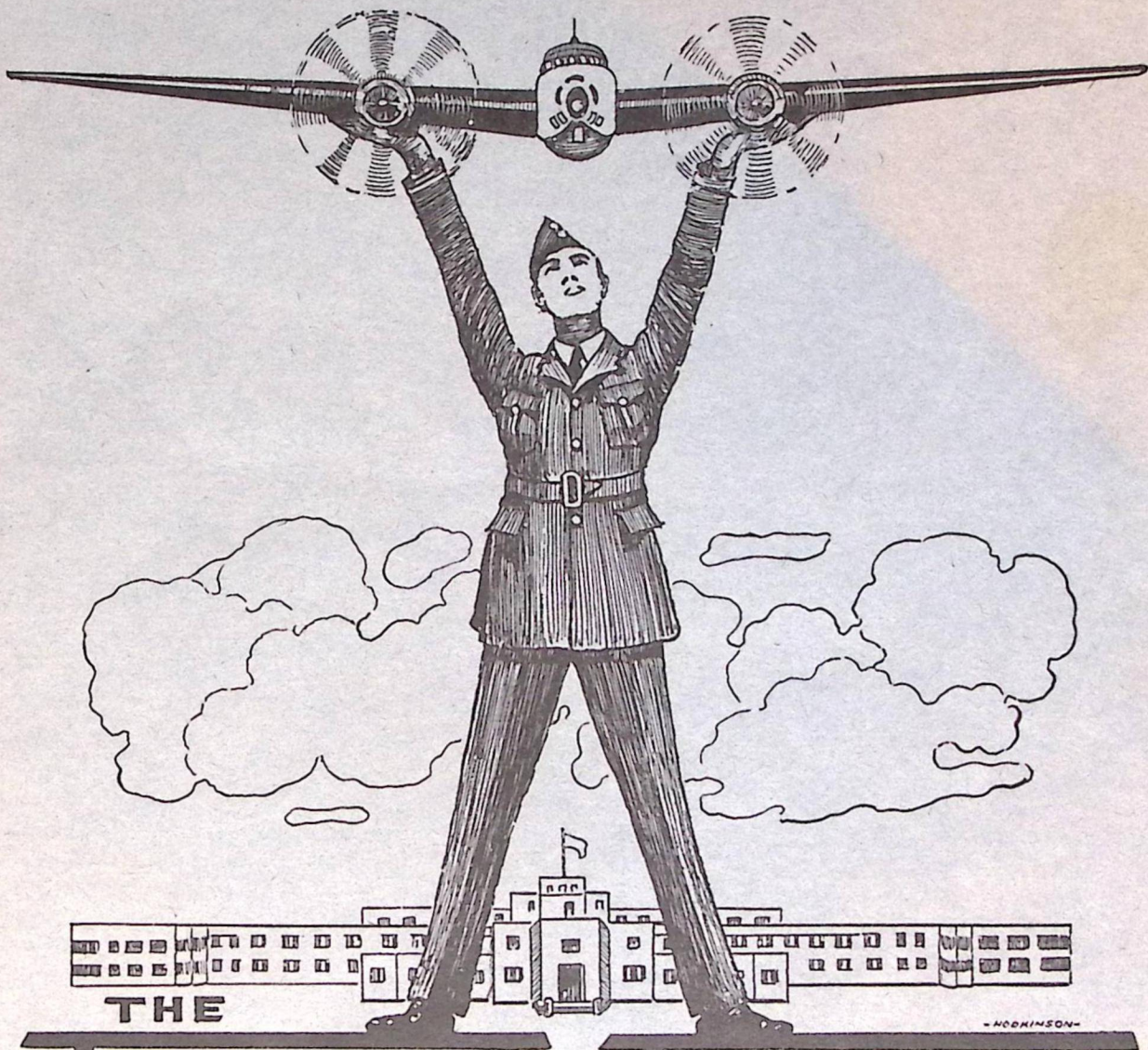


# THE *Aircraftman*

VOL. 2 - NO. 8

MARCH 1942



THE

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F/Lt W. L. Marshall (Secretary)  
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WO/2 Ard (President)  
F/Sgt Barnard (Secretary-Treasurer)  
Two Members

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Cpl. Weaver (President)  
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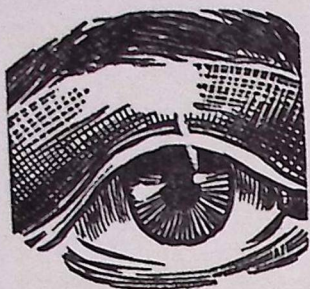
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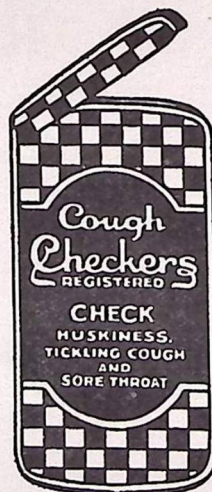


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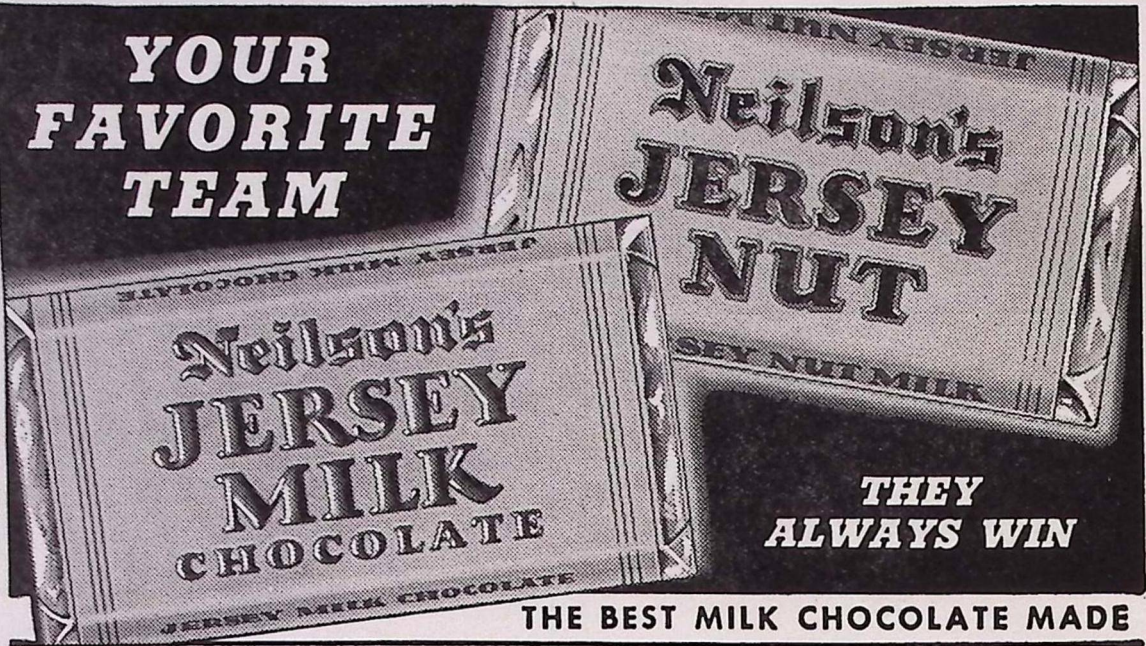


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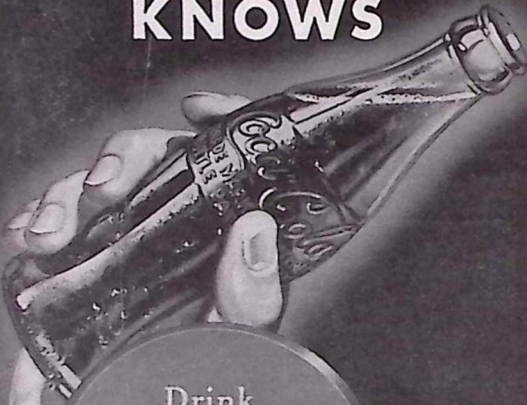
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# THE AIRCRAFTMAN

A Magazine of the R. C. A. F. Technical Training School  
Published Monthly at St. Thomas

VOL. 2 - MARCH 1942 - NO. 8



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## TABLE OF CONTENTS

- |                         |                         |
|-------------------------|-------------------------|
| I. EDITORIAL            | IV. AMONG THE SQUADRONS |
| II. SPORTS              | V. DO YOU KNOW?         |
| III. STATION ACTIVITIES | VI. TECHNICAL TOPICS    |

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*Stone walls do not a prison make,  
Nor iron bars a cage;  
Minds innocent and quiet take  
That for a hermitage.  
If I have freedom in my love  
And in my soul am free,  
Angels alone, that soar above,  
Enjoy such liberty.*

—RICHARD LOVELACE.

(From *Joys of Life*; Section, *Joys of Love*.)

## The Picture of The Month



*Stump Fence*

*F. L. Morton, P.S.A.*



# « « EDITORIALS » »

## THE YELLOW PERIL

The little, bandy-legged yellow man with the inferiority complex is feeling big just now. Doubtless the phrase (in Japanese, of course) "The bigger they are the harder they fall" is currently highly popular in the honorable land of the Rising Sun. Didn't he send mighty Uncle Sam reeling with a stunning blow below the belt? Hasn't the whole world been shocked by the tremendous drive of the yellow man? Desperately, relentlessly, ruthlessly and treacherously, he has fought his way 3,000 miles from home, spreading terror and tragedy and utter destruction as he went. In a few short months things have happened that just couldn't happen. Things might yet happen that seemingly cannot. For anything might happen with the most completely misunderstood people in the world—the Japanese. They have fought their way 3,000 miles southwest. They might yet try to fight their way 3,000 miles northeast. If they succeeded, they would be on our continent. We must be ready for anything!

The Jap is small, inoffensive, almost innocuous looking, but behind that mild exterior is a sinister nature as cruel and crafty as that of the other bloodthirsty little animal which he so closely resembles—the weasel. The Jap is a little man. A London "bobby" could gather him in by the armful; Joe Louis could dust off a ringful of him; a Canadian bushwhacker could pick up one in each hand and crack their skulls together. But the tough little man is no pushover as a soldier, mentally or physically.

To Occidentals the Jap nature is a mystery. His exceedingly clever mind is completely beyond our comprehension. He is a rare combination of Middle Ages ignorance and thoroughly modern streamlined intelligence. The Jap soldier in most cases is a former farm laborer, therefore hardy physically. He can get along on little and primitive food. He has sufficient education to take him out of the illiterate class. At the age of 22 he has had two years' intensive military and physical training. He is taught to think the way his superiors want him to think. He is taught that brutality and hardness are virtues, that gentleness, decency and sentiment are weaknesses, common only to the soft and decadent white man. He is taught the insignificance of women and children; the cheapness of life, so abundant

in the Orient; the supreme importance of the state and the emperor. The crowning glory is to die for the state, he is told; and he is taught that death in battle is the only fit end for a man worthy of the name. By the time he is ready for battle he is a far more vicious little animal than the weasel he resembles; he is the most dangerous creature on earth; quite incapable of understanding human emotions as we know them. He understands only one thing—FORCE. He cannot be scared or influenced, or reasoned with, or discouraged. He must be crushed, fought to a standstill, beaten to his knees.

