Summer Comes to Port Stanley

THE Aircraftman

Technical Training School • St. Thomas, Ont.

May, 1944

Good-bye and Good Luck!

BOTH staff and trainees at TTS feel a keen personal loss in the retirement of Group Captain J. H Keens, A.F.C., who has been the Commanding Officer since December of 1941. Proof of the quality of his leadership lies in the fact that while he was at the helm the Station enjoyed three years of the smoothest and most productive sailing of its career. This was not because there were no obstacles in its path. There were plenty of problems, but they were all met and handled with that unerring touch which showed that the young pilot of World War I still retained that keen sense of co-ordination and control that distinguished him in those brave days when flying was in its infancy.

Group Captain Keens used often to say that the Station was his hobby. There is many a graduate of TTS, perhaps now far away, who will have an affectionate memory of him, wandering about the class-rooms and corridors, chatting occasionally with a group of lads as they enjoy a "break," always watching the throbbing heart-beat of the station's life. With a presence that suggested calmness and ability, he provided a leadership that was not flashy and dramatic, but intelligent, shrewd, and above all kindly and thoughtful.

In everything he did Group Captain Keens gave real meaning to that time-worn phrase, "an officer and a gentleman." The Station which he loved and served so ably now wishes him the happiest of landings.

The Dominion At War

Highlights of Canada's War Effort at Home and On The Fighting Fronts

Facts about Canada's share in the air war: Canadians in 42 RCAF squadrons overseas and in the RAF comprise 25 per cent of all air crew under British tactical command in Mediterranean and European war theatres. Nearly 1,200 Canadians have been decorated for gallantry in action and 12,000 casualties have been recorded.

On the ground Canada has schooled 114,000 men in 50 different trades and as engineers, staff men, mechanics and inspectors. Buildings erected under the British Commonwealth air training plan totalled 6,068—494 hangars, 98 drill halls and 5,476 other buildings. Paved runways, taxi strips, parking areas, parade grounds and hangar floors equal a 20-foot highway of 2,648 miles.

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Nine Canadian members of the joint Canadian-American special service force have received military decorations from the United States government. Eight of them received the United States Silver Star, while the other received the United States Distinguished Service Cross. This force is a super-commando unit comprised of men skilled in both parachute and marine landings and in mountain and desert fighting. The DSC was awarded to Lieut. F. B. Atto, Mt. Royal, Que., for his exploit in Italy, when he marched seven German prisoners back to his own lines at the point of an empty pistol.

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Formerly on the secret weapon list, the self-propelled Bofors 40-millimetre gun is now being made in Canada from an improved design worked out by Canadian engineers. It has a road speed of 40 miles an hour, is invaluable in the protection of road convoys, and can engage tanks.

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News in the Canadian aircraft industry, as announced recently by Munitions Minister Howe: "Canada is now or soon will be producing for post-war avaition needs a small and medium transport as well as other types." Mr. Howe also stated that a Canadian team has been in England working with the designers of the jet-propulsion plane and that part of the development work has been moved to Canada.

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HMCS Algonquin, newest and fastest destroyer in the Canadian Navy, has been commissioned with an all-Canadian crew in a Clyde shipyard in Scotland, naval headquarters at Ottawa has announced. She is the seventh destroyer given to Canada by Great Britain in the past year. The Algonquin is the first of her type in the RCN. With 36 knots speed, she is one of the fastest in the world. She carries two sets of quadruple torpedo tubes, depth charge throwers, chutes, and extensive anti-aircraft equipment.

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Canada, with only 1/188 of the world population, and 1/14 of the world area, is 1st in nickel production, in newsprint, in asbestos, and in platinum and radium; 2nd in woodpulp and gold; 3rd in aluminum, copper, zinc, cobalt, silver; and 4th in wheat and lead. She is the fourth United Nations' air power and the third United Nations' sea power.

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It was revealed recently at Ottawa that the only wholly integrated synthetic rubber plant in North America is in Canada. It is the Polymer Corp. Ltd., at Sarnia, which manufactures both basic ingredients of synthetic rubber, butadiene and styrene, and combines the two (polymerization) into rubber. The cost of manufacture will soon be materially below that of imported rubber. The Canadian product is recognized everywhere as first-class.

