

THE *Aircraftman*

VOL. 2 - NO. 4

NOVEMBER 1, 1941



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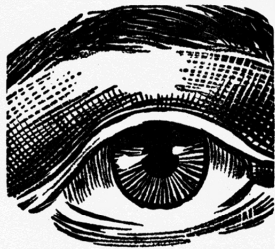
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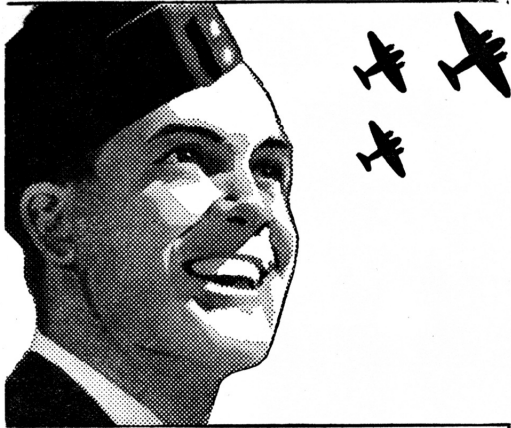
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A Magazine of the R. C. A. F. Technical Training School
Published Monthly at St. Thomas

VOL. 2 - NOVEMBER 1, 1941 - NO. 4



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*We sail'd wherever a ship could sail,
We founded many a mighty state.
Pray God our greatness may not fail
Through craven fears of being great.
Hands all round! To this great name of freedom
Drink, my friends,
And all her glorious Empire, round and round.*

—From "HANDS ALL ROUND"
by Lord Tennyson.

« « EDITORIALS » »

ON BEING GRATEFUL

Some years ago we came across a couple of lines which ran somewhat as follows: "Two men looked out from prison bars; one saw mud—the other stars."

It is perfectly true that two women can look at a baby in a crib. One may say "Look at the little brat." The other with a look in her eyes which only a real mother can understand will say "That is my baby!" There are at least two major attitudes we may take to life. One is a disgruntled discontent with nearly everyone and everything. You know the type. The Corporal or Flight or someone is trying to get you. As a matter of fact, such a feeling is almost always absolutely without foundation as witness the hundreds, yes thousands, who obey the rules, play the game, appreciate the difficulties of the instructors and disciplinarians and try to be co-operative, and as a result find the same spirit is shown in return. We can pull together or we can hang together. We can pull together to beat Hitler or we can tear things apart only to find ourselves enslaved by our own cussedness. Here are a few things to mull over in our minds during what we call the Thanksgiving season: "Between August 8th and October 31st, 1940, 2,375 German aircraft are known to have been destroyed in daylight. This figure takes no account of those lost at night or those seen by thousands staggering back to their French bases, wings and fuselage full of holes, ailerons shot away, engines smoking and dripping glycol, undercarriages dangling—the retreating remnants of a shattered and disordered Armada. This melancholy procession of the defeated was to be observed not once but many times during those summer and autumn days of 1940. Truly it was a great deliverance." No wonder that the people of England had a Thanksgiving Sunday recently, especially thanking God for the Royal Air Force's unprecedented courage and the overwhelming defeat of the Hun Air Armada. It was not achieved without cost. The Royal Air Force lost 375 pilots killed and 358 wounded.

One supposes it is a truism to say we do not appreciate our freedom until it is taken away from us. The four freedoms, as they have been called, freedom of speech, freedom of religion, freedom from unemployment and freedom from want, are certainly worth any sacrifice we may be called upon to make. Nearly

all on this Station, within limits essential for discipline and orderly running, have these four freedoms. Just how grateful are we for the commonplace freedoms of our everyday life? Let's admit right away it is humdrum. This quotation from "*Winged Warfare*" by General H. H. Arnold should be printed in every issue of THE AIRCRAFTMAN. "Examine the rolls of the flying dead and you'll find almost as many mechanics as pilots. Yet their names are forgotten. Others get the adulation, the praise, the medals and commendations. You can't name the mechanics whose work made possible the prominent flights, though the pilots' names are household words. If I didn't have full confidence in my mechanics, I'd be a foot soldier. If they weren't reliable, it would be too dangerous to fly. So I say to you little mechs: my helmet's off to you. You may be ragged grease monkeys to some but to me you're the guardian angels of this flying business. You're the real air heroes." There is a tribute to ground crew for which we may be grateful. For the glories of the great, wide, beautiful spaces of Canada. For our freedom loving men and women. For our Allies in this epoch-making struggle. For the love of God manifested in a thousand ways for those who have eyes to see and ears to hear. We may well pray "O God, make us more grateful."

* * *

THE GOOD FINISH

"Give us the tools," said Prime Minister Churchill, "and we'll finish the job." Not start the job, or merely do it, but FINISH it. It is the finish, not the start, that counts. Many poor performers start with a rush, and end with a crawl. It is the staying power, the persistency, the tenacity that tells. And who has these qualities more than the British, of whom it has been said (not altogether truthfully perhaps) that they lose every battle but the last. That is the one to win, the last one. And the last one goes to the good finisher. We are good finishers.

The Germans have made a flashy start. No one denies that. They are out in front today, gathering up all the points on land, and faltering only in the air. So far they have had it comparatively easy, gobbling up weaklings and savagely crushing stout but inadequate and unsustainable resistance; bullying, threatening and murdering their way. They think they are

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winning—and they may be right. But they have only won the start. The finish is yet to come, and we are good finishers. Moreover, we have the goods; the tangibles as well as the all-important spirit. Figures based on international official statistics for the last normal period before the war point to certain victory for us.

We have a population of over six hundred million to our enemies' (Germany, Italy and invaded countries) two hundred and fifty million. Add one hundred and thirty million Americans to ours and the total is almost three to one.

Just before the war our automobile (truck and passenger car) productive capacity was a little more than our enemy's. The United States' capacity was eight times greater than Germany's.

Our production of crude petroleum was small, yet ten times greater than Germany's and twice that of the Balkan countries, which now must be regarded as belonging to Germany for the time being. The United States figure was almost ten times as much as all of Europe, excluding Russia, which produced more oil than all the rest of Europe, but still only a fraction of the American quantity. Germany makes synthetic gasoline because natural production is negligible, but even so, her production together with that of the Balkan countries is only $4\frac{1}{2}$ parts to Britain's 3 and the United States' 60.

German production of coal was a shade higher than that of the British Commonwealth, but not enough to count, and still much less than production in the United States. The German annual production was 330 parts, British 317, American 448.

In pig iron and ferro-alloys Germany had the edge, producing annually 37 parts to our 12; about three times as much, but much less than the United States, which produced 48 parts.

Production of wheat by Germany and her allies, the British Empire and the United States was almost the same for each, with Russia producing much more than any one of them.

In nearly all lines of production, except coal, Russia ranked second to the United States and over both Germany and Britain. These productive assets may or may not fall into the hands of the Germans, but even if they do Germany ranks a very poor second in potential war power. Russia may be vanquished as were the others and everything and everyone in the country put to work for the conquerors, but it will make no difference in the end.

These figures, compiled by a League of Nations commerce committee just prior to the war, contain no armament quotations, but shed much light on the general situation. War materials are inseparably linked with commercial industry. The Germans undoubtedly were heavily armed at the start of hostilities, but they have no way of overcoming the limits of their capacity, except by striving for substitutes and by stealing. Struggle as they will, conquer, loot and contrive, they are still short. They possess a preponderance of nothing but militarism and brutal instincts.

If these figures mislead at all they tend to minimize our strength. It is no secret that both the British Empire and the United States were caught napping, with shops and resources dormant, while Germany exploited her assets to the limit. It is reasonable to suppose that there has been no great upswing of production in Europe since 1939. It is certain that the United States, and we ourselves, have undergone a tremendous industrial expansion and are preparing to unleash some might on the world's leading exponent of might.

The worst is yet to come for the Germans. Hitler for the first time is up against a superior force. Our allies and ourselves have not only the will to win, but also the means. We have the true spirit in a large measure, and in addition the physical strength, *i.e.*, the distinct advantage in tangibles. With these we'll find a way. We are all set for a good finish, getting ready to win the last battle, as usual.

—M. W. H.

* * *

AN ACHIEVEMENT

*(Condensed from St. Thomas Times-Journal
Editorial of October 11, 1941)*

The magnitude of the British Commonwealth Air Training Plan staggers the average man's imagination, tuned as it has been to viewing aviation as something still in the experimental stage. Likewise, probably for the same reason, it is difficult for one to grasp the full extent of what is being achieved, day in and day out, by the component parts of the Plan, now functioning in accordance with the hopes and ideas of its originators.

Take, for instance, the St. Thomas Technical Training School, the largest single unit in the Plan, and, for that matter, the largest institution of its kind in the British Empire, if not in the world. It is almost impossible to convince people that within the walls of the group of buildings that make up the T. T. S. are located several thousand young men learning the rudiments of aero mechanics or preparing for other branches of the service. Local people,

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seeing the numerous groups of these fine young men on the streets during their off hours, are not as hard to convince as outsiders, who listen with apparent doubt to anyone who endeavors to give them some idea of what is going on south of St. Thomas. Active figures concerning the personnel of the T. T. S. cannot be given, of course. But enlightening things happened on Friday at one of the regular graduation exercises. Out of that group stepped one young man, the 10,000th trainee in aero mechanics to pass through a graduating class since the school opened.

Friday's happenings, too, made an opportunity for Air Commodore Brookes to say something fitting and fully justified. Extending his compliments and congratulations to Group Captain Collis, the officer commanding the School, and to other members of the staff and the instructors, the Air Commodore said: "When we consider the tremendous amount of

work which has been put forth to reach this 10,000th graduate, this ceremony really means something. It means that this training school has progressed and is accomplishing what it was designed to do in the great Commonwealth Air Training Plan."