The job will not be easy. It may be long. In all probability we shall have to forget some of our principles and fight on our enemies' own unpleasant terms before it is over. But when we really get down to business we can win. We and our allies have not yet scratched the surface of an all-out war effort. What little we have done so far has been done well. Our soldiers and sailors and airmen know their jobs and do them well. Their courage and morale has been demonstrated, repeatedly. The fault lies in quantity of effort, not quality. Up to now we have only played at war. The Japs do not play at war.

Out of 70,000,000 Japs something like 7,000,000 are either in training or in action: about ten per cent. The same proportion would give the U. S. A. nearly 14,000,000 soldiers, sailors and airmen; Canada would have mobilized over 1,000,000; China would have 35,000,000; the British Isles would have 4,500,000. The people in Japan are acutely conscious of the war. In contrast, we have people who have not the slightest idea of what wartime conditions are like. Japan has been on rations for years. For a long time nothing non-essential has been manufactured. There, it is not permitted to use even small amounts of metal for such things as buttons or zippers or personal ornaments. Production of their beloved rice liquor—sake—has been curtailed and a far less palatable inferior product has been substituted. The Japs are at war and it hurts the people. We have on this continent persons who yelp with pain at the mere prospect of doing without a new tire or giving up a gallon or two of gasoline. Right now the Japs are straining to the limit and getting somewhere. They have not much reserve of their

own; they can exert greater effort only to the extent that they acquire greater assets by looting. For that reason they could possibly lag soon, but they may not. Meanwhile, we will have to work as hard as they. When we arrive at the stage of effort that the Japs and our other enemies have exerted for a long time we, too, will get somewhere. When, as we will some day, try half as hard as the Japs, our enemies will certainly be swamped.

The Jap is little, individually, collectively and spiritually. He is no more dangerous (or no less) than the most vicious animal, which man has already put in its place. We can stop him if we try. But we will have to hunt him, mercilessly. We will have to go out and get him. If we do not he will be on our doorstep, cruel, diabolically gleeful, devoid of all compunction, lining up our boys and old men for bayonet practice, and dragging our screaming women out of our homes, as he did in China. We must never let the Japs get here. We must meet and crush them on their own ground. We must be sure of that, even if some people have to give up two gallons of gas instead of one.

—M. W. H.

\* \* \*

### GENTLEMEN: THE LADIES

This month saw the arrival at T.T.S. of a number of fine young Canadian girls who have enlisted for active service in the R.C.A.F. Women's Division. It is rather early for any predictions, but we are certain that they will play a leading part in the life of the School.

The present group of R.C.A.F. women is very anxious to enter the spirit of T.T.S. and take their part in its many activities. It will not be long before we find them taking part in numerous aspects of the work on this Station. Indeed, we notice that they are not losing any time for it has been announced that they will enter the drill competition for this month. We are quite certain that this is one of the first times women have competed against men in such a contest. Your keenness and sporting spirit is very much admired and we all wish you success in winning the Trophy in the near future.

\* \* \*

### CIGARETTE FUND

Word has been received that a number of R.C.A.F. personnel overseas are without relatives and friends in Canada who send them cigarettes. Many of us who enjoy smoking realize the importance of this announcement. T. T. S. has a movement under way to assist overseas airmen. Boxes will be placed in the

Airmen's Canteen, various messes and the Recreation Hall. Your pennies and change will be administered by the Station Welfare Committee to purchase cigarettes for our less fortunate buddies. Brother, can you spare a smoke?

\* \* \*

### WHAT IT COSTS TO MECHANIZE WAR

For every dollar spent in the last war on armament and transport, Canada is now spending five dollars. Victor Sifton, Master-General of the Ordnance, made some revealing comparisons in a broadcast over the C.B.C. national network.

Here are a few facts as given by Mr. Sifton:

In 1914-18, an infantry division moved on foot at 2½ miles an hour. A division was doing well to cover 20 miles in a day.

Today an infantry division moves at a minimum speed of ten miles an hour.

A Canadian infantry division in 1918 had 153 motor vehicles and 4,400 horses. The cost plus upkeep at the front for one year was \$2,000,000.

A division today has no horses or wagons, but it has 3,500 motor vehicles of more than 160 different types. The cost of the vehicles used by a modern division plus one year's upkeep is \$12,000,000.

In 1914-18 over all cost of a division varied from 30 to 48 millions a year, according to severity of fighting. Today's cost of creating and maintaining an infantry division for one year is \$86,000,000.

To equip and maintain a Canadian armored division in the field for one year will cost \$155,000,000.

There was no military formation in 1918 to compare with the modern armored division. But the cost of maintaining the whole Canadian corps in France in the full fiscal year 1916-17 was \$143,000,000 or \$12,000,000 less than maintaining an armored division.

One armored division develops 394,237 horsepower, as much as the electrical power used in the City of Toronto.

—From "THE FLY PAPER."

\* \* \*

There is always hope in a man that actually and earnestly works. In idleness alone is there perpetual despair.—*Carlyle*.

Work is the best thing to make us love life.—*Ernest Renan*.

The only way to have a friend is to be one.—*Emerson*.

« « SPORTS » »

**COMMANDING OFFICER'S TROPHY**

On account of short month of February, and the schedule being disarranged, the contest for the Commanding Officer's Trophy was not over at the time of going to press. A full report of the sports activity for February will be included in the next issue, which will appear on April 1st.

\* \* \*

**DRILL TROPHY**



Recently the Drill Competition was removed from the sports programme and made a separate event. The Commanding Officer, Wing Commander J. H. Keens, has presented a trophy for monthly competition. This photograph shows him presenting the new trophy to Flt. Lt. J. E. Corrigan, who received it on behalf of E. & A.T.S., the winners on the first occasion of the new competition.

\* \* \*

That which passes out of our mouth passes into a hundred ears.—*Confucius*.

Shave with a file if you like, but don't blame the razor.—*Confucius*.

Do not remove a fly from your chum's forehead with a hatchet.—*Confucius*.

**THE MAN BEHIND THE EIGHT BALL**

*By L.A.C. Crymes, S. E.*

From the early dawn of history, from that time that the first cave man started rolling stones and calling them marbles, there have been referees and umpires, and since the first one called a play they have been behind someone's eight ball.

I happen to be one of those poor misled souls who calls himself one of those ignorant, misguided people who think they can referee basketball (of course you know that I am only a poor cow puncher from down Texas way, and that I lived so far back in the backwoods that I was ten years old before I had my first pair of shoes, and then my feet were so tough that I wore them out from the inside. So you see I can't know very much about any kind of a game).

Since I have been at T.T.S. I have refereed lots of basketball for the schools and Y.M.C.A., and I take great pride in our Station's Sport Program. And I am very thankful that I am allowed to play even so lowly a part as referee. The boys of the various Station teams have been very tolerant with my many mistakes and have always been very good sports when the decisions went against them, and I am very grateful to them for their splendid co-operation.

Now I am right in the middle of a hot basketball season, and when I say hot I mean sure enough hot, with Headquarters Entries leading the list. And the Squadrons creeping up on them as they break in their new players from the new Entries. Headquarters Squadron has the advantage just a little as their players are more or less stationary, while the others lose nearly their whole team every so often and have to start all over. No team can replace players like McConnell, Sher, Musson and Ward from No. 1 Squadron, 1 Wing. I would like to say here the best game of basketball I have worked this season was a play-off between No. 2 Squadron, 1 Wing and No. 1 Squadron, 1 Wing. The score, '22 to 24 in favor of No. 1 Squadron, 1 Wing. Gentlemen, that was some game and played hard and clean, as all games should be played.

To be a good official, the first thing to do is to be official. Instill in the teams the belief that you are able to handle all situations as they come up. Make your decisions quickly and walk away. Keep the game under control at

all times. Allow no back talk from any of the players. If your decision is questioned, call time out and call the captain of the team, but never argue with any player. Be a good sport and meet the players half way and always remember that you can make mistakes but never admit them on the floor; get together and talk them over after the game. Always overlook personal insults from the sidelines as they are very seldom meant to be the way they sound.

So long, hoping to see you on the foul line soon.

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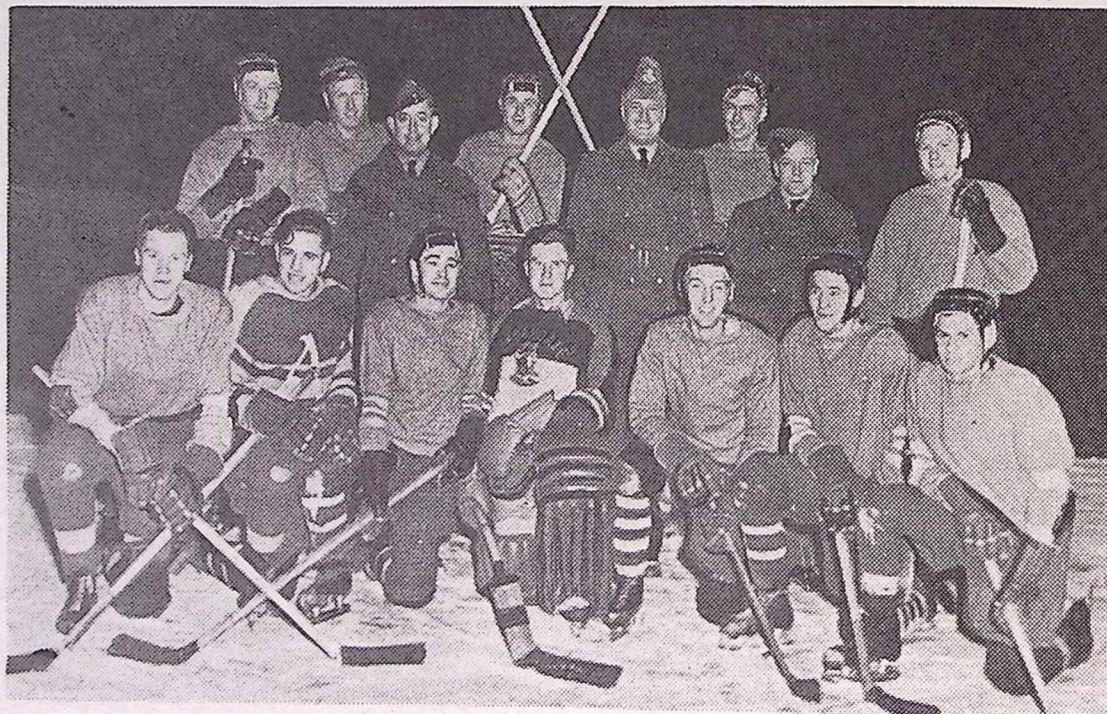
### STATION BASKETBALL

*By L.A.C. Callaghan, D. H., Headquarters Squadron*

Outside Basketball competition was carried on during the past month under a trying difficulty, namely, the scarlet fever epidemic, which forced the cancellation of several games. The Station team, composed of Gibbs, Davis, Callaghan, Van den Brande, Musson, Morgan, Rose and Black, played only two games, winning

\* \* \*

### WINNING HOCKEY TEAM AT T.T.S.



Hockey is booming at the T.T.S., where an exciting inter-squadron league is in progress. Above is pictured the top flight team. Back row (left to right): Cpl. Grant, A.C. Brough, Flt. Sgt. Morrison, A.C. Sereda, Sqn. Ldr. Hugh Williams, A.C. Barker, Flt. Sgt. Sinclair, Cpl. Jones. Front row (left to right): A.C. Higgs, A.C. Bassaraba, A.C. Cormier, A.C. Salter, A.C. Johnston, A.C. Zatelyn and A.C. Baillargeon. The team comes from No. 1 Squadron, 2 Wing.

handily against Aylmer Y.M.C.A. in one and losing the other to the smart Aylmer R.C.A.F. five.