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Shipments of food to Greece will be increased to 31,200 tons monthly during 1944, Prime Minister Mackenzie King announced recently. This represents an increase of 11,000 tons over the amount shipped monthly in 1943. The major part of the increase consists of an additional 9,000 tons of wheat each month provided as a gift from the Argentine government. This is in addition to the 15,000 tons of wheat sent as a gift from Canada. Other items sent will include sugar, rice, fish and canned milk.

A new and better type of parachute, named the "seat type parachute, detachable pack," has been invented by Flt. Lt. W. E. Cowie, on the aeronautical engineering staff at RCAF headquarters, Ottawa.

The old type, with pack and harness joined together, made it difficult for pilots to run to planes and impeded them in climbing aboard. Now the pilot finds the pack of the parachute waiting for him, ready to be used as a seat, when he climbs into a plane. After sitting down he hooks it to his harness by means of snap-hooks. The new 'chute has been thoroughly tested, and RCAF officials have pronounced it comfortable and foolproof.

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No doubt inspired by the mutual aid agreement signed early this year by Canada and Russia, an article entitled "Canada," which recently appeared in the Moscow newspaper Red Star, gives high praise to the Dominion's contribution to the war effort. In part it states: "In the course of four and a half years of war Canada, with her hard-working, grave people and richest economic resources, has occupied a prominent place in the struggle of the United Nations against Hitler's Germany. . . Already Canada has proved herself the biggest arsenal of the British Empire. . . . By the end of this year her military expenditures will surpass five times those of Canada for the entire war of 1914-18 and the period of demobilization. . . . Canadians are justly proud of their machine-guns, tanks, cars, precision instruments and other equipment. . . . Canada played and plays an important role for the training of flying personnel of the British Empire."

Canada Takes Pride in Her War Plants

Canada well deserves the title of arsenal of the United Nations, for her record in war production is a fine one. These rifles—and there are none better—are manufactured at Small Arms, Ltd., Long Branch, Ont., whose machines are humming these days.

The Aircraftman

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RCAF Technical Training School

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The Man Behind "Tech. Topics"

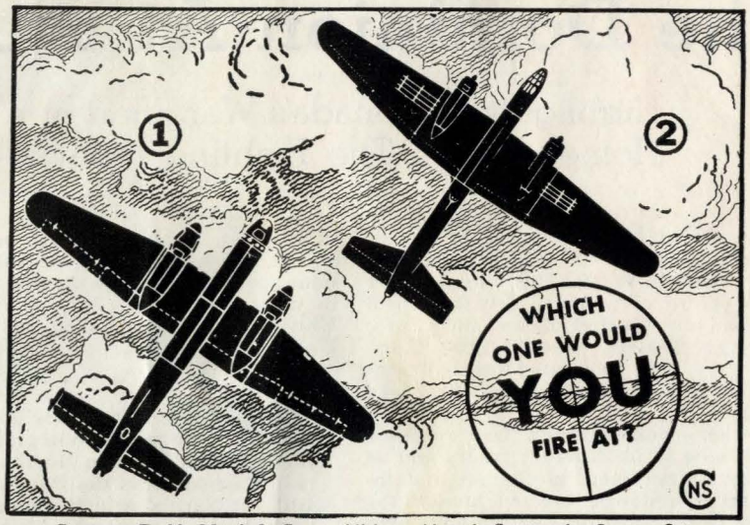
Our new Technical Editor, Flt. Lt. C. J. Baker, at present O.C. of Technical Building No. 16, has had a varied engineering career, both in civil life and during this war.

Born in England, he was employed there in automotive production, and after being associated with mining in Canada, went to Africa for the British Government to engage in construction work.

He was commissioned in the RCAF in 1940, and following several other postings came to TTS last August.

In civil life Flt. Lt. Baker obtained a pilot's license which he still holds, and in 1942 he was certified as competent to fly twin-engined aircraft.

May, 1944 Vol. 4 No. 10



Courtesy Dodd, Mead & Co., publishers Aircraft Spotter by Lester Ott.

(Answer on page 11)

Hang On To Those Bonds!

THE Sixth Victory Loan has now come to a successful conclusion, and TTS—as we knew it would—has once again gone "over the top" with a record of bond sales of which we can all be proud. It was a mighty big job that the Victory Loan organizers set themselves, and great credit is due them for the way they pitched in.

Most of us in the armed forces probably realize fully the value of our contribution to Canada's war effort—we can readily visualize, more than anyone else, the vast sums of money needed to provide the planes, ships and guns so vital in our drive to victory. But it is likely, on the other hand, that few of us ever stop to think how valuable our bonds are in helping to preserve Canada's financial structure.

