment Assistants and 7th Clerk Accountants course for their fine showing in May's race for the Commanding Officer's Trophy. Unfortunately we cannot say who won the Trophy this month as yet, but it looks like we are going to be right in there. Our Softball team, in our estimation, is unbeatable; we have four straight wins (by very comfortable margins) to our credit to date and expect the remaining two games to be victories also. All boys on our Softball team have proven to be top flight ball players but our battery of AC's Bell and Callaghan are just a little better than top flight. Nice going, fellows. Unfortunately our Soccer team was beaten out in the first bracket of the Soccer eliminations but the victorious team is still talking about the tough game it was, so we at least left an impression there. Our Horseshoe team is keeping right up there under the captaincy of AC Cook. Keep it up, fellows. So long, fellows. Here's hoping that when you read this the Trophy is in our possession. We think it will be.

* * *

Nightmare of a Clerk Accountant

By AC/2 Balson, J. C.

Now I lay me down to sleep
As through my mind the vouchers creep,
If I should die and my soul go free,
Just turn me in on A-93.
I tossed like mad in my little bed
With L.P.O.'s buzzing through my head,
All night long suffering torment vile,
Trying to think which copy to file,
Then I shrieked and tore my hair,
Giving away to wild despair.
I gave up the ghost and ceased to strive
And started aloft with form E-35.
They raised I.R.V. in copies eight
To help me through the pearly gate.
"Lord," cried St. Pete, "what an awful fix,
They should have raised E-26."
"The procedure, too, is wrong as well,
So I guess you'll be consigned to H—."
That's my story, sad but true;
I was transferred below on E-52.

Come the Cream of our Canadian men,
The onrush of the Nazi foe to stem.
To answer the call of the R.C.A.F.,
Everyone of them has unselfishly left
Behind those who to his heart dear,
So that of Nazi oppression they need have no
fear.

The Pilots, the Pride of Canadian Youth,
Of their courage have already shown proof,
Able supported by their noble Ground Crews,
They, on Hitler, will soon put the screws.
The A.E.M's and Fabric Workers, too,
Are doing the job they are intended to do,
By keeping the "Crates" in tip-top condition,
Thereby aiding the Pilots in their ambition.
The A.F.M's a highly trained group,
Are also aiding in delivering the coup
De grace to that devil, in world conquest bent,
By making the planes so they'll not even dent.
The A.E.M's a most vital crew,
Must also be sure of the work that they do
Will in no way cause loss of a life,
Unnecessarily, during this strife.
Yes, victory depends on the hands of these
"boys"

So that in years to come they all can enjoy
The Liberties, Freedom and Glory they've won
By smashing that Dictator Son of a Gun.
Yes, Glory will be rightly theirs
And it will in some way help repair
The times of worry their loved ones have had
Of the boys opposing a nation gone mad.
But there's one little group, I am afraid,
That will have absolutely no compliments paid
On the part they've accomplished in winning
the war,

For them there'll be no V.C. or Croix de Guerre;
All they'll get is a lot of hard knocks,
But they'll still be there amid all the shocks,
Though you don't find them mentioned in the
"Glory Books,"

The "Boys" will remember the R.C.A.F. Cooks.

* * *

Echoes From the Guard

By Sergeant, A.

Well, here it is summer again and we will
soon be out in the lovely Western Ontario air.
This is one of the old veterans of the guard
speaking and since I have been here a lot of
fellows who were once AC/2's, like most of you,
are now either across the pond fighting that
. . . (sorry can't say it it here) Hitler and
several other lads just about completed their
pilot or observer course. We have the distinc-
tion on this Station of having the most Ameri-
can personnel and all of them are more than
anxious to do their bit. They are all in favor
of guard duty (ouch! One of the boys just hit
me). All kidding aside, the boys are doing a
fine job and with your co-operation mainly

keeping out of the restricted areas and obeying
them promptly they will do better. That's all
for now but next issue we will have some of
the new boys add a little and I'm sure will be
more interesting than this babble. However, so
long for now.

* * *

**THE FIRE DEPARTMENT'S
"DO YOU KNOW"**

That a standard of fire protection has been
established?

That eight out of every ten fires could be pre-
vented by promptly correcting hazardous
conditions such as disorders, accumula-
tions of rubbish and litter, defective heat-
ing equipment, faulty construction, and
the exercise of care, order and cleanli-
ness?

That first aid equipment, including chemical
fire extinguishers, are provided for your
protection?

That smoking in bed, putting a lighted pipe in
coat pocket, or leaving the lighted pipe,
cigar or cigarette stubs lying around the
barracks or hangars are extremely dan-
gerous and invite disaster?

That gasoline vapor is three times heavier than
air and will float along near the ground
to the basement like an invisible stream
and under favorable conditions will ignite
from a spark or flame?

That all gasoline cans should be labelled and
painted red?

That fire doors should be kept closed when not
actually in use, especially at night, and
also kept free from obstruction?

That oily waste and oil-soaked rags should be
kept in metal cans?

That fire extinguishing apparatus should be
kept in good working order and easily
accessible?