While on the topic of Basketball, we wonder how many of our readers know that the game was invented by an instructor in the Y.M.C.A. Training School at Springfield, Massachusetts, in the year 1892, and that it is the first deliberately invented game to become a success? Incidentally, the gentleman's name was Dr. James Naismith. At first the game was unpopular because it was too tame. The orientals corrected the flaws in the game and made it a success. At this writing basketball is the most widely played game in the world. In America alone it has three-quarters of a million teams and eight million players. In the City of Cleveland, Ohio, there are 1,500 basketball teams. Between the years of 1926 and 1936 over \$100,000,000 was spent in buildings designed for basketball. Basketball last year drew three times as many spectators as any two other sports combined. Strange as it seems, Ripley says it is true.

**HOCKEY**

Congratulations to No. 1 Squadron, 2 Wing on their very fine showing in winning the Station Hockey Championship Medals. This final deciding match between No. 1 Squadron, 2 Wing and No. 2 Squadron, 1 Wing was a grand demonstration of just how keen competition is on this Station.

We will attempt to give you a graphic description of the game just as we saw it. The game was scheduled for 2015 hours. No. 1 Squadron, 2 Wing team has just arrived at the rink, and the time is now 1930 hours. There are a few spectators around the cushion, and suddenly everyone is surprised to hear music, softly at first, and then flooding the whole area. Someone has set up the power amplifier and record machine and the ever-increasing audience is whistling the airs of the popular tunes.

It is now 1945 hours and No. 2 Squadron, 1 Wing team has just arrived and is raring to go with approximately 100 rooters with them. By this time there are at least 200 spectators and now a voice comes out of the loud speaker directing No. 1 Wing spectators to one side of the rink and No. 2 Wing to the other. The time is drawing closer (it is now 2005 hours). The captains of both teams have filled in the score sheets, and last-minute instructions have been given to the two referees and goal judges, and now as we stop the music to make an announcement we hear the excited shouts and cries of the impatient crowd.

The air is charged with excitement as Wing Commander J. H. Keens and Squadron Leader H. N. C. Williams arrive on the scene. Flying Officers Little and Boyes, Officers Commanding No. 2 Squadron, 1 Wing and No. 1 Squadron, 2 Wing, respectively, are also on hand to give their Squadrons a hearty cheer.

Both teams are now on the ice and the referee has just blown his whistle calling for the face-off. The ice is perfect, and it soon is quite evident that the game will be a fast one for all players are putting all they have into the game.

"Flight" Rowley is going up and down the lines of 1 Wing rooters spurring them on to new effort, although this is hardly necessary for both sides are cheering and shouting until they are almost hoarse.

It was touch and go which side would finally be the winner until the timer blew his whistle at the end of the last period.

Well, we all know the results — No. 1 Squadron, 2 Wing won with a score of 2-1.

The winning team had its picture taken with Squadron Leader Williams, the Officer Commanding No. 2 Wing, and then the losing team posed for a picture with the Commanding Officer of the Station, Wing Commander J. H. Keens, A.F.C.

It was a great game, lads! Keep up the good work!

\* \* \*

**A SOLDIER'S PRAYER**

Guide me, Heavenly Father, as I carry on each day,

Thy strength and comfort sure to help me on my way,

That I might do my duty, never falter, never fall,

I lift my eyes to Thee, Thou art my life my all.

I did not seek to battle, I join no cause for lust,  
But raise my hand with this desire: 'tis freedom for the just.

Thou asked that little children come unto Thee, and I

Join hands to thwart a tyrant, who wills that they should die.

Thou knowest, Heavenly Father, how others have the need,

How, trampled in the dust, the helpless lie and bleed,

And Thou, Who knowest every sin, and every loving heart—

The agony, the anguish, of nations torn apart.

Well knowest Thou there are many, many more like me,

Who only fight that other's who suffer might be free;

We pray, O Heavenly Father, 'twill pass this sordid dross,

And men again remember the Christ upon the Cross.

And so, O Heavenly Father, in reverence I pray

For strength and comfort sure to guide me on my way,

That when this strife is over, when freedom then is won,

We ask again, Peace will remain, and Thou wilt say **WELL DONE.**

—AC/2 FORD, S.

\* \* \*

Canadian lists show very few casualties among ground crews. This indicates that the Germans are not getting at the British airdromes or air fields, or at least not those manned by Canadians.

# STATION ACTIVITIES

## MEDALISTS FOR FEBRUARY



### Gold Medals

- Entry 83 A.E.M. -R121572 A.C.2 Trace, H. A.
- Entry 83 A.F.M. -R119743 A.C.2 Bembridge, L. A.
- Entry 78 A.F.M. (MR)-R123322 A.C.1 Savill, H.
- Entry 17 Elec. -R116731 A.C.2 McLeod, M. W.
- Entry 82 A.E.M. -R110463 A.C.2 Lowe, E. S. C.
- Entry 82 A.F.M. -R113140 A.C.2 Whiteley, W. M.
- Entry 77 A.F.M. (MR)-R104418 A.C.1 Smith, D. K.

\* \* \*

### Bronze Medals

#### Boxing

- Morton, S. - R123374
- Baker, F. A. - R132213
- Miller, J. P. - R147004
- Kelly, E. F. - R118929
- Kellow, J. K. - R126432
- Leonard, J. C. - R121471
- Brootch, L. H. - R142416
- Simpson, G. C. - R78731
- O'Connor, D. T. - R125171

#### Hockey

- Cpl. Jones, W. M. P. - R60933
- A.C.2 Johnston, W. G. - R118915
- A.C.2 Salter, E. W. - R118744
- A.C.2 Zatelny, W. - R118516
- A.C.2 Barker, G. R. - R116323
- A.C.2 Baillargeon, J. L. - R119893
- A.C.2 Cormier, A. S. - R132115
- A.C.2 Basaraba, A. - R132086
- A.C.2 Sereda, W. P. - R131880
- A.C.2 Higgs, W. A. - R126474
- A.C.2 Brough, G. C. - R112575
- Cpl. Grant, I. A. - R106233

#### Badminton

- A.C.2 Shearer, J. D. - R118919
- A.C.2 Rutter, E. C. - R119528
- Cpl. Brown, R. W. - R122501
- A.C.2 Parsons, H. F. - R145564
- A.C.2 Rand, A. L. - R145570

#### Basketball

- A.C.2 Wood, G. R. - R138046
- A.C.2 Allan, D. A. - R134964

- A.C.2 Maskell, J. - R141859
- A.C.2 Ferguson, J. E. C. - R138048
- A.C.2 Murray, R. C. J. - R134487

### Volleyball

- A.C.1 Edwards, J. M. - R119764
- Cpl. Harwood, H. D. - R67274
- Cpl. Grant, I. A. - R106253
- A.C.1 Brough
- A.C.2 Shoemaker
- A.C. 2 Lozoff, L. H. - R127152

\* \* \*

## CALENDAR OF ACTIVITIES

*(Newcomers to the Station may follow the following set-up for recreational and sporting activities from week to week. Special events or any change in any particular week may be noted in the Y.M.C.A. Daily Bulletins which are posted up in all Squadrons.)*

### SUNDAY

- 0910 Hrs.—R. C. Church Parade.
- 0915 Hrs.—Protestant Church Parade.

### MONDAY

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

### TUESDAY

- 1900-2000 Hrs.—Scheduled Inter-Squadron Games.
- 1900 Hrs.—Camera Club (in Wing 2, Security Guard Lecture Room).
- 2015-2200 Hrs.—Movie, supplied by the Y.M.C.A.

### WEDNESDAY

- 1900-2000 Hrs.—Scheduled Inter-Squadron Games.
- 1915-2015 Hrs.—Bible Study Group in the Chapel in Wing 2.
- 1930-2030 Hrs.—Camera Club (in 2 Wing, Security Guard Lecture Room).

### THURSDAY

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

### FRIDAY

- 2015-2200 Hrs.—Movie, supplied by the Y.M.C.A.
- 2100-2430 Hrs.—“Bachelor” Dance (at the Y.W.C.A., St. Thomas).

### SATURDAY

- 2000 Hrs.—Movie, Drill Hall.

# AMONG THE SQUADRONS

## 1 SQUADRON, 1 WING

By A.C.2 Wesley

February 14th was a happy day for E-21 and not because it was Valentine's Day but it was the last day of basics. There is still a chance some of the boys may have the pleasure of finding out what extra T. T. stands for.

Bay C-11 seems to have a jinx on it as far as bay Seniors are concerned. The first bay Senior, Ed. Johnson, was shipped to the hospital with scarlet fever. Then that wild Irishman from Vancouver, Art Kelly, came down with a "heat rash" which turned out to be a mild case of measles.

Flying Bill Kozzatz is the real early "bird" of C-9. It all started with Bill getting up to shave at 5 a.m. This kind of annoyed everyone, especially when the chin scruff started flying off. So on Friday night Bill was sleeping peacefully—too peacefully—when one of the boys shakes him and tells him it is time to get up.

"What's the time?" asked Bill.

"Six a.m."

"Gosh, my watch says 11.30 p.m. First time that's stopped in 15 years."

Bill gets up, shaves, and starts to put his clothes on when the gang tell him it is 11.40 p.m.

The Station is very fortunate in having such fine men as Smith, Pollock, Thompson, Lewis, Ratcliffe, Berry, Warden, McLeod, Tolman and Marlow stay with us as instructors.

The Squadron would like to welcome back to T.T.S. two more Western N.C.O.'s, viz, Cpl's Ross and Schellenberg. Hope you are with us for some time.

Cpl. Neice, one of the good disciplinarians, went on leave and got married to a very sweet girl. "Congratulations" to you and your wife from the "discipline gang."