The Dominion's success in maintaining economic stability, in fact, has won the approval and praise of many financial experts in other countries. For example, the late Col. Frank Knox. U.S. secretary of the navy, in speaking in Toronto a short time before his unfortunate death, declared that Canadians have done "a superb job" in preserving their financial integrity. "The more bonds purchased," he said, "the more assured will Canadians be that they will emerge from this war with a minimum damage to their underlying financial mechanism." And recently Prof. Benjamin H. Higgins, of McGill University, in a special study of Canada's financial structure, pointed out that for 75 per cent of its wartime borrowings, the Canadian government has been able to rely on the public, and as a result the Canadian banking system as a whole has taken a relatively small share of the wartime public debt increase.

Let us remember, however, that only by allowing our Victory Loan dollars to remain at work can we maintain that happy state of financial soundness.

For many servicemen, no doubt, there will be occasions when the sale of a Victory Bond will help him out of a financially embarrassing spot—occasions such as illness in his family. But let us remember that the bogey of inflation has always been a very real one—it is not something invented by a financial theorist with his head in a cloud of figures. It is a danger that might vitally affect the future security of all of us. And one of the best possible ways to keep that bogey at bay is to hang on to our Victory Bonds until the time has come when we can cash them in without endangering the "financial integrity" we now enjoy.

STATION CHATTER

With Sgt. G. C. Davies

IT SEEMS that there is an ancient superstition to the effect that if it rains on Easter Sunday, it will rain for seven Sundays following. That was practically the case during April, with rain being the order of every week-end. However, there was enough bright and warm weather during the week to coax the lads out onto the greening grass, to the sports fields, to the golf courses, and even to Port Stanley to launch the summer season.

During the month there was much activity around the halls and corridors of the station, with the Victory Loan drive commanding most attention. There occurred also another of those rousing square dances which rock the Recreation Hall from time to time. The station band staged a smart concert on behalf of the Victory Loan in the Granada Theatre in St. Thomas, the sergeants' mess held a smoker, and numerous members of the station staff journeyed to Port Stanley on the evening of April 28 to officially open what is known as the "snake-pit" for the coming season. And with plenty of warm weather in evidence at the end of the month, we might say that April definitely got summer activities around the station away in high. Boys and girls even went Sunday-strolling on Port Stanley sand, and Kettle Creek had its first visitors. Some of our WD's even made so bold as to brave the elements on their bicycles—yes, shorts and all.

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Victory Loan Rally

Yes, indeed, the joint was really jumpin' down at the old Drill Hall on the day of the station Victory Loan rally, April 24. And the usually somewhat dull procedure of waiting around while the odd one straggled up to buy a bond was entirely done away with. This, we think, was due to a couple of reasons.

First of all Flight Sergeant Leroy had his band boys in excellent fettle and they filled the full hour of each parade in the drill hall with a varied selection of band arrangements of popular rhythm classics. The enthusiasm with which the lads greeted such melodies as "Holiday For Strings," "American Patrol," "Volga Boatmen" and "Anvil Chorus"—the latter three with a definite Glen Miller treatment—was remarkable. They whistled and cheered for more in true swing fan fashion.

Secondly, the music seemed to put everyone in such a happy mood that they readily got up and made for the bond selling tables. The unhappy job of putting the pocketbook in jeopard for several months was made almost a pleasure by the presence of a few really attractive young women behind the typewriters — one blonde damosel in very chic attire had a line waiting before her table every hour — business could hardly have been better had she been selling the traditional kisses instead of bonds.

Undoubtedly the whole rally was an excellent success, better than preceding ones, as the bond total sold in that first day or two was away above that for the fifth loan, and put our station over the top in less than three days. Definitely good going.

Band Concert

While speaking of F/S Leroy and the band, we might as well discourse a bit on their very sensational concert on behalf of the St. Thomas and Elgin Victory Loan campaign. This was staged on Sunday evening, April 30, in the Granada Theatre, and sent a packed house home practically talking to itself.

So excellent was the concert that the boys returned from 48's after it to find that popular demand was clamoring for a repeat performance for the following Sunday—May 7. And at this writing, F/S Leroy has rehearsals in high gear again for that second performance.