That you should be in a position to attack effec-
tively the small blaze whenever it occurs?

That all fires are small when they start?

That it is the first two or three minutes that
count for most in controlling fires?

That soda and acid or carbon tetrahydroxide fire
extinguishers are the most satisfactory
for general use, and that the foam type
should be provided where oil fires are
liable to occur?

* * *

"And what is life, if full of care? We have
no time to stand and stare."—Wm. Davies.

RECREATION CALENDAR

JUNE

SUNDAY, JUNE 1
0910 Hrs.—R. C. Church Parade.
1000 Hrs.—Protestant Church Parade.

MONDAY, JUNE 2
1900-2000 Hrs.—Scheduled Inter-Squadron
Games.

TUESDAY, JUNE 3
1900-2000 Hrs.—Scheduled Inter-Squadron
Games.
2015-2200 Hrs.—Cinema supplied by the
Y. M. C. A.
2100-2430 Hrs.—"Bachelor" Dance (at the
Y. W. C. A., St. Thomas).

WEDNESDAY, JUNE 4
1900-2000 Hrs.—Scheduled Inter-Squadron
Games.
1930-2030 Hrs.—Camera Club (in 1 Wing
Club Rooms).
2000-2130 Hrs.—Inter-Squadron Boxing.

THURSDAY, JUNE 5
1900-2200 Hrs.—Inter-Squadron Games.

FRIDAY, JUNE 6
2015-2200 Hrs.—Cinema supplied by the
Y. M. C. A.

SATURDAY, JUNE 7
2015-2200 Hrs.—Cinema supplied by the
Canadian Legion.

SUNDAY, JUNE 8
0910 Hrs.—R. C. Church Parade.
1000 Hrs.—Protestant Church Parade.

MONDAY, JUNE 9
1900-2000 Hrs.—Scheduled Inter-Squadron
Games.

TUESDAY, JUNE 10
1900-2000 Hrs.—Scheduled Inter-Squadron
Games.
2015-2200 Hrs.—Cinema supplied by the
Y. M. C. A.
2100-2430 Hrs.—"Bachelor" Dance (at the
Y. W. C. A., St. Thomas).

WEDNESDAY, JUNE 11
1900-2000 Hrs.—Scheduled Inter-Squadron
Games.
1930-2030 Hrs.—Camera Club (in 1 Wing
Club Rooms).
2000-2130 Hrs.—Inter-Squadron Boxing.

THURSDAY, JUNE 12
2030 Hrs.—Variety Concert supplied by the
Canadian Legion.

FRIDAY, JUNE 13
2015-2200 Hrs.—Cinema supplied by the
Y. M. C. A.

SATURDAY, JUNE 14
2015-2200 Hrs.—Cinema supplied by the
Canadian Legion.

SUNDAY, JUNE 15
0910 Hrs.—R. C. Church Parade.
1000 Hrs.—Protestant Church Parade.

MONDAY, JUNE 16
1900-2200 Hrs.—Scheduled Inter-Squadron
Games.

TUESDAY, JUNE 17
1900-2000 Hrs.—Scheduled Inter-Squadron
Games.
2015-2200 Hrs.—Cinema supplied by the
Y. M. C. A.
2100-2430 Hrs.—"Bachelor" Dance (at the
Y. W. C. A., St. Thomas).

WEDNESDAY, JUNE 18
1900-2000 Hrs.—Scheduled Inter-Squadron
Games.
1930-2030 Hrs.—Camera Club (in 1 Wing
Club Rooms).

THURSDAY, JUNE 19
1900-2000 Hrs.—Inter-Squadron Games.

FRIDAY, JUNE 20
2015-2200 Hrs.—Cinema supplied by the
Y. M. C. A.

SATURDAY, JUNE 21
2015-2200 Hrs.—Cinema supplied by the
Canadian Legion.

SUNDAY, JUNE 22
0910 Hrs.—R. C. Church Parade.
1000 Hrs.—Protestant Church Parade.

MONDAY, JUNE 23
1900-2000 Hrs.—Scheduled Inter-Squadron
Games.

TUESDAY, JUNE 24
1900-2000 Hrs.—Scheduled Inter-Squadron
Games.
2015-2200 Hrs.—Cinema supplied by the
Y. M. C. A.
2100-2430 Hrs.—"Bachelor" Dance (at the
Y. W. C. A., St. Thomas).

WEDNESDAY, JUNE 25
1900-2000 Hrs.—Scheduled Inter-Squadron
Games.

THURSDAY, JUNE 26
2000-2130 Hrs.—Inter-Squadron Boxing.

FRIDAY, JUNE 27
1900-2000 Hrs.—Inter-Squadron games.

FRIDAY, JUNE 27

2015-2200 Hrs.—Cinema supplied by the Y. M. C. A.

SATURDAY, JUNE 28

2015-2200 Hrs.—Cinema supplied by the Canadian Legion.

SUNDAY, JUNE 29

0910 Hrs.—R. C. Church Parade.
1000 Hrs.—Protestant Church Parade.

MONDAY, JUNE 30

1900-2000 Hrs.—Scheduled Inter-Squadron Games.