E-17 and I.M.-18 will all be missed by the Squadron and N.C.O.'s. These Entries had every kind of human character you could wish to meet.

We wish to welcome I.M.-22 and 23 and E-21 and 22, and we hope you have a happy stay here and move out with at least a "C" group.

One of the boys, Randy of I.M.-21, got married to his love on his last 48-hour pass. The boys presented A.C.2 Rands with a lovely long "NIGHTGOWN." It sure was a dandy.

We are glad to welcome our new Sergeant—Sgt. Brennan. We hope you stay for some time.

### SPORTS

The Station's Boxing show was quite a success. No. 1 Squadron had such fine performers as A.C. J. P. Miller, heavyweight champ of Canada, and O'Connor, the tough 147-lb. kid.

No. 1 Squadron wish to thank all the boys for the way in which they worked to win the C.O's Trophy. "Thanks a million, fellows!"

We would like to thank both Headquarters and No. 1 Squadron, 2 Wing for the grand competition of the past month. Thanks again to Headquarters Squadron for the way in which they won that last Basketball game.

We lost five of our Basketball team in Musson, Morgan, McConnell, Sher and Garr. Sorry to lose such fine sportsmen.

We are building a team around the five that are left—Wood, Murray, Ferguson, Allan, Wasserman, Boyd, O'Connor, Maskell, Margetts, Walz, Swartz and a few more.

P.C. Margetts is getting into the full swing of Basketball again and is playing a sterling game.

Simmons, our volleyball captain, claims he will have a good team in a short time.

Turner, in charge of badminton, is having quite a time to get a winning team, but as he says, we will not give up trying.

Some of the boxers who we wish to thank are Carroll, Cottingham, Horsman and Morris. They gave grand performances.

We don't expect to win the Trophy this month but we are having a swell time. Come on out and join the fun.

Let's set our objective at the C.O's Trophy. If we don't win it, let's win some medals in one of the sports!

\* \* \*

## 3 SQUADRON, 1 WING

By Sgt. Stanley, W..M.

"Yesterday is gone, Tomorrow never comes, Today is the day we live." As we live today let us try to do our best to live it the best we can, and in doing this try our best to make it more pleasant for others. Let us not condemn what we think to be mistakes of others until we know the truth. Let us not get too down-hearted at our losses, for in order to make Victory all the more pleasant we must have reverses. Every one of us make blunders and when we look at them we will find that if we made any equal blunder with respect to size of a larger situation we would then see that the mistakes of others are not so large after all.

There is always a sad note in parting when really there shouldn't be, for only by parting can we go to new places and meet new friends. If we stayed in one place forever we would get into a rut and we would not have the opportunity to broaden our outlook on life and eventually we would be of little use to our fellow-men.

When we part we can look forward to making new friends and learning new ideas, and we carry from the place we have left the ideas that we can pass on to those we meet, assisting them on their way.

It is not what we have done that counts; but how we have done it and with what spirit we did the task that counts.

If it is my lot to part from you, there will be only one regret in my mind and that is that you can't go with me. As this is impossible, I wish you one and all the very best in the future, and may we some day meet again.

## WE WOULD LIKE TO KNOW—

Why they don't list the things we can do, because they would save paper that way?

Why a certain Sgt. on "B" Floor is so cranky at times?

When that "Frosty Friday" will be here?

Why there is confetti in every parcel that Cpl. "S" opens?

If Cpl. "M" (Tech) will be happier when he knows the results of his trade-test?

"There is always hope in a man that actually and earnestly works. In idleness alone is there perpetual despair."—*Carlyle*.

"A man is relieved and gay when he has put his heart into his work, and done his best; but what he has said or done otherwise shall give him no peace."—*Emerson*.

"No entertainment is so cheap as reading, nor any pleasure so lasting."—*Lady Montagu*.

"Friendship is the sweetest, and of all comforts the greatest."—*Goodwin*.

## OUR TEN COMMANDMENTS

1. Thou shalt place no other service before this.
2. Thou shalt not make unto thee any pictures, or any plans the likeness thereof to this building or to any other building that is within our bounds, or of any part thereof, or of any planes, or any parts of planes; and if in possession thereof thou shalt not pass them on to the fourth and fifth columns that they might be used against you.
3. Thou shalt not take apart any equipment sectioned for thy benefits.
4. Remember the trust placed upon thee and keep it honored. Twelve weeks art thou here to study, but the thirteenth shalt thou be posted. Thou shalt do all manner of fatigues and duty watches: for it took a greater number of weeks for others: Wherefore you are lucky that the powers have shortened it and made it easier.
5. Honor thy King and thy Flag: that thy days may be long in the service.
6. Thou shalt not slander the service.
7. Thou shalt not commit sabotage.
8. Thou shalt not unrightfully possess.
9. Thou shalt not make it necessary to call a witness against thee.
10. Thou shalt not covet thy officer's position, nor thy N.C.O.'s privileges, nor his rank, nor his room, nor his authority, nor anything that is his, for some day thou might have the same.

"I spake these words saying, obey all these rules and any others that are made unto thee, that thy days may be free from charge and C.B."

Teacher: Now, Tommy, perhaps you can tell us the purpose of grammar?

Pupil: Please, miss, it learns you to talk proper.

## IT'S NOT TOO LATE

Above this sphere of strife and toil  
There is a place of lasting rest;  
We can reach its shores and stay  
For ever, and not just a day,  
And there be Heaven blest.

You who now still live in health,  
And those whose days are nearly done,  
Prepare yourself and earnestly pray  
For the time when you will meet one day  
God the Father and His Son.

For even those who in this life  
Have spent their days in deepest sin,  
Pray while life still doth last,  
And ask forgiveness for the past,  
To stay the gates of Heaven within.

Yes, every woman, man or child,  
And every one who has a soul,  
Pray a little each and every day  
And ask our God to show the way  
To make the gates of Heaven your goal.

—STANLEY, W. M.

The Horse and Mule live twenty years  
And nothing know of wine and beers;  
The Goat and Sheep at twenty die  
And never taste of Scotch and Rye;  
The Cow drinks water by the ton  
And at thirteen is almost done;  
The Dog at fifteen cashes in  
Without the aid of Rum or Gin;  
The Cat in milk and water soaks  
And then in twelve short years it croaks;  
The modest, sober, bone-dry hen  
Lays eggs for noggs, then dies at ten;  
All animals are strictly dry,  
They sinless live and swiftly die;  
But ginful, sinful, rum-soaked men  
Survive for three score years and ten,  
And some of us, the mighty few,  
Stay pickled till we're ninety-two.

## SEE WHAT I MEAN?

Why are Fire Engines Red?  
Roses are red, too;  
2 and 2 are 4,  
4 times 3 is 12;  
12 inches make a ruler.  
Princess Mary is a ruler,  
Queen Mary is a ship.  
Ships swim in the ocean.  
In the ocean are fishes,  
The fishes have fins.  
The Finns were beaten by the Russians.  
The Russians are Red.  
Fire engines are always rushing,  
Therefore  
Fire engines are red.

Two Negro soldiers were discussing the relative merits of their company buglers.

Said one: "Fellah, when dat boy of ouahs plays pay call it sound 'xactly like de Boston Symphony playin' de Rosary."

The second colored boy snorted: "Brothah, you ain't got no bugler a-tall. When Snowball Jones wraps his lips aroun' dat bugle of his, an' plays mess call, I looks down at mah beans an' I sez: Strawberries, behave! You is kickin' de whipped cream out of de plate!"



# LAUGHS

## FROM-T.T.S.



THE BUGLER - AFTER REVEILLE.



POOR JOE



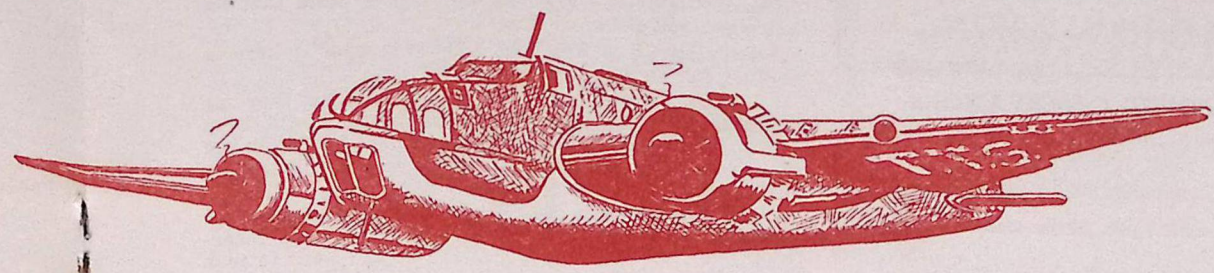
SHE LOVES ME SHE LOVES ME NOT.



UNCONSCIOUS SABOTAGE.

"KEEP 'EM FLYING."

# WORK



# SAVE

3 Sq. - 2 Wing

2 Sq. - 2 Wing

2 Sq. - 1 Wing

1 Sq. - 1 Wing

3 Sq. - 1 Wing

E. & A. T. S.

Civilian

1 Sq. - 2 Wing

Headquarters

# LEND

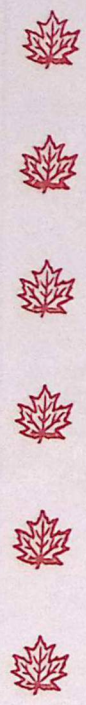


YOUR SAVINGS TOTAL \$35,024 NOW

H. E. Bishop



BERLIN



**1 SQUADRON, 2 WING**

**PARADE GROUND OBSERVATIONS**

A Rookie is known from the rest of the world by the following signs:

1. He appears on the Parade Ground improperly dressed.
2. He is without a collar-pin, or he wears a non-issue pin.
3. His uniform is dirty, wrinkled and baggy.
4. His buttons and boots are dull or dirty.
5. He wears fancy non-issue shirts and pointed shoes.
6. He wears a scarf. Why not spats or a Christie hat?
7. His hair is worn long and shaggy.
8. He shaves at irregular intervals instead of daily.
9. He seems to forget that he is continually in the public eye.
10. His quarters are untidy and littered with papers and non-issue towels, socks, shirts, shoes, left-overs from parcels, etc.
11. He grouses and grumbles at things at which he should laugh.
12. Finally, only the rookie has to be checked on the Parade Ground for acting the fool.

Now lads, the only way to graduate from the Rookie class is not to show any of the signs mentioned above.

—CPL. CROOK.

\* \* \*

**2 SQUADRON, 2 WING**

**COPY OF AN ACTUAL LETTER FROM A  
HOSPITAL INMATE TO A CHUM  
IN A BAY**

Hello:

Well it looks like I'm right back behind the well known 8 ball again, doesn't it.

The Doc. says German Measles, and that's 6 days. I Hope it will be no worse. As far as I know I'll be in this Hosp. at Ward 200 I'll let you know about any changes.