Just what went with the fine playing of the band to make the first concert the outstanding success it was, is hard to say. But perhaps the excellently balanced program had a lot to do with it. The band played modern classics as excitingly as any big-time radio orchestra, and then had everyone simply speechless with their presentation of Tschaikowsky's 1812 Overture.

Contributing superb solo variety to the entertainment were Cpl. Kay Edis, accordionist; Cpl. Kay Alvin, soprano, and Cpl. Jack Wood, tenor, all well-known entertainers on this station. Your scribe acted as announcer for the show, and will have the job of presenting the whole company again next Sunday evening, for it seems that the local citizenry want everyone back again. Let us hope that they are appreciative of the fact that all concerned with these concerts are giving of their own free time to provide said citizens with top-notch free entertainment.

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This and That

With spring rains and mud somewhat current around the camp during the month—and likely to occur again frequently in the near future—some of the NCO's in charge of marching troops, and the troops themselves, take an exceedingly poor view of the manner in which cars — official and otherwise — choose to disport themselves in puddles at fairly high speeds when passing the marching files.

Said one such NCO to your scribe after he and his flight had been thoroughly drenched with muddy water in the aforesaid manner:

"It seems to me that I have seen signs about the camp stating that the official speed limit is 15 m.p.h.—**strictly enforced!** If the car that passed me this noon was doing only 15 m.p.h., we were marching backward up a hill."

It strikes us that there is much in said NCO's complaint, having observed numerous cars using the curve behind No. 19 hangar a la Indianapolis speedway. Maybe a little of that "strict enforcing" would be a good idea. Either that or a bunch of the boys are going to get a chance to try out their St. John's ambulance badges one of these days.

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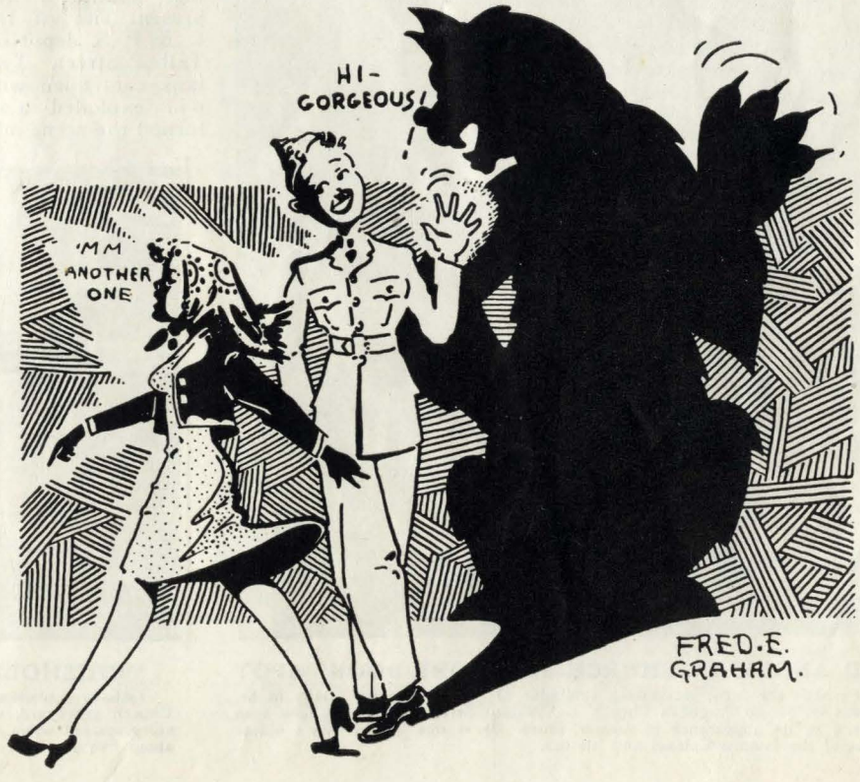
Is it extreme politeness or a little heavy-footed Sherlock Holmes-ing that we see exhibited at the main gate on odd occasions these evenings?

Here's the set-up: A corporal, sergeant, flight sergeant, or even warrant officer may be making his way out the gate some evening attired in a shirt of somewhat lighter hue than the stygian issue grey, when suddenly he finds himself hailed in a comradely voice from the general direction of the gate office.