* * *

« DO YOU KNOW? »

That Damascus, Syria, is considered the oldest city in the world?

That Bob Gibson, formerly Y.M.C.A. Secretary at R.C.A.F., Jarvis, has succeeded Ernie McEwen as Senior Y.M.C.A. Secretary on this Station?

That the earliest known aqueduct was built by Sennacherib, who ruled from 705 to 681 B.C.? By means of this aqueduct, the ancient City of Nineveh was supplied with water.

That although a game similar to badminton was played in China 2,000 years ago and the British officers played a game called "poona" in India in the '60's and '70's, modern Badminton takes its name from the fact that the first game in the European world was played at Badminton House on the Duke of Beaufort's estate in 1873?

That the first American submarine to pass practical tests was the "Holland," so named after its designer and builder, J. P. Holland? It was tested by U.S. naval authorities on November 12, 1898.

That about 100 years ago pure aluminum was so rare and so highly valued that one of the few pieces known was the watch fob of the King of Siam?

That Houdini, the master "escape" artist, who could escape from any prison cell built, once spent half an hour trying to unlock a cell door, only to find it had not been locked in the first place?

That psychologists, seeking to determine the power of suggestion, have found subjects who are so susceptible that when touched with a pencil, but told that it was a red hot iron, have had blisters appear on the area touched?

That if a single grain of corn were placed on the first square of a checker board and the number of grains were doubled on

each following square, the number of grains on the last square would be 18,446,744,073,709,551,615, or more corn than has been produced in the U. S. A. in the last ten years?

That Mr. Anthony of Anthony's Music Store on Talbot street, St. Thomas, invites Air-men pianists who lack facilities for practice to drop into the store for the odd session on one of his pianos?

* * *

"PLANE FACTS"

By Cpl. Harland, M. W.

During the first world war the Allies dropped 100,000,000 pounds of bombs on Germany. Shrapnel, demolition and incendiary bombs weighing from twenty pounds to 1,000 pounds were included.

The British Sopwith Snipe fitted with ABC radial engine was the fastest aircraft in use in the last war. Its top speed was about 150 miles per hour.

Lieut. Marcel Viallet, French pilot in the first world war, was known as the "Unlucky One," the original hard luck pilot of France, yet his life was saved by one of the most miraculous occurrences in air history. With his aircraft riddled with bullets at 13,000 feet, one of two motors dead and the craft on fire, he went down in flames. Somehow, on the way down, the fire went out and he landed with little but framework left. The "Unlucky One" appeared to be lucky indeed, for he bagged 13 enemy planes and survived the war.

Dr. Kenneth T. Farrell, New York City food chemist, has stated that the population of Britain could be kept nourished by dehydrated

The Fight Against Diphtheria

By Assim, M.

foods shipped from this country by airplane. One bombing plane, he says, could carry in one trip enough soup to supply a meal for 500,000 people.

The 1937 edition of the "Aircraft Year Book," published by the Aeronautical Chamber of Commerce, Great Britain, lists Great Britain as leading the world in current air strength. The book credits Great Britain with 4,000 combat planes, France with 3,600, Russia with 3,400, Italy with 3,200, Germany with 3,000 and the United States with 2,200. Subsequent developments indicate Germany's strength as miscalculated.

Judging by the progress made during the past twenty years, it will not be long before men are looking down on this planet from a height of 20 miles. Capt. Anderson and Capt. Stevens, Americans, have already been 16 miles, or 72,550 feet high. They did it in the balloon Explorer II. at Rapid City, South Dakota, November 11, 1935. Lieut.-Col. Pezzi, an Italian, went to 56,017 feet in a Caproni aircraft in October, 1938.

About a century ago scientists were contemplating the possibility of 30 miles per hour speeds. Some of them expressed concern about possible ill effects suffered by the human anatomy at this high speed. Today college professors throughout the world are considering the effect of 750 miles per hour on the human body.

The surname Post has figured twice in big time aviation. Besides the better-known American Indian, Wiley Post, there was the pilot, Augustus Post, of the 1910 record-breaking balloon, America II., which won the Gordon Bennett balloon cup.

The personnel of the 501st parachute battalion, first parachute detachment in United States history, do their practice jumping from a height of 750 feet. They carry two parachutes and figure to use the second one, if necessary, notwithstanding the split second timing needed for such a job.

Slowly and quietly, without fanfare, gliders are holding their own in the rapid and tremendous development of aviation, contributing greatly to the understanding of flight theory. In 1938 Pilot Ziller-Hirschberg, a German, rose 22,000 feet above his starting level. In July, 1939, a Russian pilot flew a glider 464 miles point to point. In 1933 another Russian pilot remained aloft more than 36 hours in a glider.

In 1885 Pasteur inoculated the first patient with antirabic vaccine prepared from the spinal cord of a rabbit. Because of its frequency and deadliness, the conquest of diphtheria is perhaps the most notable achievement in immunology.