Will you Phone My Mother & Dorothy for me? when you get into Toronto? Dorothy's phone # is \_\_\_\_\_ My Mothers is \_\_\_\_\_.

Pick up my letters each day or at least see that they leave them for me here & See that all my things are put Saffley away please in Store.

?

They (steralise) this paper So don't worry.

Will you have my writing Paper (2 Books of letters & Paper undir the Blankits with Dorothy's Picture) Sent up to me her, & sent up the Picture too also my Shaving Kit on the Bed.

I sure do worry & bother you don't I. I hope it will be OKay with You. In my small Bag there is a Box. Will You send up those trimming Scissors from Dorothy they are in it. Send up the Whole Box instead & My Note Book. (Under Blankit) & the ordinary red Book of notes from this School.

I have already telegraphed to Dorothy but. I was just under Observation for it as far as She is con-

cerned. But seeing the Doc is sure now that it is Germaine Measles. You can tell Her & Mom that on Sat when you phone for me.

Sorry Ol Chap but I do need this stuff & here is another favour I'll have to ask of you.

I can't send home for money because they ar quarantined & they won't pay me & as I will need stamps tooth paste etc. I will need some. Will you see if anyone down in the Bay can lend me 1 dollar or less if possible until I get out of here.

Damn it this is a mess isn't it but they are hurrying with me writing. O hell I just thought of Something else. My Laundry I guess You will have to pick that up to-morrow & send it in with the rest of my bags etc. to the Stores take the 21c out of the money You will try to get sent up to me. I Hope You Can make it out.

They just let me know. Room 4 Ward 200  
Hospital

For me My home for a week.

When you put my Stuff in Stores My Pyjamas & Cloth for boots are under the Mattress. Seeing that you will be studying tonight. If you haven't time to do up this Big Order Let it go until tomorrow.

I guess you might as will have that clean shirt of mine or maybe you better not chance it because of Measles.

Not signed

**A SALUTE TO FLIGHT FIFTEEN  
OF WINNIPEG**

Attention, men who wear the blue:

Hats off to Flight Fifteen,

A flight that for the past six months

Has stood the test supreme.

Through Y.T.S. and Manning Pool

The flight was never parted,

But it was while at Manning

That trouble for them started.

Some went East, some went West,

And some to Number Five,

And then the question soon arose:

Would this great flight survive?

They have survived; at T.T.S.

Again they stand united;

Again their torch of Challenge

To other flights is lighted.

Now they have set a Standard

No other flight can follow;

Perhaps the Western Bull they spread

Is just too hard to swallow.

The R.C.A.F without Flight Fifteen

Is like meat without gravy,

But if Canada depends on them,

Thank God we have a Navy.

\* \* \*

**Equipment and Accountant  
Training School**

**THE BATTLE OF ST. THOMAS**

By W.O.2 King, H. G.

The battle-scarred sector west of the highway bids farewell to the 22nd Entry of Equipment Assistants,

the most notable of whom was A.C.2 Hutton, a product of the old West, who walked off with the Gold Medal and a big grin for attaining the hitherto unheard-of mark of 95 on his final examination. Virtually a perfect paper, which calls for a round of applause for the lad and his Instructor, Flt. Sgt. Duggan.

W.O.2 Larry Vail steps to the front of stage, centre, for a big hand for guiding our drill team to another victory in the competition, and thereby being the first winner of the Commanding Officer's new Drill Trophy. It is interesting to note that our School won the other Sports and Drill Trophy the first time it was presented for competition. Pictures of the presentation appear elsewhere in this issue. (We won't go into how many times we've won it since, but just fail back on the old chestnut about "not who won or lost but how you played the game" or something.)

Welcome to the 23rd Equipment Entry, which includes some 40 newly recruited "quaffs." Pardon us, 40 newly recruited R.C.A.F.W.D's. Try to make a word out of that!

Sgt. Levack is also a newcomer to our Orderly Room, replacing Flt. Sgt. Clarke, our pool shark, who has gone to throw typewriters at the enemy from Headquarters overseas.

The staff and instructors of E. & A.T.S. are eagerly looking forward to the arrival of the new crop of potential Equipment Assistants. Previous courses have come and gone without any great show of interest on the part of the staff. To the instructors they were just another bunch of airmen to try to cram into their minds for six short weeks a tremendous number of equipment voucher numbers, forms and procedure.

This time, however, things are entirely different. The new course is eagerly awaited. There is much speculating and guessing as to what the new classes will look like.

But why all the excitement over a new class? For the simple reason that the next course is not *all* Equipment *men*. Yes, fellows, you've guessed it. The C.W.A.A.F. has at last invaded even the sacred portals of good old E. & A.T.S.

Never again will life be the same here. Pent-up emotions will have to be suppressed and speech softened tremendously. Little private stories will not be told to the world at large but will be dispensed quietly in a corner of the room huddled around the speaker.

Everyone will be on his best behavior and the airman who comes to work with buttons or boots unpolished or face unshaven will be rare indeed. We predict that Comrade Sgt. Leduc will even shave off his brush and come out from under his disguise.

But all joking aside, fellows, the girls are all right. They're serious, even if we're blasé. They are here for the express purpose of learning their work and helping to release man-power for needed places here and overseas. (Note well, you aspirants for aircrew—they're doing you a favor.) The girls try hard and learn things the correct way quickly. Want to see some smart salutes? Wait until next pay day and watch those girls show up three-quarters of the airmen on the Station. They don't fool!

The next course will be composed partly of C.W.A.A.F. and we predict it to be one of the cleverest, if not the cleverest, of all Equipment Courses here since the School started.

Welcome, C.W.A.A.F., and lots of luck!

Barracks to be built in Italy are to be equipped with recreation grounds. Naturally, the Italian soldiers must have running tracks on which to practise.



The late General William Mitchell, straight thinking U.S. Air Corps officer, was discredited and retired because he spoke too plainly about obvious weaknesses in his country's defense structure. He once called the Aleutian Islands the Achilles heel of U.S. defense, *i.e.*, the weakest spot of all. This part of our continent is only 700 miles away from Japanese possessions. Until recently it was quite unprotected. It is fortified now and is being hurriedly reinforced. That is just one of many of General Mitchell's warnings. They are being heeded a little late.

The Netherlands East Indies, in preparation for the long-expected ordeal, built an extensive system of air raid shelters and underground workshops, many of which are impervious to damage from the largest bombs.

American defense forces in Hawaii seem to have been more alert in January, 1941, than in December of the same year, according to Hallett Abend, well-known American author. The ship in which he was approaching Hawaii was still far from land. Out of the mist flew a U.S. flying boat which dropped low and investigated. A few minutes later more planes appeared. Later some destroyers came and were just as curious as the planes.

More than one-half of the young men of combat flying age can tolerate an altitude of about 20,000 feet for a reasonable time without ill effects. A considerable percentage of persons suffer illness at very little over 5,000 feet.

Bad weather grounds birds as well as aircraft. No birds, not even the highly intuitive carrier pigeons, will fly where they cannot see. Blindfold any bird and it finds its way to the ground and stays grounded. It will not attempt to fly through fog or heavy cloud formations.

Ninety per cent of casualties among pilots operating for the allies in the early days of the first world war resulted from defects in the pilots, not from defects in the machines, or action by the enemy. At first only 2 out of every 100 killed died from enemy action. Today it is estimated that more than 10 per cent of

civilian aircraft accidents are due to some error in the pilots themselves.

At the end of 1940 there was less than 1,000 efficient anti-aircraft guns in the U.S. Until quite recently there were only enough to protect a handful of potentially vulnerable coast cities.

Experienced British aerial warfare experts doubt the usefulness of oversized aircraft in any war activity. General H. H. Arnold, U.S. deputy chief of staff, takes the opposite view. He predicts the useful operation of war planes many times larger than the Douglas B-19.

One of the greatest airmen of all time is a Russian, Alexander P. D. Seversky, now an American citizen and a reserve officer in the U.S. Army. Seversky was Russia's greatest fighter pilot in the first world war, earning every decoration that government had to offer. In the middle of the war he lost a leg, but that did not deter him. He went back into action and shot down a dozen more enemy planes. Seversky has more than a score of major aircraft inventions to his credit.

The Japs seem to be good at tall stories. Not long ago Tokyo broadcast about a certain ace of theirs who, during the Russian-Japanese North China border disputes, shot down 26 Russian planes in one day.

The U.S.S. Panay, clearly identified as American, was sunk in Chinese waters by Japanese aviators in December, 1937. Although the Japanese authorities recognized the incident officially and grudgingly admitted

responsibility, it has been suggested by responsible foreign observers that the ship was bombed by Japanese fliers on their own, out of pure mischief and dislike for the Occidentals.

R.A.F. 73 Fighter Squadron was "Cobber" Kain's squadron. It went to France early in this war. That squadron saw hectic action for weeks and months and destroyed scores of enemy planes. Yet months later when the French campaign was over and the squadron returned to England, not one of its personnel had been killed by enemy action. Flying Officer E. F. Kain, D.F.C., and others had been put out of action by accidents.

A considerable proportion of the U.S. fleet went to Hawaii in March, 1940. With the fleet went at least 500 airplanes. These and aircraft already in service there could have provided a very hot reception for the December 7th invaders.

For some unexplained reason, the German Air Force, which was so anxious to see that the B. E. F. did not get home from Dunkirk, made no attempt to interfere with the transporting of the force to France. At the beginning of the war the Germans were well able to take effective action if they had wanted to, but not one of Goering's men appeared to interfere with the conspicuous and extensive operation.

In 1939 the United States Congress turned down the navy's request for \$5,000,000 to fortify the little island of Guam which is now in Japanese hands. That is \$5,000,000 worth of power less that the Japanese have in their possession today.

\* \* \*

### "THE SHUTTER BUGS"

*By Gordon Burrell, Y.M.C.A.*

Following last month's article on photography it was suggested that we ought to have a monthly item on this subject. We are glad to make an attempt to comply with this request and shall endeavor to deal with one phase of this great theme month by month, beginning with rather elementary topics and proceeding to some more complex.

At the moment we shall not attempt to handle any specific problem but rather give a general introduction, and present an outline of what we propose to discuss in future editions. This we hope to do in a simple manner so that those with little or no knowledge of photog-

raphy will be able to gain an intelligent understanding of a fascinating hobby.

(These articles will, of course, be rather theoretical and we suggest that anyone interested in the practical side of the hobby will be able to follow this line by becoming interested in the work of, or joining the T.T.S. Camera Club.)

First of all, we wish to disillusion some folks. There is a prevalent idea that in order to be a good photographer and take decent pictures it is necessary to have an expensive camera and many high-priced gadgets. This idea is erroneous. In actual fact, many of the

finest photographs have been taken with quite ordinary, run of the mill, cameras.

On the other side of the picture, anyone may succeed in getting the odd "lucky shot" provided he is willing to go out and waste roll after roll of film. This, however, is not only a wasteful and expensive habit but has the added disadvantage that it does not help the operator to improve his photography or technique.