On looking up, the NCO—innocent and unsuspecting fool that he is—perceives an individual of puckish countenance beckoning to him invitingly. The beckon is usually accompanied by the sotto voice invitation to ". . . come over here a minute, I've something to show you," or ". . . Want to hear a good story, flight?" or oven ". . . Say, I'vt got a ride to town for you." On responding to the "siren" call and entering the office, you can imagine the surprise and chagrin with which our NCO gets this: ", , , All right, flight, give me your name and number; you're wearing a silver-grey shirt." In other words, brother—"you've had it."

(Continued on page 9)



Early Days Recalled In Ontario's "Flower City"

Probably few of us at TTS know anything of the rich historical background of the city of St Thomas. Here are some of the highlights of the days of the famous Col. Talbot, the city's founder, as well as some of the points of interest of the city as it is today.

SOMETIMES it pays to be a private secretary, although of course you must choose the right boss.

This is the story of a certain gentleman, a good many years ago, who did choose the right boss, and of what happened as a consequence. It is the story of Col. Thomas Talbot and the city of St. Thomas.

Probably few of those who have passed through TTS have realized the rich historical background of St. Thomas or the many points of interest it possesses for the tourist or casual visitor. Yet it is partly through a knowledge of its historic past that a city "comes alive"—that is, appears as something more than a mere collection of streets and houses and shops.

It was Lieut.-Gov. John Graves Simcoe for whom Col. Talbot was prive secretary from 1791 to 1794. During that time the Colonel and his boss travelled from the shore of Lake Erie, at what later became Port Talbot, to the present site of London. Talbot liked the country so much that he applied for and received a grant of 5,000 acres of land, covering the whole of Elgin County and parts adjacent to it. In 1803 St. Thomas was founded by Col. Talbot in what was still an unbroken stretch of forest, although the Colonel lived by the lake for his remaining days in "Castle Malahide," a house named for his ancestral home in Ireland.

Actually the history of St. Thomas dates back to 1810, when Daniel Rapelje and David Mandeville erected their pioneer homes on the Talbot Road, the first trail blazed by Col. Talbot and his engineering associate, Col. Mahlon Burwell, for whom Port Burwell was named. From that humble beginning St. Thomas has grown to its present size of a city of 18,000 odd.

Known originally as the "Town that Grew Up Over the West Hill," St. Thomas has had many other names in the 140 years since then, complimentary and otherwise. Once known as Railway City, St. Thomas eventually acquired the undesirable name of Calamity City, which it gained from two famous railway accidents, but it has long since lived that name down, and is now known by the title of "Flower City."

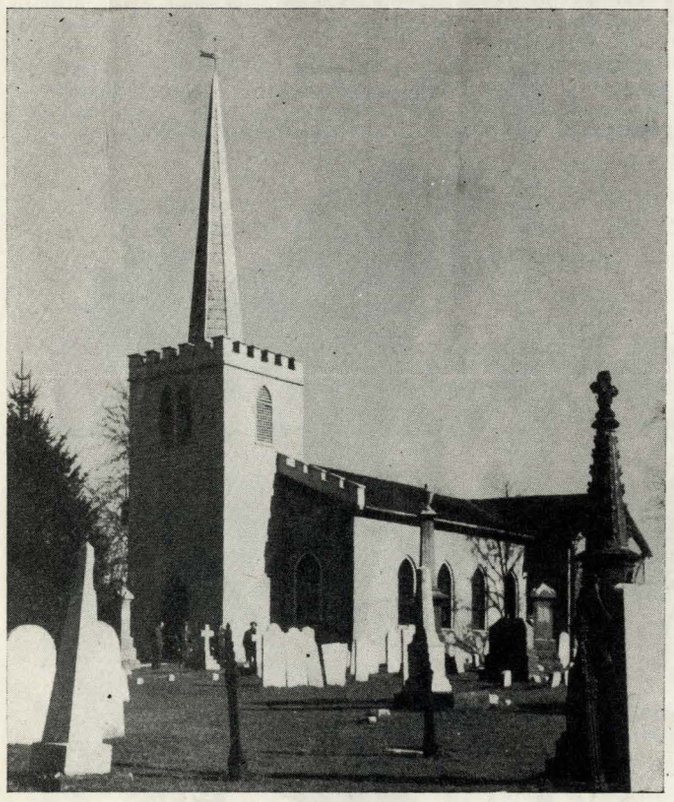
The first accident to give St. Thomas the name of Calamity City was the death of Jumbo, the famed P. T. Barnum elephant, in the Air Line yards, east of the city, on the night of September 15, 1885, when the huge beast got the worst of an argument with a freight train. Thousands of gallons of ink have been used up in description of this event, reports of which went all over the world; in fact, St. Thomas is still known to many as the city where Jumbo was killed.