After the discovery of the diphtheria bacellus, which the symptoms of the disease are not due to the wide distribution of the bacellus in the body, but that the bacilli remains in one spot and liberate a toxin which is absorbed into the blood.

The facts from the work on diphtheria antitoxin illuminated certain aspects of immunity mechanism. Diphtheria antitoxin will protect against diphtheria, but not against any other infectious disease.

The production of immune bodies takes place in all the cells of the body. It is possible that certain organs, the spleen, the liver and the thyroid, are particularly active in their liberation, but no organ or set of cells, so far as we know, has an exclusive function of this sort. When the toxin or the bacterium of an infectious disease comes in contact with a body cell the cell is stimulated to produce a certain kind of chemical substance which will neutralize the poison or kill the bacterium.

These chemical substances are specific fit only the bacterium or toxin involved. When once started, they are produced in very great quantities and the cell is sensitized to produce them all through the life of the individual.

Whenever the same bacterium for which an antidote has once been produced by the body-cells again enters the body, the cells which have already learned the habit of producing antidotes are immediately activated to pour out enough antibodies to overcome it.

The final step in the conquest of diphtheria was accomplished when a mixture of toxin and antitoxin was shown to be a preventive. For diphtheria our data are complete:

1. We know the cause so the diagnosis can be made promptly and certainly; it does not depend upon the guesswork of symptoms.
2. We have a curative specific serum to be used after the disease is acquired.
3. We can determine by the Schick test which healthy individuals are susceptible and which are immune from it.
4. We can make the susceptible individuals immune by a preventive serum.

In every infectious disease, the hope of organized medicine is bent towards the same goal.

TECHNICAL TOPICS

AIRCRAFT INSTRUMENTS

Introduction

In Recent years aircraft instruments have assumed an importance which was hardly anticipated in the early days of aeronautics. A pilot's attention was then wholly occupied in the control of his aircraft during flights, which were undertaken only in good weather conditions, and even then were of no great length. Training was rightly directed to teaching a pupil to trust his sense-impressions alone, and to judge the attitude and behavior of his machine by the use of his ears and eyes and by what is called the "feel" of the aircraft. Instruments were few, crude and unreliable, and a certain distrust of them existed.

The progress in aviation, as longer cross-country flights as well as flights over water were undertaken, led to the need of not only a greater range of instruments, but for instruments of a more reliable type. When aviation became possible in all types of weather, fair or adverse, the new conditions demanded improved forms of instruments in order that the pilot might supplement his sense-impressions by the indications of his instruments.

The present stage of development has only been reached after much costly research work. The standard of workmanship and accuracy is now such that it is possible for a pilot to rely on the indications of his instruments alone when flying at night or under other conditions when visibility is poor or nil. During training a special period is usually allotted to "blind flying," as it is termed; that is, flying by instruments alone, under a hood which prevents the pupil from seeing the horizon and external objects.

Such a standard of accuracy has only been reached at the cost of sacrificing a certain amount of robustness, which would be desirable. It is only gradually being realized that aircraft instruments require and deserve careful handling, and that attention given to installation and maintenance will result in more satisfactory service and longer life. Owing to the relatively severe conditions under which they are used, their life is shorter than that of instruments used under ordinary land conditions. It is highly desirable, therefore, that all instruments should be checked periodically for accuracy of calibration, and not allowed to remain in use until a defect becomes obvious.

Problems of Design

It should be realized that aircraft instruments present a number of special problems to the designer, some of which will be mentioned below. The following conditions must be satisfied in order to ensure correct functioning; they may be regarded as essential features of design:

1. Instruments must be robust in order that they may withstand the vibrations experienced in flight and the shocks when landing and taxiing over rough ground.

2. They should not be unduly heavy. Every extra ounce of weight carried is said to add approximately \$1.00 to the cost of an aircraft. They must be compact in order to occupy the minimum space.

3. The moving parts must be balanced and as light as possible, in order to reduce errors due to tilting, as well as to avoid inertia effects when the aircraft is increasing or decreasing speed.

4. The friction of the bearings must be reduced to a minimum. A slight amount of friction, however, will be overcome by the normal vibration of the instrument panel, and therefore it is permissible to lightly tap the instruments under test before taking a reading.

5. Suitable damping of the moving mechanism must be provided, in order that the pointer may take up its position quickly and give a steady reading.

6. The natural vibration period of the moving parts must not bear a simple relation to the natural frequency of vibration of the engine, otherwise the pointer will oscillate violently, making it impossible to obtain a steady reading.

7. The case of the instrument must effectively exclude dust and moisture.

8. The dial must be clearly marked to permit easy reading by day, or when illuminated by night. Attention must be given to the dimensions and spacing of the marks to avoid any uncertainty as to the actual reading.

9. The indications of the instrument must be reasonably correct, whatever the position assumed by the aircraft.

10. The readings must not be affected by such changes of temperature as are normally experienced. Some form of automatic temper-

ature compensation is usually included in the design.