We in St. Thomas can readily associate ourselves with the Air Commodore in this expression of satisfaction at what has been accomplished and is continuing to be accomplished at the T. T. S. Getting the big School into operation and keeping it running on an even keel has been one of the outstanding achievements of one of the major undertakings of the war effort and Group Captain Collis and the men who have labored with him so assiduously are deserving of every bit of commendation the Air Commodore has given. It's a great work in a great cause that the St. Thomas Technical Training School is doing and we'd like the world to know it.

* * *

« « SPORTS » »

Congratulations to No. 1 Squadron, 2 Wing, who won the Commanding Officer's Trophy for October.

Competition was keen throughout the month and when the sports schedule was completed only three points separated No. 1 Squadron, 2 Wing from the second place Squadron, No. 3 Squadron of No. 1 Wing. They, in turn, were closely followed by No. 2 Squadron, 1 Wing—down another four points. It was the Drill Competition which proved to be the deciding factor.

We are sorry to lose a popular Lacrosse and Basketball referee in Bert Maltin. He graduated last week and has been posted to Aylmer.

We also bid farewell to Frank Suter, another popular sportsman. Frank was posted to Hagersville. All will remember him for his ability with a lacrosse stick. He also was a popular lacrosse referee.

No. 1 Squadron, 2 Wing developed the smoothest Volleyball team of the month. Other teams would do well to watch them in action. The Basketball winners, No. 2 Squadron, 1 Wing, worked exceptionally hard for victory. They only lost one game and that to No. 3 Squadron, 1 Wing by a 17-16 count. The latter placed second.

F/Sgt Parks stated in a recent press interview, quote: "You can take it from me, Head-

quarters will definitely win the Commanding Officer's Trophy for November."

If you check E. & A.T.S. news in this issue you will note F/Sgt King has a similar idea for his Squadron.

* * *

FAREWELL TO CRICKET

It was hoped that this, the second and concluding article on Cricket, would have been written with the knowledge that the T. T. S. eleven had recorded its second consecutive championship success in the Southwestern Ontario League.

With only three games to play, the team held a particularly favorable position in the league, being level on points with R.A.F. Port Albert and a game in hand. However, a combination of apathy and wishful thinking brought defeat at the hands of St. George's and the game in hand was idly fritted away. Thus the team entered upon the vital game with their rivals level on points rather than a two-point lead. Port Albert won that game by 24 runs and with it the J. M. Moore Championship Trophy. Scoring an easy victory over London C. N. R., T. T. S. derived some little consolation from the winning of the Nash Trophy, awarded to the runners-up. As undisputed runners-up, this trophy should have fallen to T. T. S. automatically, but some ob-

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scure league ruling decreed that it should be awarded to the winners of the play-off between the teams in the second and third positions.

Although the team was naturally disappointed with its failure to win the league championship, it has had a very successful season. Of the friendly (exhibition) games notable victories were scored over Hamilton (twice) and Brantford, champions of the Western League. Incidentally, it is interesting to record that Port Albert defeated this same team to win the Seagram Trophy, played for between the champions of the Southwestern and Western Leagues. The outstanding league game—and probably the most amazing game in Southwestern League Cricket—was the home win over Port Albert on September 7th. Batting first, T. T. S. hit up the amazing total of 324 for 2 wickets (declared). The feature of the game was the “not out” centuries of Sowden and Croft, both products of Canadian Cricket. Included in Croft’s epic, which must have hit the Port Albert fielders like a hurricane, were 13 fours and 8 sixes. It took him exactly 42 minutes to reach his hundred.

T. T. S.

Sgt. Joyce, run out.....	0
Sgt. Clancy, caught b cutts, Sub.....	77
AC Sowden, not out.....	111
AC Croft, not out.....	122
Extras.....	14

Total for 2 Wickets (declared)..... 324

Port Albert, 148 all out; T.T.S. won by 175 Runs.

Sowden’s effort was no mere flash in the pan, indeed it was the crowning achievement of a display of consistent batting which would have brought him league batting honors had he played for the team earlier in the season. The game itself must have established many records—in the absence of statistics it is impossible to say exactly how many. Although the Cricket season itself is over its many memories were revived on the occasion of the Annual Banquet held by the Southwestern Ontario League on October 18th. The occasion was also marked by the distribution of trophies to teams and players. Sgt. Thompson, skipper of the T.T.S. side, had the pleasure of receiving both the Nash Trophy and the Batting Trophy, the latter awarded to the league player having the highest batting average. In this respect he repeated last season’s success. The Bowling Trophy went to L.A.C. Batten of Port Albert, a reward richly deserved.

Before saying “farewell” to cricket for 1941 the officials of the club would like to thank all

those who, directly or indirectly, helped to make the season the success it was. In particular, we are grateful to F/Sgt Aviiis, Sgts. Jeffrey, Hedbon and Edney, now posted from T.T.S., for the good work they did since the club was founded last season. Their places will be hard to fill.

Final League Standing

	P.	W.	L.	D.	Pts.
R.A.F., Port Albert.....	17	13	2	2	28
R.C.A.F., T. T. S.	17	11	4	2	24
London C. N. R.....	17	5	8	4	14
London St. George’s.....	17	4	9	4	12
St. Thomas-Woodstock	17	13	13	2	6

Results of Games Played Since August 17th

- Aug. 23 vs. London C.N.R. (H)L.—
For: 129 for 5; against: 122—won.
 - Aug. 30 vs. St. Thomas-Woodstock (A)L.—
For: 115 for 3; against: 105—won.
 - Aug. 31 vs. Brantford (H)F.—
For: 154 for 4 (dec.); against: 176 for 3—won.
 - Sept. 7 vs. Port Albert (H)L.—
For: 324 for 2 (dec.); against: 149—won.
 - Sept. 13 vs. St. George’s (H)L.—
For: 175; against: 194—lost.
 - Sept. 14 vs. Windsor (A)F.—
For: 132 for 5 (dec.); against: 88—won.
 - Sept. 20 vs. Port Albert (A)L.—
For: 41; against: 65—lost.
 - Sept. 21 vs. Hamilton (H)F.—
For: 123 for 3; against: 76—won.
 - Sept. 28 vs. London C.N.R. (A)L.—
For: 81 for 8; against: 92—lost.
 - Oct. 4 vs. London C.N.R. (A), Nash Trophy—
For: 119 for 9; against: 65—won.
- F—Friendly; L—League.

Total Results for Season

Played	Won	Lost	Drawn
29	19	7	3

Batting Averages (All Games Included)

	Innings	Out	Times Most Not in Innings	Total	Average
AC Croft	7	1	122*	268	46.66
Sgt. Thompson....	22	6	95*	569	35.56
AC Sowden	14	2	111*	404	35.33
F/Sgt Adamson..	12	2	73*	265	26.50
Sgt. Clancy	24	..	108	536	22.33
Cpl. Langton	14	3	56	232	21.09
Sgt. Edney	8	1	26	130	18.57
Sgt. Joyce.....	22	1	46	364	17.33
F/Sgt Langley....	16	6	23	152	15.20

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Sgt. Jeffrey	19	5	38	207	14.21
Cpl. Bennett.....	13	5	35*	100	12.50
Sgt. Richards.....	13	3	19*	84	8.40
Sgt. Drew.....	7	1	18	38	6.33
Sgt. Ireland	11	3	23*	50	6.25

*Signifies "not out."

Bowling Averages (All Games Included)

	Overs	M'dns	Runs	Wkts.	Avg.
Cpl. Bennett	79	15	229	28	8.17
Cpl. Langton....	150	22	482	54	8.92
Sgt. Richards..	159	30	501	47	10.60
Sgt. Clancy	159	21	596	54	10.67
Sgt. Thompson	77	6	377	34	11.08
Sgt. Ireland.....	69	9	249	15	16.60

* * *

St. Thomas Badminton Club Invites All Officers and Men to Make Use of Facilities

The St. Thomas Badminton Club, which uses the Collegiate Institute Memorial Gymnasium and club rooms as its official quarters, extends an invitation to officers and men of the R.C.A.F. Technical Training School to take part in its activities for the 1941-1942 season which is now in full swing.

The Club's officials, at their annual meeting held recently, arranged an extremely low mem-

bership fee for men of the R.C.A.F. so that they and their wives may take an active part in the Club's playing and social activities for the season. The fee, which has been set at five dollars (\$5.00), affords R.C.A.F. members full privileges and permits them to play from 7.45 to 11 o'clock (E.S.T.) on Monday, Tuesday, Wednesday and Saturday evenings of each week from now until March 31st, 1942. Showers, club lounge and badminton instruction are also included as well as the numerous social functions that are sponsored for the pleasure of the members. Special permission has also been granted to R.C.A.F. members and their wives to pay the fee on a monthly basis of only one dollar (\$1.00) in advance. At the end of five months the full membership for the year will have been paid. This arrangement was decided on in order that any member who completes his training or is moved from the St. Thomas School before the full fee is paid will not be required to make full payment for membership, and therefore will not be out any money as a result of his move.

The St. Thomas Badminton Club has an attractive set-up and sponsors four excellent courts. Those interested in this popular sport are invited to inspect the club on any of the playing nights. Those who desire to obtain a membership may do so by getting a card from any of the officials, who will be present in the club rooms on the playing nights.