Two years later, however, on July 15, 1887, an even worse railway disaster occurred which threatened to link St. Thomas with the name of Calamity City for a long while. It happened when a picnic train returning from Port Stanley on the then steam-operated London and Port Stanley Railway ran into a Michigan Central freight train in the centre of the city, just south of the present site of the L. & P. S. depot on Talbot Street. Two tank cars filled with oil exploded and turned the scene into a horrifying blaze. Fourteen persons were killed and scores of others badly injured.

In and around St. Thomas, however, there are many reminders of a more peaceful and a more orderly past. One can find few traces, for instance, of serious crime in the city's history, although one court case, now long forgotten, doubtless aroused a furore among the good citizens of its day. It happened in 1881, when several members of a church at Frome, were unceremoniously haled before Magistrate Wm. McKay and charged with snoring during service! After duly deliberating on his verdict, the magistrate opined that he would dismiss the case with costs, as "it had been a custom as long as he could remember to snore in church, and there was no case in the books where anybody had been fined for snoring."

One of the most attractive memorials to a glamorous historic past in St. Thomas is the Anglican Church on Walnut Street, the oldest place of worship along the north shore of Lake Erie in the district over which Col. Talbot wielded his influence. It was built in 1824, when St. Thomas was the garrison town of the district and many of the quaint box pews were held by officers of the regiment. A regular "story-book" church, services are still held there once every summer, in the first week of August, and as it has now been restored, it is a mecca for thousands of visitors to the city. The old graveyard provides a record of many of the first families in the settlement.

Probably the most interesting spot in the graveyard is the Chisholm plot, with its unusual and costly monument. There is a legend attached to this plot, sometimes referred to as the "Chisholm Curse." The plot contains the graves of seven members of the family, all of whom died within a period of five years. There has been much speculation as to what caused the deaths of the head of this family, his wife and five children within



OLD ANGLICAN CHURCH IS "STORY-BOOK" SPOT

Perhaps the most interesting reminder of "garrison town" days in St. Thomas is the old Anglican Church, on Walnut Street, which has now been restored to its appearance of former times. It is one of the city's oldest echoes of the famous Colonel and his era.

CHISHOLM GRAVE RECALLS OLD LEGEND

Above is a view of the famous Chisholm monument in the old Anglican Church graveyard, which recalls the legend of the "Chisholm Curse." The story started when seven members of the family all died within a period of about five years.

such a short time. Modern doctors, however, are inclined to scoff at the romantic suggestion of a curse and suggest that tuberculosis may have been the reason.

There are many other interesting points of historic interest in and around St. Thomas—the site of the first grammar school in Southern Ontario, at Walnut and Stanley Streets; the first medical school in Ontario, which was located in St. Thomas; and the site of an ancient double-walled Indian fort, officially known as the Southwold Earthworks, a short distance north of Port Talbot, which has been a stamping ground for many anthropologists. Fingal, too, well-known to the Air Force, is an historic town. It was one of Col. Talbot's first communities and a busy trading and manufacturing centre in the era before the railroads. Through it passed long wagon trains from the west, loaded with grain for Port Stanley, to be transferred to sailboats headed down the lakes. Port Stanley has been a busy lake port for well over a century and a quarter.

Another interesting spot is the town of Vienna, near Port Burwell, where Thomas A. Edison's parents and grandparents lived. Thomas Edison himself lived there every summer in his boyhood after his parents were forced to flee from Canada and live in Port Huron, through Edison's father being involved in the Mackenzie Rebellion. Some years ago the old Edison home, a pioneer frame dwelling, with all the outhouses, was moved to Henry Ford's Greenwich Village at Dearborn, Mich., where it can now be seen in its original setting in the Edison section.

Anyone wandering around St. Thomas, however, for an interesting place to spend an hour or so on a Saturday evening or Sunday need not worry about finding nothing but historic shrines. There are plenty of up-to-date ways to find relaxation. One of the best of these is a trip to the popular Pinafore Park, not far from TTS, where there is a dance hall and a little lake where you can rent canoes and go paddling, and also go swimming if you'd rather do that. Waterworks Park is an attractive spot, too, for a picnic or just a stroll.