11. The materials must be chosen so as to provide maximum resistance to corrosion.

12. Instruments must be easy to install and to remove for adjustment or replacement.

Classification of Instruments

The principle instruments used in aircraft can be conveniently classified as follows:

A—ENGINE PERFORMANCE INSTRUMENTS

1. Engine Speed Indicator.
2. Fuel Pressure Gauge.
3. Oil Pressure Gauge.
4. Boost Gauge.
5. Fuel Air Ratio Gauge.
6. Oil Temperature Thermometer.
7. Coolant Temperature Thermometer.

B—AIRCRAFT PERFORMANCE INSTRUMENTS

1. Air Speed Indicator.
2. Vertical Speed Indicator.
3. Altimeter.
4. Cross Level.
5. Fore and Aft Level.

C—NAVIGATIONAL AND BLIND FLYING INSTRUMENTS

1. The Turn Indicator.
2. The Artificial Horizon.
3. The Directional Gyroscope.
4. The Aircraft Watch or Clock.
5. The Air Temperature Thermometer.
6. The Magnetic Compass.

Other instruments may be used for special purposes: *e.g.*, the Fuel Flow Indicator, the Fuel Tank Contents Gauge, etc.

Brief notes on the above instruments will be given in the following paragraphs.

In modern aircraft the layout of the instrument panel is standardized as far as possible. It is customary to fit the Blind Flying Instrument panel in the centre of the dashboard, the other instruments being positioned round it as convenient. The Blind Flying Panel is mounted on three anti-vibrational mountings and carries the following instruments: The Air Speed Indicator, the Artificial Horizon, the Vertical Speed Indicator, the Sensitive Altimeter, the Directional Gyro, and the Turn and Bank Indicator.

The Aircraft Compass is usually fitted below the instrument panel on a separate non-ferrous mounting in such a position as to avoid large parallax errors when viewed from the pilot's seat. The position in which the Compass is installed in an aircraft is decided during the construction of the machine and no unauthorized change of position may be made.

The Compass is placed as far as possible from magnetic materials, particularly those in which changes of magnetism may occur.

A—Engine Performance Instruments

THE ENGINE SPEED INDICATOR

There are two types of Engine Speed Indicators in general use in service aircraft:

1. The Mechanical Type

The Indicator consists essentially of a centrifugal governor driven at crankshaft speed by a flexible drive. Movements of the governor are conveyed by suitable mechanism to the pointer of the instrument. In order to reduce wear and tear on the flexible drive to a minimum, it usually runs at one-quarter crankshaft speed, it being geared down 1 to 4 at the engine end, a 4-to-1 gear is incorporated in the instrument and the central shaft carrying the governor rotates at the same speed as the crankshaft of the engine. Sharp bends should be avoided when fitting the flexible drive.

2. The Electrical Type

The Electrical Engine Speed Indicator was introduced when it was desired to use an indicator at a distance greater than 30 feet; the maximum distance practicable for a flexible drive. It consists of a moving coil voltmeter calibrated in terms of revolutions per minute (fitted to the instrument panel) and connected by a length of twin electric cable to a direct current generator driven at crankshaft speed by a short, flexible drive. The generator is usually fitted to a bracket on the fire-proof bulkhead in rear of the engine, and the length of the drive rarely exceeds 12 inches. The generator is of the permanent magnet type so that its output is directly proportional to the speed of rotation of the armature, its output being 1 volt at 100 R.P.M. up to a maximum of 30 volts at 3,000 R.P.M.

PRESSURE GAUGES

All Pressure Gauges, despite their different ranges, employ the Bourdon tube principle. The Bourdon tube takes its name from M. Bourdon, a French instrument maker, who patented the device in 1850. It consists of a metal tube of oval cross section bent or swaged longitudinally into nearly circular form (shaped like a ?). One end of the tube is closed and free to move and the other is fixed and connected to a suitable union for attachment to the fuel or oil pressure pipe lines. Any pressure inside the Bourdon tube above that of the atmosphere tends to make the oval section circular and therefore straightens the tube. The free closed end consequently moves through a small distance proportional to the pressure applied. This movement is transmitted by a link to a

toothed quadrant engaging with a pinion on the pointer spindle.

OIL TEMPERATURE THERMOMETER

A further application of the Bourdon principle. The indicator contains a form of Bourdon tube which is connected by a length of capillary tubing to a bulb which is inserted in some convenient portion of the lubricating system. The Bourdon, capillary and bulb are completely filled with mercury; when the bulb is heated, the mercury in it expands, and mercury is forced from the bulb up the capillary with a resultant "uncoiling" of the Bourdon tube and movement of the pointer.

RADIATOR TEMPERATURE THERMOMETER

Its principle is similar in most respects to that of the Oil Temperature Thermometer. In some cases the system contains Ethyl Ether.

OIL AND RADIATOR THERMOMETERS—GENERAL

Under no circumstances should the capillary tube be disconnected or cut. When fitting the instrument, care should be taken not to run the capillary near any part of the engine that is liable to get hot, and sharp bends in the tube should be avoided at all times. If the tube is too long, the excess should be neatly coiled and secured to the fire-proof bulkhead.