* * *

STATION ACTIVITIES

FOR YOUR CONVENIENCE

Have you ever belonged to a rather exclusive gentleman's club? Well, you do now. The best part of this club is that there are no membership fees, and it is close at hand so that you do not have to go far to enjoy its privileges. In fact, the club is right here on the Station beside the pass gate. You've guessed it—we mean the new Recreation Hall.

This building, which has just been completed, has been furnished in a most attractive way with chesterfields and chairs done in leather colored in Air Force blue. The rugs on the floor are made to match. The lounge is quite large and well lighted and makes an impressive sight as one enters the room. In it Airmen of all ranks may gather and spend their leisure time in quiet, casual games such as checkers, cards, chess, dominoes and crib-

bage. And as quiet will be observed here it will fill a great need on the Station in providing a place where men may study without interruption. Many men have felt the need of a place to meet visiting relatives and friends. This feature has been provided. In the lobby of the recreation hall you may have your friends call on you and they will be welcome to stay and chat in comfortable surroundings. This privilege is open to Airmen of all ranks and no pass is required for the visitor.

Your friends will be greeted by Miss Mary Purdy, our new hostess. Miss Purdy is well fitted for such a position as she has had wide experience in Y.W.C.A. work and is at present on the Y.W.C.A. War Services Staff. Miss Purdy will receive the guests and then locate the Airmen they are visiting and see that the party gets together. In addition she will help

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solve a great problem for some of the men, namely that of locating a suite or room in town for a wife or family. These rooms have been checked by a committee and any recommended will be quite satisfactory. This service will fill a real need on the Station.

Other ladies in the hall will be members of T.T.S. Auxiliary who will help in the canteen, the latter having been enlarged over the regular canteen operations to include the serving of hot coffee and sandwiches.

But you haven't heard anything yet! Saturday, November 1st, is the big day for the grand opening dance. One hundred and fifty lucky couples will be there. The men will be chosen to represent the various messes—Officers', Sergeants', Corporals' and Airmen's. They will be selected by a committee appointed for that purpose. You will hear more of this later.

In the meantime, the hall is there for you to use. It is a real ornament to the Station but it is not meant to be merely that. So gather round, men, and add to the activity—there will be plenty of it.

* * *

Welcome

We welcome two new members of the Station Y.M.C.A. Staff:

GORDON BURRELL—Who comes to us from Camp Borden, where, for the past 19 months, he has been in charge of entertainment in the Army Y.M.C.A. hut. Gordon will specialize in this particular phase of the program at T.T.S. Prior to coming into War Services work he was in the photographic business and in his spare hours acted as pianist for the Toronto West End Y.M.C.A.

BOB GOOD—Until recently has been with the Y.M.C.A. Red Triangle Club in Ottawa. You may have already noticed him on the floor refereeing games. He will be a great help in the educational program (which is carried out under auspices of Canadian Legion), also the editing of our AIRCRAFTMAN, the Public Speaking Club and similar activities.

* * *

Corporals' Dance

One of the gayest dances ever held in St. Thomas took place when the Corporals' Mess sponsored a gala evening on Wednesday, October 8th, in the Masonic Temple. There were well over 200 couples in attendance. Under the supervision of Cpl. Sorrente and his supporting committee the evening was kept going at a great pace. Spot dances, paper hats, balloons and noise-makers all added to the enjoyment. The highlight of the evening was the "lead the

band" contest which gave the crowd some real comedy.

The ten-piece Station Orchestra, under the baton of F/Sgt Green, furnished first rate music. Refreshments were served under the capable supervision of WO. Chippett.

This evening will be long remembered by all who attended.

The guests included: Wing Commander and Mrs. Eley, Wing Commander Adkins, Flying Officer Pepper, Warrant Officer Chippett and Sgt. and Mrs. Judge.

* * *

Off to Sparta

A group of Airmen from T.T.S. travelled to Sparta on Tuesday, October 21st, to put on a program. Much good talent was in evidence and already other engagements are being suggested. Jack Harris, as master of ceremonies, put the audience in a good humor and made it easily receptive for the rest of the performers. AC J. Stone, with his lyric tenor, pleased the group and AC Andre Labelle was definitely recalled for more. His deep bass voice has a real appeal and the crowd certainly wanted more. Each man was good in his own way and in this troupe we have the beginnings of a good variety show.

Gord Burrell of the Y.M.C.A. was a sensation at the piano and in leading the sing song. If you have never heard Gord play the piano accordion you have missed something.

* * *

LIBRARY CORNER

By A. Askew

The Library acquired a little book recently that should be of particular interest to Airmen. It was written especially for them by an officer who went to a great deal of trouble in making certain that the information he was gathering was accurate and reliable. The title is not very exciting, and one wouldn't choose the book for entertainment, but as a reference book it might be useful to remember the name, "600 Questions and Answers on Air Force Law."

Here also is an extremely important piece of information on which Airmen should be well posted. It is contained in a pamphlet just received from Headquarters, "Notes on Pensions."

No. 8 reads as follows: "It is wise to apply for 'entitlement' to pension in respect to any disabling condition for which one has a just claim, as early as possible after discharge, when evidence is readily available even if no assessable degree of disability is present at the

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time, as it is possible that some greater disability may result from, or treatment be required for that condition later."

Read that again, and tuck it away in your memory box. Some day it may be useful.

Unquestionably, one of the best "war" books so far is "Pattern for Conquest" by "Joe" Harsch. He has been "Johnny on the spot" for he only left Germany this spring, being special writer for the Christian Science Monitor. He says Germany is not short of food, at least not the essentials. No revolt can yet be expected from the German people because Hitler has sold them the idea that they are a super-super race. When they are shown through military defeat that this idea is not only untrue but stupid, then the break will come and come fast. Coolly and unemotionally he sizes up the situation and says Germany can be beaten, but not by "wishful thinking" or by 1914-1918 methods.

He pleads also that after the war the democracies will show Germany that a new world order can be built without destroying the culture and ideals of those nations who may differ with them.

From "Pattern for Conquest": On a certain day twelve German pilots were shot down over the English Channel. Arriving in the pearly regions they knocked on the gate seeking admission. Peter himself answered the door and listened to their request. "Wait a moment," he says, "I must look up the records." Returning, he says: "Sorry, ten of you will have to go down below." The German communique says only two were shot down on that day.

* * *

Poison War Gases

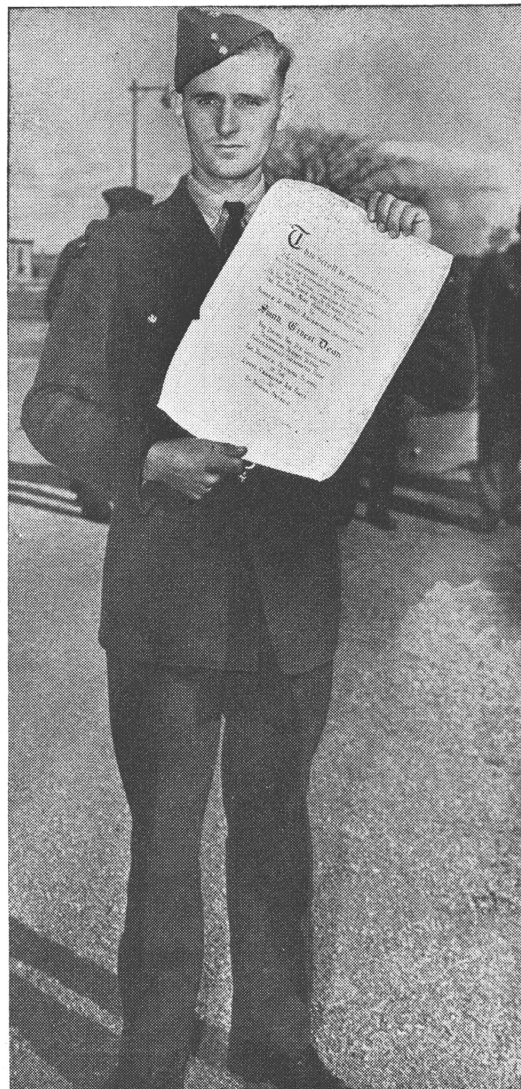
If you get a choking feeling and a smell
of Musty Hay,
You can get your bottom dollar that
there's PHOSGENE on the way;
But the smell of bleaching powder will
inevitably mean
That the enemy you are meeting is the
gas we call CHLORINE.
When your eyes become a-twitching, and
for tears you cannot see,
It isn't mother peeling Onions, but a
dose of C.A.P.
If the smell resembles Pear Drops, then
you had better not delay—
It isn't father sucking Toffee, it's the
ruddy K.S.K.
If you catch a pungent odor as you're
coming home for tea
You can put your shirt on it, they are
using B.B.C.,
And if you smell Horse Radish, don't
think you're having Beef,

It's MUSTARD and will burn you till
blisters make life brief.
And lastly, while Geraniums look pleasant
in a bed,
Beware, this smell in war-time—if it's
LEWISITE you're dead!

*"Take care of your respirator and your
respirator will take care of you."*

(This is a copy of a poem widely circulated in England
by the Civil Air Raid Precautions Authorities.)

* * *



AC/2 Smith, E. G., who was the ten thousandth
trainee to graduate from the Technical
Training School, St. Thomas.

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CALENDAR OF ACTIVITIES

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

SUNDAY

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

MONDAY

1900-2000 Hrs.—Scheduled Inter-Squadron Games.
1930-2030 Hrs.—Bible Discussion Group (in 2 Wing, Security Guard Lecture Room).

TUESDAY

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

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

WEDNESDAY

1900-2000 Hrs.—Scheduled Inter-Squadron Games.
1930-2030 Hrs.—Camera Club (in 2 Wing, Security Guard Lecture Room).