In order to take good photographs consistently, it is necessary to have at least a fair knowledge of a few fundamental facts.

So many phases of photography are related to one another that it is extremely difficult, indeed almost impossible, to separate them. As a result there will be a bit of overlapping from time to time. We ask your indulgence if this does happen and please do not think that we are unnecessarily repeating ourselves.

If you are interested in following this subject for a time it might be well to clip each article as it appears, study it and then refer to it from time to time. Also, this will help if it is necessary for us to refer back to previous issues as we do not keep many back copies of THE AIRCRAFTMAN, and it will not be possible for us to give many extra copies in future months. (We are trying to do our bit in saving paper.)

The following is a tentative schedule of the series of articles and the order in which they will appear:

**1. What happens when we click the shutter**—This will be a general talk and will give a brief outline of exactly what goes on inside the camera when the shutter is clicked, and the

subsequent processes necessary to get a finished picture.

**2. The effect of light on photographic emulsions and the developing and fixing of films and papers**—This heading is almost self-explanatory and will deal in detail with the various characteristics of different types of films and the manner in which different kinds of developing agents, etc., affect them.

**3.(a) Contact Printing.**

**3.(b) Enlarging or Projection Printing.**

The above articles on contact and projection printing will deal with all the tricks and short cuts on this subject.

**4. The kind of camera to buy.**

Why buy a cheap camera! Why buy an expensive camera! In this paper we will attempt to give you the answer.

**4.(a) Optical Equipment.**

Lens, depth of field, aperture focal length, composition of light, spectrum, perspective, hyperfocal distances.

**4.(b) Film size.**

Grain, advantages in having larger film size. Then we will attempt to give you a fair knowledge of taking pictures, starting with:

1. Landscape (composition) scenic.

2. Sports and moving objects.

3. Portraiture.

As we have noted many of the different phases of photography are interwoven, and to derive full benefit from these articles, it will be necessary thoroughly to study each article, clip it, and then have it ready when reference is needed.

\* \* \*

## I BELONG TO THE GROUND CREW

(Condensed from the book "THE AIRMEN SPEAK")

*Flight Sergeant*

*The lives of Britain's daring airmen depend on the fitness of their Hurricanes and Spitfires. Toiling below, the lads of the maintenance crew are responsible for keeping the planes in first class fighting condition. The author of this article has serviced planes before and after scores of raids.*

You can take it from me that the maintenance crews are "flat out." Each aircraft has its own crew. As a result everybody is very proud of the fighter in his charge. And a healthy rivalry develops, too. They are like the boys in racing stables who groom their own particular horse, call it pet names, slap it affectionately and kiss it when it wins a race. When they hand it over to the jockey on the big day they believe that their horse is the best that money and care can produce. The maintenance crews on our Hurricanes are like that. I've

seen them in the morning, taking the covers off the aircraft, slap it under the belly and say something like: "Come on, you beauty, plenty of Huns today, please!"

Once a pilot came back from a battle after shooting down a Junkers 88 and two Messerschmitts. The crew that serviced that Hurricane did a war dance and went about swanking to the other crews. They regarded the three at one crack as *their* work. Then I've heard them comparing notes like: "How many bullet holes did yours get back with today?"

And the reply: "Only one." And then the first crew say triumphantly: "One bullet? That's nothing! We had seven in ours, and they were all repaired in no time!"

But that is where the rivalry ends — with good-natured high spirits. It begins with real, hard work, but competitive work, mind you. There is keen competition when the aircraft come back to re-arm and re-fuel. One day, when the squadron landed almost at the same time—I mean in quick succession—it took the maintenance crews only eight and a half minutes to re-arm and re-fuel the lot. Eight and a half minutes from the moment the first machine landed to the time the last machine was ready for the air again, each aircraft having been filled up with petrol and ammunition for another battle.

We work long hours, but we don't mind. Our day starts at dawn. The first task is to take the sleeves off the main planes and the canvas covers off the cockpit hoods. Then the pickets which have tied the aircraft down all night are taken up.

The fitter gets into the cockpit and the rigger stands by the starting motor. The engine is started up and run until warm. Then, should there be an alarm, there will be no trouble about starting the aircraft or getting it off the ground quickly.

Suppose there is an alarm. The message comes through by telephone and immediately I dash out and shout the signal for every crew to go to their own particular aircraft and start up. At the same time the pilots come from their crew room and scramble into their aircraft. Sometimes the pilot arrives at the same time as the crew, but as often as not the engine is started when he races up. If it takes more than two and a half minutes from the warning to the time all the aircraft are in the air—well, there is usually an inquest at which I am the coroner. If there has been any delay I want to know why, because every second is precious and might mean the difference between ten Huns or no Huns at all.

Well, eventually, the fighters come back. Perhaps they have been in action. As soon as the first one lands it taxis towards the waiting ground crew. A tanker goes alongside to fill up the petrol tanks. At the same time the armorers re-arm the eight Browning guns. The rigger changes the oxygen bottles and fits the starting motor to the aircraft so that it is ready for the next take-off. Then the rigger takes some strips of fabric which he has brought with him from the crew-room and places them over the gun holes. It helps to keep the guns clean and also helps to keep the air-

craft 100 per cent efficient in the air until the guns are fired.

Meanwhile, another member of the crew searches the aircraft for bullet holes and the electrician goes over the wiring and the wireless mechanic tests the radio set. Every little part of the aircraft is O.K. before the machine is pronounced serviceable again. All this process should take no more than five minutes, but we allow seven minutes for the whole job.

As I said a moment ago, we once serviced a squadron which came back more or less together in eight and a half minutes.

If a Hurricane comes down with a few bullet holes, it is my job to see if the injuries are superficial or not. If there are holes through the fabric, we quickly patch them up. If there is a bullet through the main spar, then it is a case of a new wing. Should a machine be found by me to be unserviceable, a spare aircraft is brought for the use of the pilot until his own machine is ready.

So the day goes on, this routine happening perhaps two, three, or four times a day. Finally, at nightfall, we make the daily inspection. The armorers clean the guns, the fitter checks the engine over, the rigger checks round the fuselage and cleans it, and the wireless man checks the radio set. The instruments man checks the instruments. When everything is O.K. and the necessary papers signed, the machine can be put to bed. The sleeves are put on the wings, the cover is put over the cockpit, the pickets are pegged into the ground and the machine left, heading into the wind, until dawn.

It sometimes happens that an aircraft needs, perhaps, a new undercarriage. That means working far into the night until the aircraft is ready to fly again. I remember working with other members of the crew fitting a new undercarriage to a Hurricane which had been damaged on landing. We started at four o'clock in the afternoon and we didn't finish until four o'clock the next morning. But when that aircraft came back the next day with a few Huns to its bag it made all our labor well worth while.

Like the pilots, we eat our food when we can. If the squadron is sent off at, say, eleven o'clock in the morning, and we know that they probably won't be back for at least an hour, we go for lunch. But we always leave a spare crew on duty to deal with any aircraft—maybe from another squadron—which might land.

The crews take great pride in the aircraft in their charge. They call their Hurricanes by pet names, always starting with the machine's appropriate letter. Thus you get a machine

with the letter "F" called Freddie, "Q" Queenie, and so on. They paint mascots on the aircraft, too. "Freddie," for instance, bears a picture of Ferdinand the Bull. Another aircraft has a witch on a broomstick, another has George and the Dragon, and they usually paint a tiny swastika along one panel for every Hun the pilot has got. They keep the aircraft spotlessly clean, too. After each trip it is wiped clean of oil and every other day the Hurricane is washed and scrubbed with soap and water. And they wash behind the ears, too, as though

they were washing a small schoolboy!

I am Cornish, though my wife now lives with our three children in the Village of Ryther near Selby, Yorkshire. My family are boat builders in Falmouth and a great-great-grandfather or something like that, of mine, was a Petty Officer in Nelson's *Victory*.

He helped to conquer one dictator. I hope to do my bit in conquering another.

*(From The Magazine Digest, October, 1941. The original article was published by Doubleday, Doran & Co., Inc. Used by permission.)*

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### COMMANDING RESPECT

*By Cpl. C. D. Clarke*

Riding on a wave of public sentiment the boys of the R.C.A.F. have had their lot made a pleasant one. There can be no doubt of the fact that the average Canadian citizen has taken the Airman more to his heart than the men of the other services . . . although he has not forgotten the boys of the Army or Navy. To wear the blue uniform of the R.C.A.F. is to merit all the glamor of past heroes and to have every door in every town swinging wide with welcome. To the average Airman this experience has been gratifying, surprising and remarkably wonderful . . . and by this attitude and behavior the average Airman has deserved and been worthy of these attentions. By his character he has commanded respect.

However, there are exceptions . . . A man joins the Air Force under great advantage . . . he has a good muscular frame, a sound mind and a healthy constitution and he inherits the good name of the Force . . . However does he proceed to late hours, irregular meals, beer taverns, clouds of tobacco smoke, and women of a sort, he immediately starts to spell disaster and work to the undoing of us all. I say to all who read this article that you have no right to shatter the good name of the Force by idle and unworthy action and that the continuation of public respect for the R.C.A.F. is resting on the shoulders of each and every one of us.

It would appear to me that the goal for this New Year of 1942 would be a continuation of the respect of the public for our branch of the service . . . and it is our job to preserve and improve and extend this principle . . . or shall we destroy that and replace it by essentially opposite principles?

Shall we allow others to show the Air Force as being "not so superior" and by their actions take us all down to a common level?

We write this with the thought that you and I are interested militantly in the good name of the R.C.A.F. There have been some isolated cases of Airmen placing the service well into the glare of the disapproval of the citizens.

We will always have with us a few "good for nothing" Airmen who are no good to themselves or society, because it will not appreciate them at their own figure. The warm and hearty invitation given us by citizens finds lazy, worthless fellows ready to abuse this kindness in any way possible. We don't figure that this is a sermon or even a Sunday School lesson, but we do figure it as a warning and call on all Airmen to make it their duty during the coming New Year to, by their action, COMMAND THE RESPECT of all citizens with whom they come in contact, and by so doing, keep the R.C.A.F. in the envious position which it now is.

—FLY PAPER, *Jarvis*.

\* \* \*

### HOW SUBS WORK

To understand better how our sub patrol functions, let us look briefly at the tactics of the U-boat, of which Germany has about 150 in operation. These sealthy, lurking sea wolves do not generally hunt in packs like their animal counter-parts. One or two subs are assigned to cover a certain zone, and this is done by having them cruise back and forth

over the shipping lanes. Communications are held to a minimum; radio and sonic signals are exchanged only when absolutely necessary, although the Nazi bombers often communicate with the U-boats in order to guide them to a convoy which has been spotted from the air. Theoretically — which, in this case, means under conditions of perfect visibility and



smooth water—the submarine watch officer can detect through his periscope a merchantman at a distance of eleven miles. Under average operating conditions in the North Atlantic, this is reduced to something between seven and nine miles. The sub is distinctly at an advantage because its only exposed part is the periscope's top.