BOOST GAUGE

The Boost Gauge indicates to the pilot the pressure in the induction system of a supercharged aero engine relative to atmospheric pressure at mean sea level. It is essential for accurate indications that the case of the instrument (except for the union at the back) be airtight. Principle—aneroid. See the notes on altimeters for the description and action of an aneroid.

FUEL AIR RATIO GAUGE

Fitted on some U.S. aircraft and used in conjunction with the Boost Gauge.

B—Aircraft Performance Instruments

AIR SPEED INDICATOR

The Air Speed Indicator indicates to the pilot the speed of the air over his mainplane(s). It does not indicate ground speed, which, if required (as for bombing, navigation, etc.) has to be computed. The instrument is essentially a sensitive differential pressure gauge connected by lengths of aluminum tubing to the pressure head. Air entering the pressure tube of the pressure head is lead to a capsule in the instrument case, the instrument case itself being connected to the static side of the pressure head. The pressure in the instrument case is therefore that of still air at the height at which the aircraft is flying, any excess air pressure in the capsule causes a distortion of

the capsule which is conveyed by a suitable lever mechanism to the pointer. It is essential for accurate indications that the case of the instrument (except for the static connection at the back) be airtight. The position in which the pressure head is fitted on the aircraft is decided during the construction of the aircraft and no unauthorized change of position may be made.

VERTICAL SPEED INDICATOR

A further application of the differential pressure gauge principle. It indicates to the pilot the rate of ascent or descent of his aircraft in feet per minute. The case of the instrument is airtight except for the connection to the static side of the air speed system at the back of the instrument case.

An airtight capsule within the case of the instrument is connected to the static side of the air speed system. The inside of the instrument case is also connected to the same source through a small calibrated leak. As the altitude of the aircraft increases or decreases, there is an immediate increase or decrease of pressure within the capsule, but a slower pressure change within the instrument case, *i.e.*, in the pressure surrounding the capsule.

The difference in pressure between the inside and outside of the capsule is proportional to the rate of change of altitude, causing distortion of the capsule and a subsequent indication on the dial of the instrument.

ALTIMETERS (*Various Types*)

An altimeter indicates to the pilot the height of his aircraft above the aerodrome from which he took off; it does not necessarily indicate the height of the aircraft above the ground over which it is flying. Altimeters are affected by changes in atmospheric pressure and are provided with a knob by which the pointer can be set to zero before the aircraft leaves the ground. The principle employed is that of a simple barometer; an aneroid or evacuated capsule is mounted on a base plate and its sides held apart by a strong leaf spring. Atmospheric pressure is tending to squash the capsule against the action of the spring. When the aircraft climbs, atmospheric pressure decreases and the spring is able to pull the sides of the capsule farther apart, this movement being conveyed by suitable mechanism to the pointer. In later models, the instrument cases are airtight except for a connection at the back to the static side of the air speed system.

AIRCRAFT LEVELS

Levels are fitted in aircraft to indicate the fore and aft and lateral attitude of the machine. The cross (or athwartships) level also indi-

cates whether a turn imposed on the aircraft is under or over banked.

C—Navigational and Blind Flying Instruments

GYROSCOPIC INSTRUMENTS—GENERAL

The Turn Indicator, Artificial Horizon and Directional Gyro.

Each of the above instruments employs a small flywheel (or gyroscope) spinning at a high speed (10,000-12,000 R.P.M.). The cases of the instruments are airtight (except for unions and filters to jets) and air is withdrawn from the instrument cases by an engine-driven vacuum pump or a venturi tube located in the slip-stream of the air-screw. Air is allowed to enter the instrument cases through a filter and jet to replace the air withdrawn by the vacuum pump. The air jets are so designed and positioned that air entering the instrument cases through the jets impinges on buckets milled in the periphery of the rotors, causing them to rotate. At least five minutes must elapse after the engine has been started before the rotors attain correct working speed.

It is the property of a spinning wheel (or gyroscope) when suitably mounted in gymbal rings to maintain the direction of its axis of spin relative to the earth.

THE TURN INDICATOR

The Turn Indicator has two pointers, an upper and a lower. The upper pointer is actuated by a suitably damped pendulum, which is acted upon by the same forces as act on the liquid in a cross level when the aircraft is flying one wing down or turning. The lower pointer is actuated by the gyroscope and only moves when the aircraft is turning. It indicates the angular rate of turn in degrees per minute.

THE ARTIFICIAL HORIZON

The dial of the Artificial Horizon carries a miniature aircraft which is attached to the case of the instrument, which, in turn, is attached to the aircraft in which it is fitted. The horizon bar is connected to the inner ring of the gymbal system and is maintained parallel to the true horizon by gyroscopic action. When the aircraft dives, climbs or banks, the miniature aircraft moves with it, but the horizon bar remains fixed, giving the pilot the position of his aircraft relative to the true horizon. This instrument is especially useful under conditions of poor visibility when the true horizon cannot be seen.