THURSDAY

1900-2000 Hrs.—Inter-Squadron Games.
1930-2030 Hrs.—Public Speaking Club (in 2 Wing, Security Guard Lecture Room).

FRIDAY

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

SATURDAY

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

* * *

AMONG THE SQUADRONS

1 SQUADRON, 1 WING

SPORTS

By Cpl. Hardy

Well, another month has gone and by the time this appears in print we shall be well on our way with winter sports. No. 1 Squadron slipped a little in the last month but with a fine bunch of sportsmen turning out now, we are sure to be near the top this month.

We mourn the loss of a fine Volleyball player in Cpl. Brooks who has been transferred to No. 3 Squadron.

We hope the Sports Committee has lots of luck in starting Table Tennis and Boxing as we have some men who are tops in these sports and are just waiting for the bell.

* * *

Things We Would Like To Know

By Cpl. Hardy

What's the reason for that sleepy Red Head on B. floor always talking about Sunday School and Girl Guides since his recent visit to London?

* * *

Who's the Girl Guide pupil, Corporal?

* * *

Does she bite, Corky?

* * *

What Corporal goes in for Museum Marms?

* * *

What Corporal on a 24 paid 75c for a taxi to catch a bus and then came back raving about a certain fair maid?

* * *

What F/Sgt was fit to be tied when he saw a certain cartoon in last month's Aircraftman?

2 SQUADRON, 1 WING

IMPRESSIONS

By AC/2 Pike, H. A.

A few weeks ago the newspapers used the word *impressive* to describe the graduation ceremony at this School. There is no better word to describe anything pertaining to the R.C.A.F. The effort and zeal of a few men have made it an impressive force in a relatively short time.

How many of us strive from day to day to leave a good impression not only with the instructors but with our fellow Airmen?

Co-operation itself is impressive and by co-operating both while on and off duty, we can make this air force impressive.

Don't forget that sooner or later you will be helping to make a very deep impression on that little “paper-hanger” across the pond.

When we leave here, let's hope the School won't remember us as being a noisy, rowdy, or tough Entry, rather let us leave the impression that we are going out to do a job and do it well. If we can do that, then our course has been more than successful.

* * *

Don't count your “chickens” before your “48” hatches. There are several easy ways of losing it.

* * *

Don't clean your windows with an oily rag. It won't work. A/2 should know.

* * *

Overheard one rainy morning as an Airman “struggled” into his raincoat: “When are they going to issue the poles for this thing?”

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So much for October. Come on, Squadron 2, turn your news over to your editor and he will see that it gets into "The Aircraftman."

* * *

SPORTS

By Sgt. Maybie, J. E.

Well now that we have started a new month with new sports, let's get going.

We have a very good Badminton team of Brooks, Pearce, Stauter, Findlay, Durnin and Atkins.

Our Basketball team is the best on the Station. It is composed of Dickson, Lewis, Gilson, Stickee, Bell, Chikofsky, Law, McLaughlin, Goode, Schlosser. These lads are a grand bunch of sports if "sometimes a little rough." They won October Basketball championship over 3 Squadron, 1 Wing who were a close second.

We expect to win the Trophy this month for we have a good clean team. We have had two casualties in October. Dickson, captain of the Basketball team: "One broken nose"; Jenkins, captain of the Volleyball team: "One broken ankle." These lads are out every night, one wearing a nose guard and one with a pair of crutches. It just shows what grand sports we have in the Air Force.

Come on, 1 Squadron, 2 Wing and Headquarters Squadron, dig right in and try to win the Trophy.

Weil, 2 Squadron, November is going to be our month; we had about 10 days of practice on the end of the month. "Let's go, Gang," bring the C.O.'s Trophy back to 2 Squadron, 1 Wing, starting the month of November.

Table Tennis will certainly get a grand response. We should be playing it by the first of November.

Boxing will be starting in the near future, so all those who have ever boxed or can fight, start training now so that we can bring back the C.O.'s Trophy.

We have a good supporter in AC/2 Marples of the 72nd Entry. He turns out every night and cheers our Basketball team to victory.

All for now—keep right in there pitching, this next month.

* * *

3 SQUADRON, 1 WING

It is difficult to find an introduction to this column because changes take place so rapidly. Often before news is published, something else has happened and the original item is out of date. Nevertheless, we should like to extend to our new C.O., Pilot Officer Kerr, a hearty welcome and hope that no matter how long his stay may be it will be a very pleasant one for him.

* * *

The Orderly Room

F/S St. Laurent—Still going strong.
Sgt. Harris—Posted to 1 S., 1 W. Good luck!
Sgt. Maguire—Back with us again.
Sgt. Meaden—A hard working witty clerk.
Cpl. Cutsell—Now back on duty after leave.
Cpl. Lynch—A Californian in the R.C.A.F.
Cpl. Walker—A conscientious, striving N.C.O.

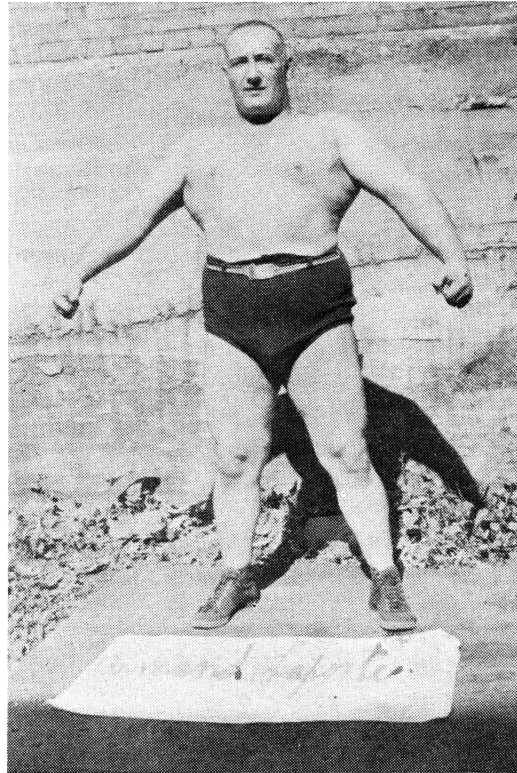
* * *

We want to offer our heartiest congratulations to the electricians in Entry E13, and to Sgt. Harris for

winning the Drill competition for September. It took a lot of hard work and team play to come through, but in spite of many setbacks they did and with a high standard. Great credit is due to them for their splendid effort.

Nice going, men—keep up the good work!

* * *



ARMOND A. LAPORTE (Cpl.)

Born in North Bay, lived in Quebec city for a number of years and now stationed at T.T.S.

Cpl. Laporte is willing to conduct a class in "Body Building." He is well qualified to do so, for not only was he runner-up for the Ontario and Quebec heavy-weight Wrestling championship but was also in the 1936 Olympic Trials.

* * *

A Word From the Entries

65th—Farewell, lads—Carry on.
67th—We leave with the words, "Good luck to you!"
71st—Our time draws short.
74th—What we say you wouldn't print.
78th—The interim tests loom large before us.
E13—Remember us? The Drill squad.
E14—Condolence to future Entries.
E15—We got the BLUES all the time.
E16—Don't quote us; keep the news clean.
E17—We've had our coveralls washed.

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R.A.F. "Slanguage"

The following terms are taken from the film "A Yank in the R.A.F.":

"Browned off"—Bored by lack of action.

"Brassed off"—So very bored by inactivity that a man is on the point of creating action.

"Get Cracking"—Get going, get started, get into the air.

"Wizard"—Swell, terrific, super-special. When applied to a beautiful blonde like "Betty Grable," she is a "Wizard Wren."

"Boobed It"—Muffed it, missed it.

"Gone Crackers"—Shell-shocked or fight-fatigued into a stupor.

"All Buttoned Up"—Thoroughly prepared.

* * *

FROM THE HANGAR

WHO?

Had a "bang-up" week-end in Detroit.

Says "O.K. b—h, I mean Butch."

Says "That's the Brain Trust's theory."

Says "No; but I put up a good fight, anyway."

Says "Is the boat in yet."

Says "We are out of them right now."

* * *

FOR THE R. A. F.

Let Me Remember

Let me remember a garden in England,
Green sloping lawns softly shaded by trees,
Prim bordered pathways, the perfume of roses,
Laughter of children and murmur of bees.

Let me remember a meadow in England,
Tranquil and quiet in the afternoon haze,
Song of the river that creeps through the rushes,
Let me remember the peace of those days.

—ANONYMOUS.

* * *

Rhymes of a Rookie

Miles of corridors gaunt and grim,
Tall grey walls that hem us in,
Smiling faces, merry and bright,
The practical joke and shower fight,
Brass bands, bugles, morning parade,
The Corporal's command, the Sergeant's tirade;
Up with the dawn, to school all day,
Mealtime lineups, then back to the bay.
Such are the thoughts of a new trainee,
Crowding his mind incessantly.
But we are here to do our part,
And we strive to keep our country free:
We'll do our best right from the start,
And march along to V-I-C-T-O-R-Y!

—AC/2 WARDEN, H. J.
Entry E17.

* * *

Tell a man that the sun is 92,000,000 miles
away and he will believe you. Put up a sign
"Wet Paint" and he'll investigate.

1 SQUADRON, 2 WING

By AC/2 Falle, L.

Here they come! There they go!

That is the order of things around T.T.S. It is with mixed feelings that the new trainee first looks on the School in which he is going to train.

Uncertainty of the future grips him and seems to urge him on.

This *uncertainty* still holds sway during his course at the School, for every new phase means something fresh to discover.

Then, when the course is completed, he is still faced with *uncertainty*.