Many subs have two periscopes, and the ship's commander peers through one as the watch officer looks through the other. They start in pursuit of the merchantman, watching closely as the victim vessel shifts its course in irregular zig-zag. The sub commander cannot determine the vessel's zig-zag course accurately, but he can plot an average course. Dawn and dusk are the favorite times for attack because the larger vessel appears in silhouette while the sub's 'scope cannot be seen in the uncertain light. The sub sneaks along the flank of the victim vessel at a distance of from 500 to 1,000 yards while the commander computes the vessel's speed. He must take at least two bearings on the intended prey. If the sub is lying in wait for an approaching ship it takes two bearings from its stationary position instead of the "running fix" obtained by the moving U-boat. Then the sub draws up to a point just opposite the vessel, at approximately

a 90° angle. When attack is opportune, the sub turns—torpedo tubes are in the bow—and the torps are discharged in such a manner that they follow an angle ahead of the ship, in the same manner that a skeet shooter "leads" by shooting ahead of the clay bird. Two torpedoes are usually fired in close succession, "staggered" so that if one misses the other will hit. The sub turns as quickly as possible, submerges farther, and begins its dodging retreat at full speed for about ten knots. Even a sub that is floating on the surface can submerge in a "crash dive" within three minutes. At the 500-yard range—as close as it is safe for the sub to venture even while fully submerged because of the danger of the blast—the torpedoes can reach their target in about half a minute.

Obviously, immediate detection and quick action are necessary in order to put the Nazi "pig boats" out of action. They are hunted down ruthlessly even after they have torpedoed one or more ships in convoy; not primarily for reasons of vengeance but also because a sub carries anywhere from 15 to 20 tin fish and might account for many more shiploads of vital war material before putting into port for fuel and ammunition. It is in this search and the ensuing quick action that airpower comes into its own.

"AIR NEWS."

\* \* \*

### THE OTHER CHAP

I've often thought, when things go wrong,  
And a fellow's feeling blue,  
That a kindly word from the other chap  
Would make the whole day new.

It's a long, hard trail that's malice filled,  
And the road with hatred bound;  
It's a kindly word that will make a chap,  
Or crush him to the ground.

A pat on the back is as free as air,  
And it's only yours to give;  
So think of your own faults once in a while,  
And let the other chap live.

The world could be a happier place,  
If you'd think, just once in a while,  
To lift your voice in a kindly word,  
And show your teeth in a smile.

—The Airman, No. 3 Depot, Edmonton.

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### RESEARCH AND DEVELOPMENT IN AIRCRAFT

The feathering airscrew is neither a novelty nor a mystery, but the average man has only a vague notion of its nature and purpose. He was able to assimilate the principles and functions of the variable pitch airscrew and its developments, but the additional qualities possessed by the feathering airscrew appear to leave him a little bewildered and uncertain. Perhaps the following explanation will help to

clear his mind of its doubts and remove any mystery that may be troubling him.

With all its accomplishments, the variable pitch airscrew suffers from the same trouble that afflicts the old fixed pitch "prop."; it cannot be prevented from "windmilling" in flight when its motor fails. The blades, be their pitch never so varied, always present surfaces to the airstream upon which pressure can be exerted,

and the airstream, following a natural law, exerts the pressure and keeps the airscrew and the motor in motion.

In certain circumstances, this perpetual motion can be a fruitful source of danger and even of destruction. If, for instance, the motor is damaged, the constant turning might often double the damage or even wreck the motor. It might set up violent vibrations on parts of the aeroplane and make control extremely difficult. Additional stresses might cause structural failure. Though these things might not happen, the windmilling airscrew always creates large forces of drag at the very moment when drag should be at a minimum.

### Advantages of Feathering Airscrew

The feathering airscrew removes the windmilling evil by its ability to present only the edges of its blades to the airstream and no surface on which an undesirable turning pressure can be exerted. At the same time, it reduces drag to the very minimum.

Some of the benefits conferred by a feathering airscrew may be gauged by the fact that the turning speed of a windmilling airscrew may sometimes equal that of an airscrew driven by a motor. During tests with a multi-motored aeroplane, the "dead" motor on one side attained more revolutions per minute than those registered by the "live" motor on the other. As a result, much of the aeroplane's efficiency was lost because of the high drag of the "disabled" motor which had to be overcome by the working motor and airscrew.

Most efficient devices are simple, and the feathering airscrew is no exception. Long experience has shown that in operation it is swift and reliable, and imparts a feeling of security to the pilot when he is deprived of the use of one of his motors. Yet some pilots still treat the feathering operation as a last resort — like baling out with a parachute. It is a natural reaction. While the motor is turning the pilot goes on hoping that it will pick up again, and often it does. But if the motor proves intractable, the pilot should stop hoping and put his blades edge-on to the airstream quickly. By this act he will increase his chances of getting home on one motor. The pilot of a single-engined fighter who meets with a motor failure over the sea, stands a better chance of reaching safety (provided he has the height) by feathering his airscrew at once and getting a better gliding angle.

### Types of Feathering Airscrew

Feathering airscrews may be either electrically or hydraulically operated. With the hydraulic type, the pilot has in his cockpit a

feathering button for each airscrew and a constant control lever with a gate, or stop, towards the lower end of its quadrant. The lever has to be lifted past the gate to produce the feathering action. The feathering button operates an electrically driven hydraulic pump to turn the blades into the feathered position. With the speed control lever in the normal constant speed range, pressure on the button produces the "unfeathering" operation.

The operation is in four movements. The pilot first closes the throttle, then moves the speed control lever to feathering position. Next he switches off the ignition and finally presses the feathering button. The sequence may be varied in an emergency by moving the speed control lever to the feathering position before closing the throttle. This provides a quicker movement and the blades feather in approximately seven seconds from the first movement. Future developments may reduce the number of control movements and thus speed up the process. The electrical type of feathering airscrew is rather simpler. The pilot has only to throw over a special switch after throttling back and cutting the ignition current.

### Restarting Engines

Sometimes a pilot may wish to rest a defective motor by feathering the airscrew but needs its help when approaching land. If the period of idleness has been prolonged, the motor will probably have become cold, and the pilot will have to restart with care, or a sudden burst of high-speed revving might have serious consequences. With the hydraulic type of airscrew, the pilot is able to move the blade setting a few degrees from the feathered position and a momentary pressure on the starter button will start the airscrew turning. The rate of turn can be steadily increased by the use of the feathering control. With the electrically operated airscrew, the pilot has complete control over the pitch of the blades throughout their full range of movement, and he can therefore regulate the speed of the motor revolutions as he wishes.

With the hydraulic type, the unfeathering process is under control until the constant speed unit takes over. Thereafter, the speed goes up to that set by the speed control lever. Normally, blade movement with the hydraulic type is by pressure from the boost pump driven by current from the aeroplane's electrical batteries. The blades can also be moved, should power fail, by manipulating the speed control. This is slower in action than the pump, but the movement of the blades will be sufficient to reduce the speed of "windmilling" to a very slow rate.

# TECHNICAL TOPICS

## STEELS AND THEIR HEAT TREATMENT

Since the early days in the history of steel-making it has been recognized that certain processes of heating and cooling steels have a profound influence on their properties. In the seventeenth century the sword smiths of Toledo, in Spain, well understood the art of tempering and became world-famous for the quality of their blades. A story, for the truth of which the author will not vouch, tells of one famous smith who, having heated his blades to the correct temperature, "quenched" them by repeated plunging into the living bodies of slaves, criminals or anyone else who could be cajoled, coerced or otherwise induced to cooperate. Although such methods would be frowned upon today, except perhaps in Germany, the underlying principle was correct. It is to be presumed that this method of quenching provided the required rate of cooling and produced the desired results.

Although the basic principles of the heat treatment of steels have been known since early history, it has only been in comparatively recent years that these principles have been the subject of intensive scientific study. Today the introduction of alloying elements into steels, and their subsequent heat treatment, yield qualities which were undreamed of even a decade or two ago. The modern aircraft engine, giving nearly one brake horsepower per pound of weight, has been rendered possible only by the recent researches of the metallurgist, and by the great improvement in the materials available which has resulted from such research. The modern all-metal aircraft, if constructed of the metals available twenty years ago, would be too ponderous to get into the air. The use of strong light alloys and high tensile heat-treated alloy steels has made aviation, as we know it today, possible. The importance to the engine or airframe mechanic of a knowledge of such materials is, therefore, obvious. In this article it is intended to discuss one aspect of this subject: alloy steels and their heat treatment.

### What Steel Is

As a starting point for the discussion, it is necessary to know just what steel is. The plain carbon steels are alloys of carbon in pure iron, with very small amounts (ranging usually from

one-fortieth to one-twentieth of one per cent) of phosphorus and sulphur. The amount of carbon present determines the properties of the steel, and the class to which it belongs. Thus low carbon steels will contain  $\frac{1}{4}$  of 1 per cent carbon (one part in 400) or less; medium carbon steels from .25 per cent to about .6 per cent of carbon and high carbon steels from .6 per cent upwards to 1.25 per cent or even more.

In the preceding paragraph the word "alloy" has been used, and to understand what follows it is necessary to know what an alloy is. An alloy may be defined as a solid solution of one or more elements, usually metallic, in another metallic element. This definition introduces another difficulty: what is a solid solution?

We are all familiar with liquid solutions. If we put a spoonful of salt in a glass of water the water will, for the moment, become cloudy. It will, however, soon become quite clear again if the water is stirred. The reason for this is that at first the salt is in the form of crystals. These crystals are visible to the eye, and so give the cloudy effect. Very soon, however, the crystals break down into the individual molecules of which they are composed and, as these are ultra-microscopic, they can no longer be seen and the water becomes clear again. The salt has dissolved in the water, and we have a solution of salt and water.

If this solution is now frozen, we shall have a solid solution of salt in water. This is analogous to the solution of carbon in iron to form the alloy which we call steel.

Two points should be noted: the first is that the hotter the water the more salt it will completely dissolve; the second is that if the liquid solution is strong enough all the salt will not remain in solution when frozen into the solid state. Some of it will be thrown out as salt crystals, and these crystals will appear when viewed under a microscope mixed up among the ice crystals.

Something very similar happens when iron is melted in a furnace in contact with the fuel. The molten iron dissolves some of the carbon from the fuel, and the higher the temperature of the iron the more carbon it will dissolve. As the iron cools and solidifies, however, some of this carbon is thrown out of solution, and appears in the iron as pure carbon crystals,

called graphite. This is the case with ordinary foundry cast-iron from the cupola, which may contain 5 per cent or more carbon, most of it in the form of graphite.

In steels, which have a much lower carbon content, most of the carbon is held in solid solution in the iron, or in the cementing material which holds the crystals, of which the steel is composed, together.