THE DIRECTIONAL GYROSCOPE

The Directional Gyroscope is used in conjunction with the magnetic compass to indicate to the pilot the heading of his aircraft. The outer gymbal ring carries a card marked in

five degree divisions from 0 to 360 and is viewed through a window in the rear of the instrument case. A lubber line is marked on the window. A caging and setting knob is provided to enable the pilot to set the position of the card or to lock the gymbal system when he is about to indulge in aerobatics or when the instrument is not required for use. Under certain conditions of flight the Magnetic Compass is acted upon by forces rendering it inaccurate (see notes on Magnetic Compass); these forces do not affect the Directional Gyroscope, and the pilot is able to ascertain the heading of his aircraft at all times.

AIR TEMPERATURE THERMOMETER

A further application of the Bourdon principle. The indicator is usually fitted on the Bomb Aimer's instrument panel and is connected by a length of capillary tubing to the bulb, the latter being fitted to some convenient part of the aircraft outside the cockpit and out of the slip-stream. The bulb is protected by a polished metal cover to eliminate errors due to the sun's radiation. The instrument is used by the Bomb Aimer in conjunction with computers for calculating true height and air speed.

AIRCRAFT CLOCKS AND WATCHES

Some accurate form of timepiece is usually fitted to both the pilot's dashboard and the Bomb Aimer's instrument panel. A robust jewelled lever movement is employed. Some types are fitted with stop mechanism and a centre seconds hand and are used for navigational purposes, calculating fuel consumption, etc.

For navigational purposes when flying at night, watches are available adjusted to sidereal (star) time.

AIRCRAFT COMPASSES—GENERAL

The primary function of a Compass is to show in which direction the magnetic North lies, and to do this the Compass must make use of the property of the poles of a magnet to attract and be attracted by the pole of the opposite kind of another magnet. The earth itself being magnetized, a freely suspended bar magnet will take up a position parallel to the earth's magnetic field with its poles pointing North and South. The pole of the magnet that points to the North is called the "North Seeking" or "N" pole. To avoid confusion with the North Pole of the earth—which is of the same kind as the South Seeking Pole of the magnet—North Seeking Poles are designated RED poles and South Seeking Poles BLUE poles, and it is a common practice to color the magnets accordingly.

A Compass, therefore, consists of a magnet or group of magnets rigidly attached to a

frame suspended on a pivot at its centre. A magnet freely suspended at its centre of gravity will, however, take up a position at an angle to the surface of the earth, so the magnet system of an aircraft Compass is suspended at a point above its centre of gravity so that its weight will keep it almost horizontal and the RED pole will point along the surface of the earth towards the magnetic North, i.e., along the magnetic meridian.

A Compass with such a suspension and installed in an aircraft in flight will indicate the magnetic North accurately, but if the aircraft is turning or accelerating, the magnet system will have other forces acting upon it. These forces may be considered as acting entirely at the centre of gravity of the magnet system. Owing to the slight dip of the magnet system (towards the North in the Northern Hemisphere), its centre of gravity will not be vertically below the point of suspension, and the forces will exert a turning moment on the magnet system and cause it to deviate from its true alignment in the earth's magnetic field. For these reasons the readings of a magnetic compass fitted in an aircraft are not reliable when the machine is accelerating or turning.

An aircraft is a particularly unfavorable vehicle in which to fit a Compass because of the presence of large masses of magnetic material and electrical apparatus. The magnetic materials may become weak permanent magnets, changing in strength with orientation of the aircraft in the earth's magnetic field. Correction can be made for the permanent magnet part of the induced magnetism by means of small permanent magnets placed near the Compass. The deviation produced by the remaining magnetism is measured for all directions the aircraft may take and allowed for when reading the Compass.

With these corrections, the steady readings of the Compass are sufficiently accurate for navigational purposes, but it should be borne in mind that there are deviations that cannot be corrected. For instance, the firing of a gun may considerably change the gun's magnetism, and the switching on and off of an electrical circuit may change a magnetic field sufficiently for it to affect the compass.

The reliability of Compass readings depends not only on the efficiency of the Compass itself, but also on the choice of its position in the aircraft and the positioning of magnetic material and electrical circuits around it. It also depends on the adjustment of the corrector magnets and the accuracy of the measurement of the residual magnetism.

In order to minimize the effects of local distortion, therefore, it is recommended that:

1. Non-magnetic materials be used, wherever possible, for the structures in proximity to the Compass.

2. Direct current carrying conductors should be run together, preferably in a conduit, so that their fields will be neutralized; such conductors to be located as far as possible from the Compass.

3. The practice of running current carrying conductors directly along structural members should be avoided, to lessen the effects of induced magnetism.

4. When the airframe is used as a ground conductor for electrical apparatus, such connections should be made as remote as possible from the instrument panel.

5. A symmetrical arrangement with respect to the Compass of all electrical conductors, such as those of the lighting circuit, should be employed.

6. The Compass should not be deflected appreciably upon the movement of the aircraft controls or operation of other equipment. Such effects, if observed, should be traced to their source and eliminated.

Local magnetic disturbances which do not deflect the Compass more than 25 degrees from its true heading can be removed by compensation, but it should be noted that the best possible performance is obtained with the minimum compensation.