The *uncertainty* of:

where he will be posted;
what the new station will be like.

The *uncertainty* of:

what the social life will be in the future; and
whether he will form new and lasting acquaintances that can equal the ones he now has to leave.

The *uncertainty* of minds that want to hang onto the familiarity of the place they have been for so long, faced with meeting unfamiliar surroundings.

In the Service, life is truly a thing of *uncertainty*—but we like its uncertainty.

* * *

Long it is since we mentioned the *welding* phase of advanced metal work, so we will take time and mention it here.

The trainees enjoy this phase partly because it is extremely interesting and partly because now they can wear something that distinguishes them from the newer trainees. No one can possibly mistake them for rookies because of the goggles they wear. Welding is a vital phase of the job. A metal worker must be able to tell at a glance whether a *weld* already made is strong enough and good enough to do what is required. The life of a pilot and his crew may depend on that knowledge. All this is made possible at T.T.S. by the excellent instruction given on this subject. Take it from me, the instructors know their welding.

* * *

SPORTS

Ah, ha! What is this we see? The Badminton and Volleyball teams have won their first three games (all they have played up to date this month) and Basketball also registers a win. This month may be the turn of the tide. Keep it up, fellows; there is an object which we must get, i.e., the C.O.'s Trophy. Perhaps for the benefit of the new men, it should be mentioned that the man who really made sports GO in this Squadron, Sgt. White, is the man responsible for our success. Back him, fellows, and you back the Squadron, and they'll both back you. Sgt. White deserves your support—don't fail him.

* * *

In Lighter Mood

1st Girl—"That Airman is a bore."

2nd Girl—"What do you mean?"

1st Girl—"He's here today and here tomorrow."

* * *

Cpl. Burnett—"Who knows anything about shorthand?"

WORK



SAVE

E. & A. T. S.

3 Sq. - 2 Wing

1 Sq. - 2 Wing

3 Sq. - 1 Wing

2 Sq. - 2 Wing

1 Sq. - 1 Wing

Civilian

Headquarters

2 Sq. - 1 Wing

LEND



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Six Recruits—"We do."
 Cpl. Burnett—"Well, they are shorthanded on barracks fatigue so get your brooms."

* * *

Compliments are like perfume, to be *inhaled*, not *swallowed*.

* * *

A Nazi, a Fascist and an Englishman were passengers on a plane crossing an ocean. Due to engine trouble it became evident that the plane must be lightened, so all baggage was thrown over but still the plane lost altitude. The captain said a passenger must leave. So the Nazi shouted "Heil Hitler" and stepped out into space.

Still it was not light enough and another passenger must go. So the Englishman got up, opened the door and, shouting "There'll always be an England," tossed the Fascist out to join his axis partner.

* * *

Every year has	365 days
If you sleep 8 hours a day, this equals	122 days
<hr/>	
and leaves	243 days
If you rest or play 8 hours it takes	122 days
<hr/>	
and leaves	121 days
There are 52 Sundays	52 days
<hr/>	
This leaves	69 days
If you have a ½ day off	26 days
<hr/>	
This leaves	43 days
If you have a ½ hour off for lunch it takes	28 days
<hr/>	
This leaves	15 days
Two weeks' vacation takes	14 days
<hr/>	
This leaves	1 day
This is Labour Day, a holiday	1 day
<hr/>	
	0 days

It is therefore evident that you don't work at all in the R.C.A.F. If you don't believe me, ask Flt/Sgt Whitehead.

* * *

A long and fond farewell from all of us, the 59th A.M.W.

* * *

Equipment and Accountant Training School

THE SMIRCH OF TIME

By F/Sgt King

RECENT DEPARTURES: Wing Commander J. S. Eley, our C.O., who was posted Western Canada. W/C Eley spent many months at this School, and figured prominently in E. & A. T. S. activities. It is to be hoped that he enjoys his new post and receives the co-operation of his new staff.

RECENT ARRIVALS: F/Lt J. E. Corrigan, who takes command of E. & A. T. S. Our new C.O. can be assured of the co-operation of all members of his staff

and a desire on their part to make this more than ever a smooth-running unit.

SPORTS: And just to prove this point, old E. & A. T. S. has decided to take the Commanding Officer's Trophy for the month of November. After all, we came second two short months ago without practice. And our present trainee personnel, who comprise the third of the "last and final courses," have been practising all required sports and coasting through October just waiting to let loose a barrage of talent that will astound even themselves. So beware and prepare, all ye who think the old School cannot do it. Give us the equipment, and we'll account for ourselves.

HOME-MAKERS' CORNER: The general exodus which was so noticeable a few Sabbaths back was only our staff enacting the "Passing of the Fourth Floor Back" across the road. Having packed our belongings in one kit-bag (and taking 4 trips to do it) we are now happily entrenched on the 2nd floor, 2 wing, as per. Entrenched is good! We have our own house rules, i.e., only two trainees and one instructor can "tub" at the same time, but two instructors or staff can invite two trainees or civilian help to shower with them. Chummy, isn't it? Still, it makes for about 20 Orderly Sergeants instead of one, and will give the boys in the main gate Saboteur House a little more checking-up to do at 0230.

* * *

"SMILE WITH SEGAL — IT'S LEGAL"

By AC/2 Segal

AC/2 "Nero" Shapiro recently returned from Hollywood where he had a part in the new version of "Green Pastures." Critics say he's good! Some day the boy will step into something soft!!

Basketball is in the air and the E. & A. T. S. boys are bringing up a good strong team. With a little more practice it will be the team to watch. The same goes for Badminton and Volleyball. We boast of AC/2 Harris with a couple of championships under his belt. Table Tennis should be a breeze! Now, if we could only get a few rooters out to lend a little encouragement!

Watch the "Sports Blitz" in November.

* * *

HEADQTRS. SQUADRON

1. Is it true that Norm (call me Scruffy) Phibbs is "nursing" a sore toe? We hear it is "Kellying" him.
2. We hear that Cpl. Godfrey has had his scales repaired after "Lard" Starling and "Curly" Peterson gave them the works last week. The boys now admit that Charlie Lundy is just a featherweight.
3. A large number of Presbyterians turned up when Sgt. Lambert organized a Hallowe'en party for October 28th. We hope the boys confine their drinking to the apples.
4. Flight Neilson is the latest benedict in Pay & Accounts and the best wishes of all for a long and happy married life. We have a large supply of 16B's on hand, Flight!
5. It is gratifying to see that Headquarters Squadron is slowly but surely climbing up the sports ladder. In September we finished in 4th (?) place, and we should do as well this month. However, watch out for us in November; we will be in there pitching.
6. We are all wondering why Cpl. Symington looks so worried these days. There may be some truth in

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the rumor that the L. & P. S. is raising the train fare to Port Stanley.

7. Is it true:
 - (a) That Vogler (Did it again)?
 - (b) That Starling has regained his lost youth?
 - (c) That Sowden has a sticky wicket?
 - (d) That the "Single" boys like the "Y" dances?
 - (e) That Arnold invariably misses the last bus on pay nights?
 - (f) That F/Sgt Neilson has a new alarm clock?
8. It has come to our attention that certain Senior N.C.O.'s have had to show their wives the recent D.R.O. entry re short hair cuts.
9. To whom it may concern:
The new Casanovas of Talbot Street—Tucker and Keenan—find patrolling cool these nights.
We are informed that Port Stanley has settled down for a peaceful winter after the "splurge" attended by the personnel of the Pay & Accounts sections. A great time was had by all, and the very best wishes from all the boys went with those departing from our midst.

Now that the Winter Sports are almost here, it is to be hoped that all personnel in Headquarters Squadron who play winter games will report to Headquarters Orderly Room. It would certainly be great news for all concerned to see Headquarters take the Commanding Officers' Trophy. Personally, we think the trainees have had this honor too long. How about you fellows turning out in force. It can be done! How about doing it? We need Basketball, Volleyball and Badminton players—So what?

We are informed by a reliable source that the Security Guard Basketball team are a great combination. Sorry we haven't a girls' Basketball team on the Station—the boys are asking "Y."

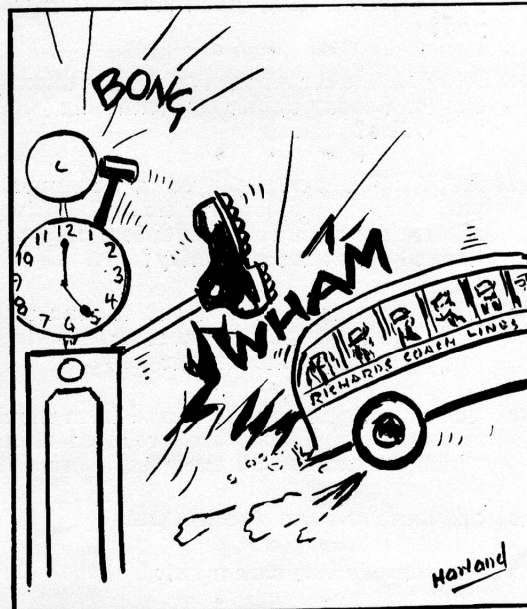
* * *

MEDS

LIES OF A LINSEED LANCER. Dots and dashes and loads of bouquets, floral and oral, to our four newly commissioned Nursing Sisters. May all your Stations come up to your expectations. . . 'Tis mentioned that that young man about town, Johnny Grobba, has finally broken forth a "yes" from his girl; marriage November 15th. Congrats. . . Noel "I ain't Christmas" Paige is now heckling Oxbridge Grieg, the Ceepeecee man, because he is only bringing one overseas letter a week. . . after seeing her photograph, we understand. . . A charming social was held in the Operating Room the other diem. A certain Mr. Carroll, the guest of honor, was practically prostrated. Among those about the table were S/L Wilson, a gay blade-wielder; Fl/Lt Marquis, who absolutely anaesthetizes you; and N/S Oakes and Bilton, who assisted with the linen and poured the liquids. Mr. Carroll proved to be very responsive and his appendix was worthy of the effort. . . We welcome from the West F/Sgt Holohan. Out there he says they use an automobile to shoot partridges; down here they dispense with the automobile and the partridges. . . The current rage of V signs has just received an added impetus following the dirt markings on the diamond after Stacey's slide. . . Vera, Burford's girl-Friday, has just popped that if Bill Millie holds the dive-bombers' spot in this camp then Butch is first candidate for the deep-sea cup; seems Butch plumbed the depths last pay-day (remember way back then?) and came the dawn was without his dough. Don't worry, Mother Machree Gibbs had relieved him of