### Granular Structure of Steel

Before going further, a few words must be said about the structure of steel. Steel at ordinary temperatures is of a granular or crystalline nature, the grains or crystals being held strongly together with microscopic layers of cementing material, much as the cement holds the bricks of a wall together. These grains or crystals are of irregular shape and vary greatly in size even in the same piece of steel. In different steels the range of grain size is very great indeed. The grains may be so large as to be easily visible to the naked eye at the fracture when the steel is broken, or they may be so small as to require a powerful microscope to detect them.

The physical properties of steels depend upon their granular structure and grain size. Heat treatments, by changing or modifying the granular structure, may have a profound effect upon the physical properties of any given steel.

### Physical Qualities of Steels

Before discussing the effects of heat treatments on the physical properties of steel, it will be necessary to know what those properties are. Some of the more important are, therefore, defined below:

1. **STRENGTH** is the ability to resist steady loads. The ultimate strength is the stress in pounds per square inch of cross sectional area required to cause fracture in tension, compression or shear when the load is applied slowly and steadily. Twenty years ago a steel was considered strong if it could stand a tensile stress of 80,000 pounds per square inch; today heat-treated alloy steels have been produced which will sustain a stress of around 300,000 pounds per square inch.
2. **TOUGHNESS** is the ability to resist blows, shocks and rapidly changing loads. Steels possessing this quality may also be bent when cold without fracture or cracking more readily than other steels.
3. **HARDNESS** is the quality which resists wear and abrasion. The hardness of a steel can be determined in several ways, the most usual being the Brinell method. In this method a specially hardened steel ball 1 centimeter (.3937 inches) in diameter is

pressed on to the surface of the steel with a load of 3,000 kilograms (about 6,600 pounds), the load being applied steadily for at least 10 seconds. The hardness of the steel is then determined by the diameter of the impression left on the surface of the steel by the ball. The softer the steel the farther the ball will have been pressed into its surface, and the larger will be the diameter of the impression.

4. **DUCTILITY** is the quality which permits a steel to be drawn out or elongated under tension without fracture. It is measured by the percentage elongation at fracture. Thus if a piece of steel is 10 inches long between gauge points when unloaded, and can be stretched under a tensile load to 12 inches at fracture, its elongation would be 2/10, or 20 per cent.
5. **ELASTICITY** is the property which enables a steel to return to its original dimensions after having been deformed by the application of a load.
6. **BRITTLENESS** is the reverse of toughness. Brittle steels will not resist blows, shocks or rapid changes of loading. Brittleness must not be confused with weakness (which is the opposite of strength) as some of the strongest steels are brittle, while much weaker steels often have great toughness.

It is possible, by selecting a suitable steel and giving it the correct heat treatment, to obtain, within limits, any qualities required. It is not, however, possible to get, in any one steel, all the desirable qualities. For example, a steel which has been heat treated to give a very high ultimate strength will nearly always be hard and brittle, and will lack ductility. Similarly a steel with high ductility is not usually very strong, although it may be very tough. Brittleness and hardness usually go together in steels, as do also ductility and toughness, and it is almost impossible to get a high degree of one of these pairs of qualities without its companion quality. By deciding what qualities are most important, however, it is usually possible to select a steel which, when suitably heat treated, will meet the requirements.

### Heat Treatments Defined

There has been in the past some confusion in the terminology in connection with the subject of heat treatments. A specific term may have referred to one process in one locality and to an entirely different process in another. Some few years ago, however, the Society of Automotive Engineers brought out standard definitions of heat treatment terms, and these

have now been universally adopted on this continent. Some of the more important of these definitions are given below:

1. **HEAT TREATMENT**—An operation or series of operations involving the heating and cooling of a metal in the solid state for the purpose of obtaining certain desirable properties.
2. **QUENCHING**—Rapid cooling by immersion, usually in water or oil.
3. **CRITICAL TEMPERATURE**—The temperature at which the granular structure of the steel begins to break down. It varies in different steels, and depends largely upon the carbon content. The higher this is the lower will be the critical temperature. Steels enter the "critical temperature range" at temperatures ranging from 1380° F. (bright red heat) in low carbon steels to 1250° F. (medium cherry red) in high carbon steels.
4. **HARDENING**—Heating to a temperature either within or above the critical temperature range and quenching.
5. **FULL ANNEALING**—Heating to above the critical temperature range, holding at that temperature for a proper period of time, followed by a slow cooling. This cooling may take place in still air or in the oven, depending upon the class of steel being dealt with.
6. **PROCESS ANNEALING**—Heating to a temperature just below the critical temperature range followed by cooling.
7. **NORMALIZING**—Heating to approximately 100° F. above the critical temperature range and cooling in still air.
8. **TEMPERING** or "DRAWING"—Reheating, after hardening, to some temperature below the critical temperature range, followed by any desired rate of cooling. This will depend upon the steel being dealt with and the qualities required.
9. **CARBURIZING (CEMENTATION)**—Adding carbon by heating to a temperature somewhat lower than the melting point in contact with carbonaceous solids, liquids or gases.
10. **CASE HARDENING**—Carburizing and subsequently hardening all or part of the surface portions of a piece of steel.

### Heat Treatments and Their Effects

Having defined the terms used in the science of the heat treatment of steels, it is now pos-

sible to proceed to consider the effects of such treatment in greater detail.

It should be stated at the outset that all steels do not respond to heat treatment. The chromium-nickel Austenitic steels, for example, cannot be heat treated at all, while the low-carbon group respond only to a very limited extent. Medium and high carbon steels, however, and most of the alloy steels, which will be discussed later, respond readily. By varying the heat treatment of any such steel entirely different qualities may be imparted to it. It may be made soft, tough and ductile with a relatively low ultimate strength by one process, or strong, hard and brittle by another. It is important to bear this in mind when dealing with heat treated steels. For example, if it is necessary to heat such a steel locally to carry out a welding operation or for any other purpose, the properties of the steel so heated and allowed to cool again may, or may not, be entirely changed by the process, depending upon the nature of the original heat treatment.

For the plain carbon steels in the medium or high carbon classes the most common heat treatment for general purposes is to heat them to a temperature of 1475° to 1575° F. and harden by quenching in oil or water. This process will result in a steel which is much too hard and brittle for practical purposes, and a further process is necessary to "draw" some of the hardness out. This process is known as Drawing or Tempering. The steel is re-heated to a temperature of between 800° F. (black heat) to 1300° F. (medium cherry red) and allowed to cool in air. It is the temperature to which this re-heating is carried which determines the properties of the resulting steel. The lower temperature will give a stronger, harder and less ductile steel than the higher. Thus the steel known as S.A.E. 1045, a plain carbon steel containing from .4 to .5 per cent of carbon, when tempered at 800° F. after quenching in water, has an ultimate strength in tension of 120,000 pounds per square inch and an elongation at fracture of 15 per cent. The same steel, when tempered at 1300° F., has an ultimate strength of 97,000 pounds per square inch and an elongation of 27 per cent. Tempering temperatures between these two limits will give intermediate values of both the ultimate strength and ductility.

(NOTE—A further instalment in a later issue of this magazine will deal with the effects of heat treatments on alloy steels and the effects of alloying elements on the properties of steels.)

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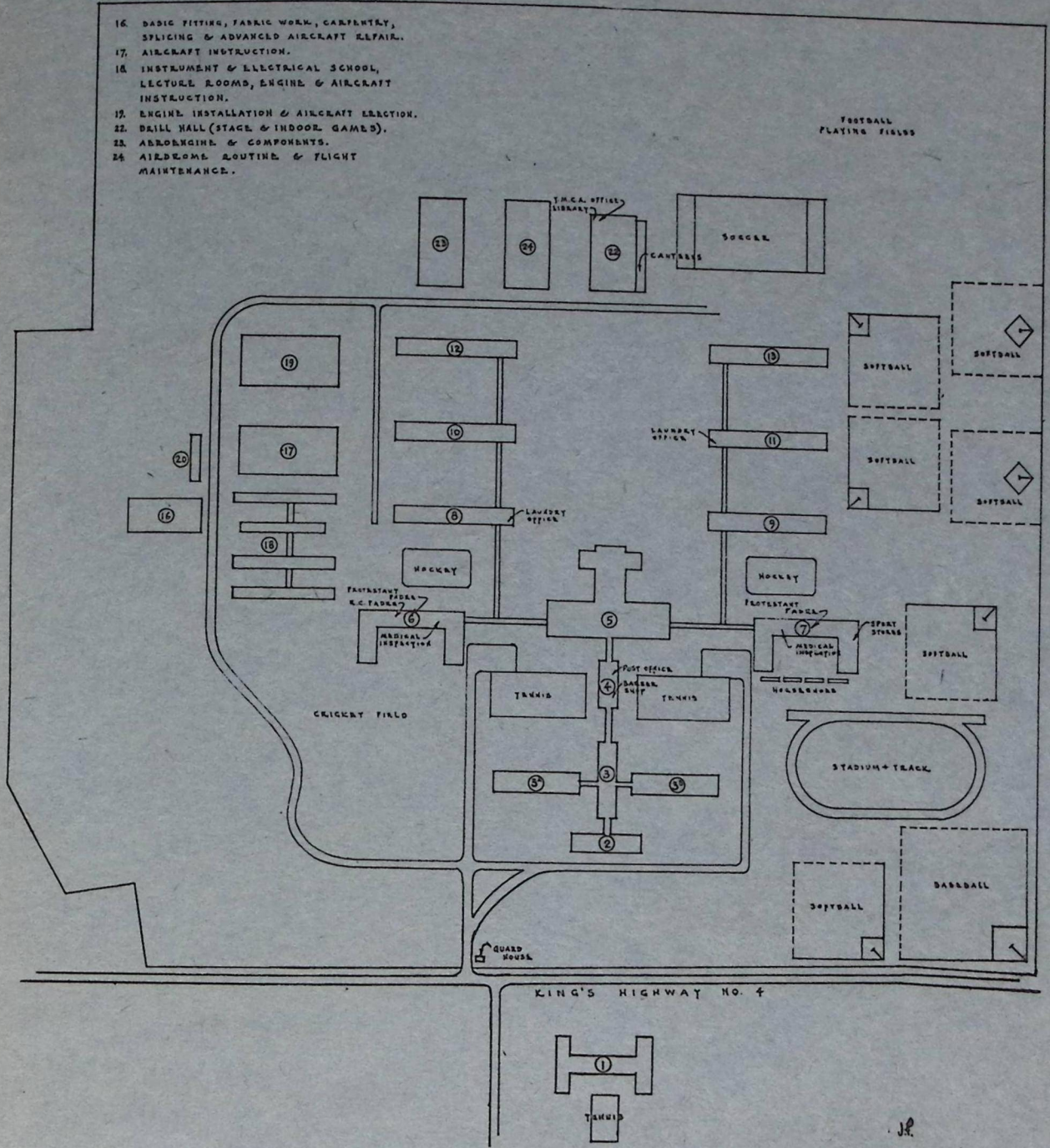
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