All Compasses consist essentially of a magnetic system suspended horizontally, as described in the preceding paragraphs; the remaining parts of the Compass are concerned with such practical considerations as the suspension of the system, the prevention of oscillations and the measurement of the angle between the magnetic meridian and the heading of the aircraft.

In Compasses used in aircraft, the magnets are suspended in a bowl filled with a suitable non-freezing liquid and sealed with a glass plate across the top. The liquid damps the movements of the magnet system so that a steady reading may be obtained, and radial filaments are usually fitted to the moving system to increase the damping. The second effect of the liquid is to reduce the weight of the system on the pivot. The pivot consists of an iridium pointed screw resting in a jewelled cup supported in the centre of the bowl.

The Compass is required to function correctly over a wide temperature range and consequently the volume of the liquid changes considerably. Some form of expansion chamber must be attached to the compass bowl and be capable of a corresponding change in volume.

Compasses intended for indicating the course of an aircraft have parallel grid wires mounted on a ring which is free to be rotated round the compass bowl. The grid wires are arranged so that they are parallel to the "N" and "S" filament of the magnet system and the heading of the aircraft read off the grid ring against the lubber line fitted in the bowl of the Compass, the lubber line being positioned parallel to the fore and aft axis of the aircraft during the adjustment of the Compass. By arranging the scale in this way instead of attaching it to the magnet system, the weight

of the magnet system and consequently the difficulties of suspension and damping are considerably reduced.

Compasses whose primary use is determining the bearings of distant objects are fitted with an azimuth circle in place of a grid ring. The scale on these Compasses is marked on a small card attached to the magnet system and is read through a right angled magnifying prism mounted on the azimuth circle when the sights on the prism have been aligned with the distant object.

* * *



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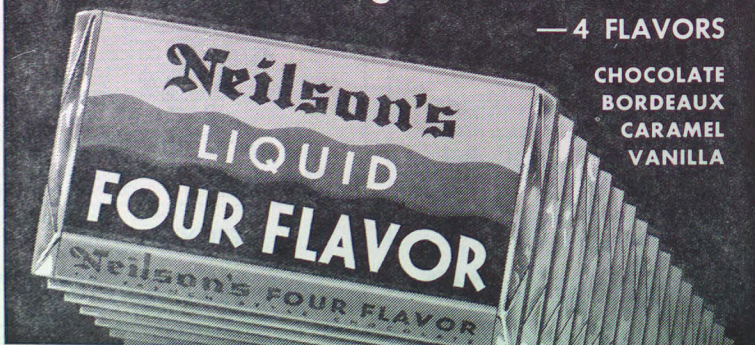
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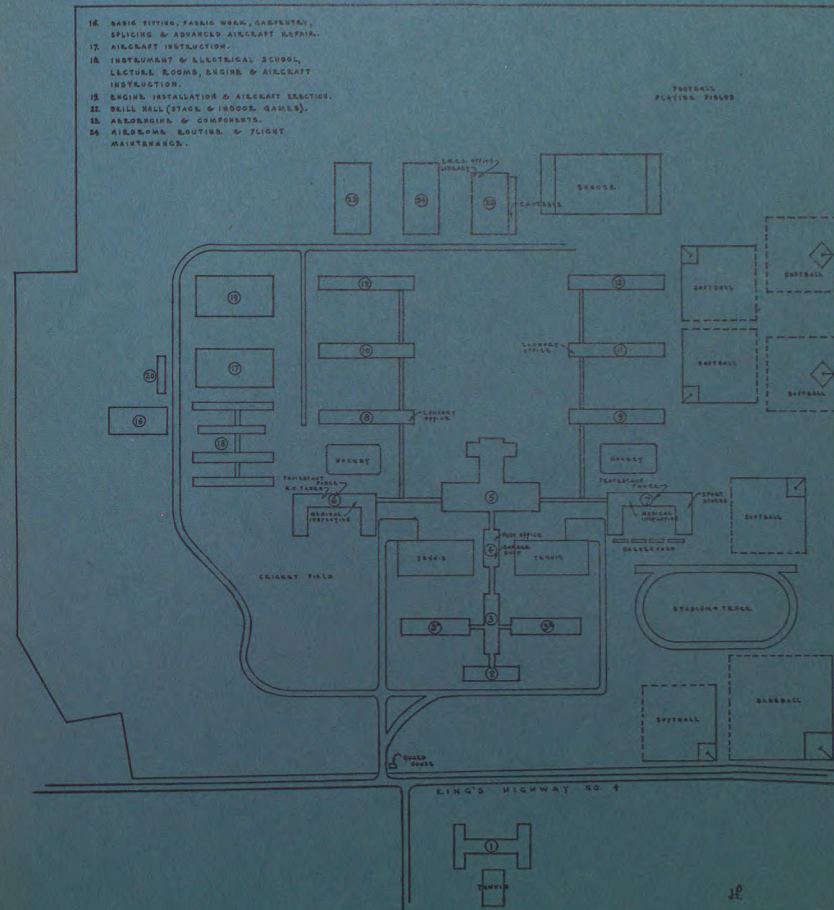
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