aforementioned \$&c. . . Dept. of check-these-facts-first: That Meds sports have received a slight setback due to lack of competition . . . that Bill Millie has not only signed the pledge but also swallowed it, literally . . . that Dispenser Hill follows in his boss' lame footsteps . . . that Corp. Filliatraut is ashamed to be from Montreal . . . that Jay Walker has corns, too . . . that Gawge Geldart is not allowed to read Esquire by his wife . . . that McClymont wishes he could understand Esky . . . that the Meds' slogan of Semper Prima was drawn up by that scholarly gent, Clockwise Copeland.

* * *



Mechanics wanted to build and erect this bus starting machine out front. Don't all speak at once.

* * *

Do You Know?

- That** the new Recreation Hall is now open?
* * *
- That** there are comfortable quarters for N.C.O's and Airmen?
* * *
- That** Grace United Church offers a hearty welcome to Airmen?
* * *
- That** each Sunday it has an evening service followed by a fireside hour, with a sing-song, entertainment and refreshments?
* * *
- That** the new hostess in the Recreation Hall is Miss Mary Purdy of Y. W. C. A. War Services?

THE AIRCRAFTMAN

That members of T. T. S. Ladies' Auxiliary are acting as helpers in the Canteen in the Recreation Hall?

* * *

That coffee and sandwiches are served in addition to regular Canteen features?

* * *

That there are games available for your enjoyment?

* * *

That your pal will likely be there looking for you?

* * *

That it is possible for Airmen to get invitations out for Sunday dinner by contacting your "Y" Office?

* * *

That AC/2 Fred Berry played a prominent part in sport, particularly softball, during his training here. In addition, he was Gold Medalist for his Entry?

* * *

That there are only eight notes in the musical scale and from them all music from swing to great symphonies is composed?

* * *

That there are 3 primary colors and from them all tints and shades are produced from which are painted all the great pictures?

* * *

That one loose rail can wreck a train?

* * *

That one torpedo can sink a ship?

* * *

That one small fault can ruin a reputation?

* * *

That little things *do* matter?

* * *



According to Major Gladstone Murray, manager of the CBC, the R.A.F. Intelligence Service is almost omniscient. The R.A.F. Intelligence men, according to Major Murray, know the disposition of all the units of the Luftwaffe, the names of all the German officers in charge and become aware of changes in personnel almost as soon as they are made.

* * *

Poets can be prophetic as well as poetic. Lord Tennyson, our former Poet Laureate, pen-

ned these impressive lines almost one hundred years ago:

*"For I dipt into the future, far as human eye could see,
Saw the vision of the world, and all the wonder that would be;
Saw the heavens fill with commerce, argosies of magic sails;
Pilots of the purple twilight, dropping down with costly bales.
Heard the heavens fill with shouting and there rained a ghastly dew
From the nation's airy navies grappling in the central blue."*

* * *

The Curtiss Aeroplane Company of Buffalo has a chief test pilot who is technically well equipped for the job. He is Lloyd Child, who dove a Curtiss Hawk 75-A at 575 miles per hour and was formerly chief engineer of the Curtiss St. Louis plant.

* * *

Battle plane production in the United States for September reached almost 2,000. It is estimated that the year's total will be over 20,000.

* * *

Mt. Vesuvius makes an excellent landmark for British pilots en route to bomb Milan and other parts of Italy.

* * *

Some noteworthy individual financial contributions have been made to support the R.A.F. Mrs. M. E. Boothroyd of Walton, Liverpool, sent ten shillings with the information that it was the savings of her three-year-old son killed in an air raid. She hoped the small sum might help to avenge her baby's death. Mrs. R. Pratt of Copthorne, Sussex, sent ten shillings: "five for bombers and five for Spitfires." Howard Heinz who manufactures the 57 varieties sent \$100,000 for Spitfires. Herbert King of New York sent \$1,000. S. M. Phillips of the United States sent \$1,000. The management of the Montreal Daily Star sent \$1,000,000. The Maharajah of Hyderabad sent £150,000.

* * *

In the main plant of the Sikorsky Aircraft Company men are employed at 300 separate and distinct jobs.

* * *

Some interesting statistics are available on an unnamed seventy-five passenger airplane recently completed in the United States. Before the first model was completed 6,000 drawings were made in the drafting room. The finished craft weighs 41 tons; has a wing spread of 150 feet and is 160 feet long. It has two decks, 18

THE AIRCRAFTMAN

separate rooms and a spiral staircase. It is constructed of 50,000 different parts. More than ten miles of electrical wiring is in its make-up and there is nearly a mile of pipe in the plumbing system.

* * *

On his first trip to the Antarctic Admiral Byrd took with him a Fairchild monoplane which he called the "Stars and Stripes." In it he flew 20,000 miles over the icy wilderness. When it came time to return Byrd found he had no room for the plane and was compelled to leave it. Reluctantly he buried the craft under ice and snow. Five years later he came back. The plane was dug out and conditioned. Anticipating a little trouble, the crew prepared to start it. After five years under the ice it started on the first spin.

* * *

Robert J. Woods, chief engineer of the Bell Aircraft Company and designer of the Airacuda and Airacobra, was once told by a professor of the University of Michigan Aeronautical School that he would never make an aeronautical engineer and was advised to get into some other business.

* * *

WE SEE FROM THE

OBSERVER (Fingal) that

Doug. Deane of the Y.M.C.A. has been posted to Ottawa to take charge of the large

new Red Triangle Club which has just been opened.

* * *

FLY PAPER (Jarvis) that

His Excellency the Governor-General is spending a few days in their vicinity doing a bit of duck shooting.

* * *

FLY PAPER (Jarvis) that

Volleyball, Ping Pong and Badminton tournaments are proving almost as popular as sports at T. T. S.

* * *

AIRMAN (Uplands) that

Sgt. Symes, recently posted from St. Thomas, has found a place for himself on the Station and is getting on well in his new work.

* * *

AIRMAN (Aylmer) that

This paper is now in publication. On its front page it features the graduation of its first class of pilots and also welcomes to the Station F/Lt Lees, the new Adjutant. The editor is F/Sgt Shaw, formerly associated with the paper WINGS OVER BORDEN and THE AIRMAN (Uplands), and the business manager is F/Sgt Cormier, who is a former editor of WINGS OVER BORDEN. The news editor is F/O Gibson and WO Carver and associate editors are F/Lt Smyth and Trevis Chapman, Y.M.C.A. Director.



ALL RANKS



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

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

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

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

TECHNICAL TOPICS

SUPERCHARGING AND ITS CONTROL

A school-child will tell us that the atmosphere surrounding the earth becomes more rarified as we get farther away from the earth's crust. In aerodynamics we speak of this enveloping layer as being less dense, as having less pressure as we ascend from sea level, where the pressure remains fairly constant at 14.7 pounds per square inch. A rough rule of thumb is that for every 2,000 feet of altitude from sea level pressure will drop approximately one pound. This naturally is a very rough computation as, obviously, at this rate, at an altitude of 30,000 feet, air pressure would be nil or non-existent, which we know to be untrue. This general rule, then, applies only to altitudes of the region of 20,000 feet or less. Accepting this, let us imagine the conditions in which a normally aspirated aero engine will function from the ground to an altitude of, say, 12,000 feet. It functions in the same way as does our bodies, except that the inductive effort of the pistons takes the place of our lungs, and it will develop its maximum power at sea level, or where the atmospheric pressure is 14.7 pounds per square inch. At 12,000 feet above sea level this pressure will have dropped to approximately 8.7 pounds per square inch, and this means that less pressure of air is entering the cylinders. By judicious use of the mixture control (hand or automatic) we keep the fuel/air ratio reasonably constant and we shall get less pressure of combustible mixture into these cylinders, or less weight of charge. Thus power output will be considerably less at this altitude than at sea level. It has been proved that a normally aspirated engine developing 700 BHP at sea level will develop 420 BHP at 15,000 feet, and 330 BHP at 20,000 feet, giving relative percentages of power drop of 40% and 53%. Thus in order to maintain the power output at altitudes for efficient aircraft performance, it will be necessary to have a normally aspirated engine of high sea-level power output or BHP. This brings necessary evils in its train, the greatest of which is the enormously increased all-up weight and size of the engine.

The natural outcome of this was that engine designers resorted to other methods. This led to supercharging, which in every-day language means the forcing into the engine cylinders of the combustible charge, under pressure, thereby

delaying the power drop at altitude, increasing the power developed at altitude, or increasing the power developed at sea level. The difference in the above methods is chiefly a matter of rate of supercharge; the underlying principle remains the same.

Before going any farther, let us find out a little more about the last method, or power increase at sea level. This is known as Ground Boosting, and consists essentially of re-designing the induction and carburation system of an existing normally aspirated engine to incorporate a supercharger. This has been done notably on American aero engines, and its success depends largely on the use of high-octane fuels. This type develops its maximum induction pipe pressure at sea level, and since the power output of a normally aspirated engine falls off progressively as the altitude increases, so also will the power output of the Ground Boosted engine. The Ground Boosted engine is usually heavier than the Rated altitude type, and the greater the degree of supercharge the greater will be the power/weight ratio.

The danger here arises from the fact that the high boost pressure at sea level will, under varying circumstances, give rise to the presence of detonation, with its attendant troubles, hence this type of supercharged engine is not in wide use.

Turning to the other or "Rated" altitude type, we find that the boost pressure is controlled to prevent it at any time exceeding the maker's specified limit. Should the boost pressure exceed this maximum, detonation will assuredly occur, with attendant possible damage to pistons, bearings, valves and seats. In the older type of "Rated" altitude engine the boost pressure was controlled by the pilot having to adjust the position of the throttle lever in the cockpit. The throttle quadrant was "gated," *i.e.*, provided with a positive stop, up to which the pilot moved the throttle lever for "take-off." This prevented maximum boost pressure being exceeded, but prevented the engine from developing maximum power. As the machine gained height the throttle lever was moved through the "gate" to maintain laid-down boost pressure up to the rated altitude. After rated altitude had been reached, with full throttle opening, naturally the boost

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pressure dropped off, with a resultant drop in power output.

The more modern arrangement is to give automatic control of the throttle valve, irrespective of the pilot's throttle lever, so that at no time, under normal conditions, can the pilot's throttle lever position be indicative of the throttle valve opening. One exception is given to this and that is when an emergency arises, when the pilot may need maximum engine power *below* rated altitude. Under these circumstances the pilot may operate the emergency control (normally sealed to prevent misuse) and have complete range of movement over his engine throttles, and consequently over the engine power output. This is usually limited to a peak of three minutes duration.

This maintenance of full power at any given or "rated" altitude means that the power output must be restricted at lower altitudes, and at sea level, for if the throttle were opened to its full extent under these conditions the excessive cylinder pressures and temperatures would cause serious engine damage. The automatic type of control relieves the pilot of the necessity for frequent attention to boost pressure maintenance, and functions in the following manner.

The expansion or contraction of barometric capsules under the influence of inlet manifold pressure is utilized to operate a piston valve, which can admit oil (Bristol), or the inlet manifold pressure itself (Rolls-Royce) to one side or the other, of a servo piston in a cylinder. The outer end of the piston rod is connected by suitable linkage to the throttle operating mechanism in such a way that it tends to close the throttle independently of the pilot's manual control lever when the engine is working at altitudes below the "rated" one. Thus as the manual throttle lever is moved to the wide open position on the ground, with the engine running, the automatic control almost at once, closes the engine throttles to the safe maximum power output position for ground conditions. As the machine climbs toward its rated altitude the inlet manifold pressure tends to fall off, causing expansion of the barometric capsules, thus moving the piston rod and opening the engine throttles until at the rated height the throttles are fully open, with the pilot's hand control also fully open. Above this altitude the inlet manifold pressure will drop below normal ground inlet pressures and the engine power will fall off. The two methods employed, Bristol and Rolls-Royce, are similar in principle but differ somewhat in the method of application.

To return to supercharging principles, we find that medium compression ratios are em-

ployed. In a normally aspirated engine the volumetric efficiency is around 85% to 90%, but in a supercharged engine this may possibly be raised to 100%, and a greater weight of charge can be provided. The heat generated by combustion is proportional to the weight of charge, and the maximum cylinder pressure will vary directly as the charge weight. This means that if a high compression engine is supercharged the cylinder temperatures and pressures will be increased to a too high average. A compromise is therefore made whereby a medium compression ratio of $5\frac{1}{2}/1$ or $6\frac{1}{2}/1$ is used.

The types of supercharger most suited to aircraft engine requirements are

- (1) The rotary displacement or "Rootes" compressor type.
- (2) The eccentric drum sliding vane type.
- (3) The exhaust gas turbine centrifugal compressor type.
- (4) The mechanical centrifugal compressor.

Dealing with these in rotation, we find that in the "Rootes" type compressor there are no wearing parts other than the end bearings; it is simple in construction and therefore inexpensive; it can deal with large volumes of air without being bulky, and that it can be accurately balanced. Against these advantages we have to consider that pressure pulsations tend to occur, owing to periodic discharges between the rotors and the casing; that unless the rotor clearances are accurately maintained excessive leakage will ensue, and that its bulk and shape militate against its use in radial engines.

The design of this type of blower is that of a pair of similar rotors, shaped like the figure 8, and rotated in opposite directions, with the intake on the casing facing into the direction of rotation of the rotors, and the outlet port directly opposite the intake port, as is the practice in simple gear type pumps. The rotors do not actually touch one another, nor the outer casing, but have a small clearance.

With regard to the eccentric vane type, the disadvantage of it is that it cannot be run at speeds much above the normal crankshaft speed; its bulk and shape are not conducive to good aero engine design, the undesirable torque or inertia of the rotor system, and in some cases the noise of its vane operation.

In this type of compressor the rotor, which is placed eccentrically to the cylindrical casing, is provided with slots, in which thin metal vanes are forced outward under the influence of centrifugal force, or inward under the constraint of the casing. There are usually four rotor vanes, and in the later types they are

THE AIRCRAFTMAN

provided with end guides, to give a small clearance between the rotors and the casing.

In the exhaust gas turbine type we find that no appreciable power from the engine is necessary to drive it. The exhaust gases are fed into discharge passages or nozzles and impinge upon the blades of the turbine, which becomes energized and rotates. With a properly designed turbine, speeds of the order of 30,000 R.P.M. can be obtained. The disadvantages of this type are several, viz., the whole of the turbine system must be able to withstand high temperatures of the order of 650° to 700° centigrade without distortion or structural defect. The turbine blades in particular must withstand this distortion, and the corrosive effect of the exhaust gas under all conditions. The maintenance of gas-tight joints in the system is also a problem, as is the increased exhaust valve temperatures. The turbine rotor being placed in the exhaust gas flow naturally causes a slight exhaust back pressure, while the whole of the turbine casing must be placed in the airstream to keep it reasonably cool, thus by so doing, increasing the drag of the aeroplane. Another drawback is the increased fire hazard, due to the high temperatures of the pipes and the casings. In some cases these attain a red heat, so that risk of ignition of any free fuel vapour is increased. Further, engines equipped with the turbo-compressor type of supercharger are apt to be sluggish in their response to the throttle, as some time is required after starting, to accelerate the rotor to its proper working speed. The centrifugal type supercharger impeller is connected directly to the turbine rotor shaft. Despite these disadvantages, however, the German Luftwaffe use this type of supercharger in many of their more recent aero engines.

The engine driven centrifugal type supercharger, which has been adopted in preference to other types in most countries, has many advantages and a few disadvantages. It is compact and will produce fairly high boost pressures; is equally adaptable for all types of aero motors; requires little servicing or attention; will not normally set up pressure pulsations; may be accurately balanced, and will not easily lose its balance under normal conditions, and is quiet in operation. The chief drawback is that it must be driven at considerably more than crankshaft speed, thus necessitating speed-multiplying gears, with means of preventing inertia stresses in the drive by means of slipping clutch arrangements.

The principle of its operation is that the mixture is delivered from the carburetor and drawn into the central part of the supercharger casing, and is then discharged outward

along the rotor vanes by centrifugal action, due to the speed of rotation of the impeller. This mixture has now a high velocity, and is discharged into an outer set of fixed curved vanes, which are arranged to receive the gas flow without shock. These fixed vane rings, or diffuser rings as they are sometimes called, are designed to convert the velocity head into pressure head in the most efficient manner by reversing the well-known venturi action. The rotor vanes are arranged radially and are not generally curved. However, at the intake part of the rotor or impeller will sometimes be found a set of curved steel inducer blades which follow the shape and contour of the inner ends of the radial rotor blades. These two parts are spliced and secured together and must be regarded as an integral unit. The impeller proper is usually a light alloy forging. In this type of supercharger assembly we have the added advantage of thoroughly mixing the fuel and air before it enters the cylinders. A small clearance is provided between the rotor blades and the casing and the fixed vane ring.

Since the mechanical centrifugal rotor type is the one with which we are more likely to make contact, some further explanation of its function and drive is necessary.

The drive is usually of the three compound pinion, slipping clutch type, the three larger gears meshing with the smaller gear of the impeller shaft, and each containing a slipping clutch drive, while the smaller of the compound gears mesh with a large gear on the crankshaft. Thus we have a compact unit for increasing the impeller speed, incorporating a clutch arrangement. This latter is usually in the form of segmentally shaped bronze pads, retained under a recessed lip of the large gear by light spring loading. The pads are actuated by the smaller compound gear only—the large gear is not directly driven by the small gear, but by the centrifugal action of the clutch pads on acceleration, plus the light spring loading. This reduces inertia stresses on the gear and allows equal loading of the gear teeth. On deceleration, when the centrifugal action is not so apparent, the rotor would “free wheel” for some considerable time after the throttle was closed, due to inertia or momentum, were it not for the “braking” action of the light spring loading on the clutch pads, which effectively prevents this without setting up undue strain upon the rotor and gear assembly.

In some cases the supercharger may be of the two-speed type, which means that the impeller may be driven at differing speed ratios through varying gear trains. To enable a smooth change-over to be made from one speed ratio to the other, mechanical or hydraulic,

THE AIRCRAFTMAN

slipping clutches are employed. These two-speed superchargers are necessary in order to obtain higher maximum power outputs at altitude, the high-speed ratio being brought into use after the low-speed ratio has performed its useful work. Single stage superchargers give boost pressures up to 6 to 12 pounds per square inch, the latter employing very high rotor speeds. Higher pressures than these can only be obtained from centrifugal superchargers, by designing them in stages. In these multi-stage superchargers there are two or three separate impeller units, arranged so that the outlet of the first feeds into the inlet of the second and so on. A considerable increase in pressure is obtained at the outlet of the final stage.

The position of the blower or supercharger unit is usually to be found between the carburetor and the engine cylinders. The reason for this positioning is that were the carburetor placed between the blower unit and the engine cylinders compressed air would be fed to the carburetor air intake. This in itself means that a connecting duct or passage must be taken from the area of intake pressure to the sealed float chamber, which will now operate under a positive pressure. Further, since only air is compressed in the supercharger it becomes heated, with a consequent decrease in volumetric efficiency. Also, higher cylinder temperatures will occur. We can overcome this drawback by interposing an efficient intercooler between the compressor and the carburetor, and this has been done in some cases. However, where the blower casing is positioned between the carburetor and the engine cylinders, the intercooler is not necessary for the rotor draws air and mixture from the carburetor, and the more complete vaporization of the fuel content has a cooling effect on the charge.

The effect of supercharging on valve timing is interesting. It is not necessary to employ the large valve overlap that is sometimes met on high efficiency normally aspirated engines. We do not have to overcome the inertia of the intake gases. It is already under pressure, thus the exhaust valve may close earlier and the intake valve open later, while the intake valve need not be kept open so late for the same reason. Actually a late-closing intake valve may cause a loss of volumetric efficiency, as some of the charge may be forced back into the intake manifold. The exhaust valve usually opens later to reduce the load on the valve operating mechanism, since the pressure in the cylinder, toward B.D.C., is higher in the supercharged engine. Thus, it will be found in most cases that the valve timing of a medium speed engine is used.

In general, sleeve valve engines are more efficient when supercharged than are the poppet valve types. This is due to the much higher pressures against which the poppet valves have to open, and the considerably greater amounts of heat that have to be disposed of, through the exhaust, in the poppet valve type.

Diesel engines are also known to be supercharged, the pressure being exerted on air only. This gives an increase of as much as 50% in power output over that of the normally aspirated engine, depending on the degree of supercharging. With regard to Diesel engine practice, it is noteworthy that, apart from rotary blowers and exhaust turbine blowers, we may find also used a reciprocating air compressor, as the supercharger, while in some cases, where a crosshead piston is employed, the lower end of the engine pistons and cylinders are used. The supercharged Diesel engine is employed more generally in Europe than on the American continent.

The conclusions that may be drawn from a survey of supercharged engines, and their characteristics, may be summarized as follows:

- (1) Volumetric efficiency increased.
- (2) Valve overlap decreased, and more normal timing resorted to.
- (3) Ceiling of aircraft raised.
- (4) Rate of climb of aircraft increased.
- (5) Weight of supercharger unit around .06% to .08% of dry engine weight.
- (6) Power absorbed to drive the supercharger gear 6% to 8% of maximum power developed, in the case of engines with rated altitudes of 12,000 to 15,000 feet.
- (7) As employed in present aircraft engines, will maintain sea level H.P. up to 12,000 to 15,000 feet.
- (8) Position of blower gear important with regard to fuel vaporization.
- (9) A well-designed supercharged engine will have as good as, or better, fuel economy than a normally aspirated one.
- (10) High octane fuels must be used to decrease the tendency to detonate.
- (11) Compression ratios generally the same as normal speed normally aspirated engines.
- (12) Power/weight ratios considerably decreased.
- (13) Thermal efficiency not greatly different from that of the normally aspirated engine.
- (14) Sleeve valve engines present a more favorable aspect for supercharging, owing to elimination of poppet valves.
- (15) Centrifugal rotor and exhaust-turbo types the most common.

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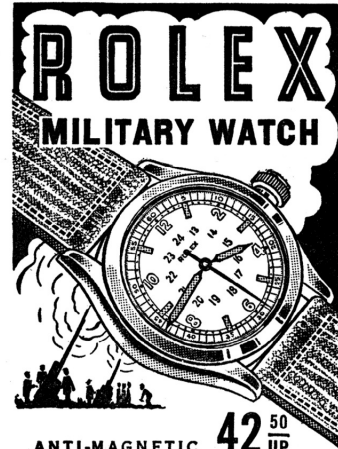
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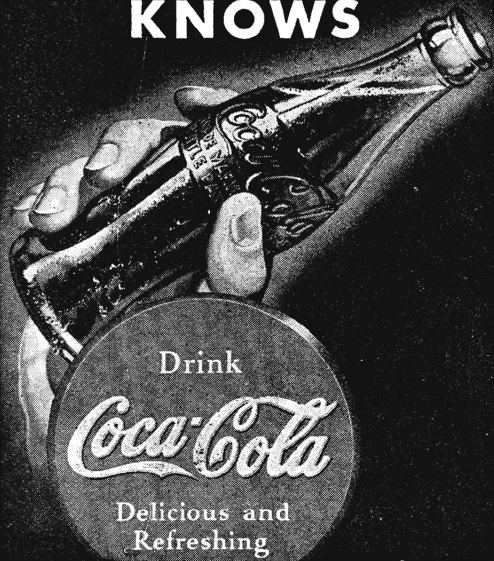
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" 13-15: "Brother Rat & a Baby"-Pris. Lane
" 17-19: "Gt. American Broadcast"-J. Oakie
" 20-22: "Leather Pushers"-Andy Devine
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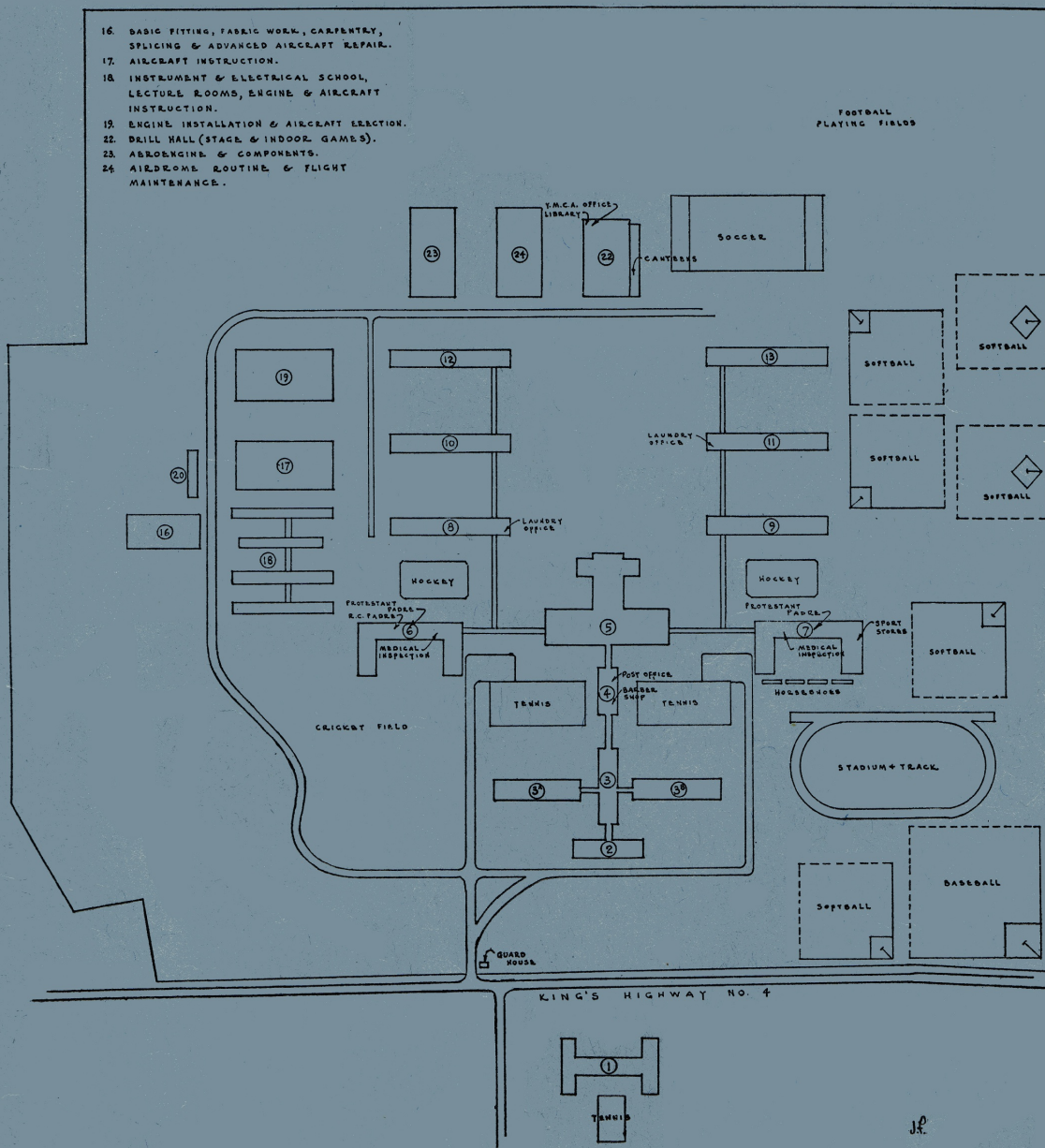
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