One of the unusual attractions for visitors in St. Thomas is the greenhouse at 26 Princess Avenue, owned by Mr. R. V. Smith, who has an amazing collection of tropical trees, including a banana tree, a breadfruit tree, and a lemon tree. Mr. Smith also has on display an unusual collection of butterflies from all over the world, including the rare Blue Mottled.

Mr. Smith likes nothing better than to chat with his visitors, but any flower-lover will want to be sure and see his specimens of the Sacred Lily of India, which no doubt recall to their grower's mind the many years he served as a bandsman in the Imperial Army in India. They have waist-high stalks, with "jack-in-the-pulpit" flowerings at the top, and are said to be found in many temples in their fabulous homeland.

The hospitality that St. Thomas offers the man in uniform is indicated by the number of war service organizations it has, and just in case any newcomer to TTS hasn't yet gotten around to enquiring about them, here they are.

There is first of all the Active Service Club on Talbot Street, where there is a lounge and canteen providing games and entertainment, operated by the St. Thomas War Services Committee. The Salvation Army, an organization which is always popular with servicemen, has a lounge and canteen across the way on Talbot Street, and it also operates a Hostess House on Wellington Street for wives and relatives of servicemen. The Knights of Columbus, on Talbot Street, also have a lounge and club facilities, while the Canadian Legion has a lounge and canteen on John Street, with movies occasionally as an extra attraction. The YMCA and YWCA both have facilities for entertainment of servicemen and women—the YMCA being at Ross and Talbot Streets, and the YWCA behind the Talbot Street postoffice. Altogether, the servicement need not be lost for anything to do in St. Thomas—all he has to do is wander along Talbot Street, west of the L. & P. S. station, and he is sure to find a club or canteen in which he can pass the time.

Nowhere in St. Thomas can the serviceman find a heartier welcome than at the churches, and at the great majority of them special programs and services are provided for him both on Sundays and during the week.

The city is unusually well provided with places of worship, and for anyone who wishes to know what and where they are, here are some of them. There are four Baptist churches — Broderick Memorial on Fifth Avenue; Centre Baptist Church, at Centre and Southwick Sts.; the Edward Street Mission, Edward St., and the Hiawath Street Baptist Church (Independent) on Hiawatha St. There is a Church of Christ (Disciples) at Princess Ave. and Elizabeth St., while the Christian Science Church is located at the same corner. The Presbyterian Church has two congregations: Alma St,. at Alma and Kains Sts., and Knox, at Hincks and Mitchell Sts. The United Church has four places of worship: Central, at Wellington and Moore Sts.; First Church, at George and Curtis Sts.; Grace, on Balaclava St., and St. Andrew's, on West Ave. Others include the Salvation Army, Pentecostal Assembly, and Latter Day Saints, as well as the Church of the Nazarene. Station notice boards will give times of special services—in summer they are liable to be changed.

Thanks, Sgt. Berry

For the pictures of St. Thomas on this and the preceding page, as well as the picture of Port Stanley which appears on our front cover, we are indebted to Sgt. Percy Berry, E. and I. school instructor, who is president of the Camera Club.

TALBOT STREET HONORS THE CITY'S FOUNDER

You'd never guess it from this picture, but in the early days Talbot Street was once a race course. No doubt its grassy stretches saw many stirring events. It is appropriate that St. Thomas' main street should be named for its famous founder.

TABLET RECALLS STIRRING PIONEER DAYS

"Talbot Road . . . for years the longest and best road in the province," says this tablet in commemoration of Col. Thomas Talbot, the founder of St. Thomas. It also recalls the occasion when "enemy forces" raided Port Talbot in the war of 1812.

$193,000 IS TTS SHARE OF SIXTH VICTORY LOAN

OBJECTIVE: $100,000—total raised, $193,000 — total buyers, 2,349. That, in a nutshell, is the splendid record of TTS in Canada's Sixth Victory Loan.

The spirited campaign began on April 24, with an all-day rally in the Drill Hall, at which addresses were given by W/C Marks interspersed with selections from the Station Band. So enthusiastic was the response that the objective was reached and even exceeded on April 26.

In the race for squadron honors, which aroused much interest and friendly rivalry, No. 3 Squadron stepped into the lead early in the campaign by achieving 126 per cent of its objective only one day after the opening gun was fired. No. 4 Squadron, on April 25, was not far behind, but the fine start made by No. 3 kept it in front, and at the final count it was No. 3 Squadron that took the honors.

The grand showing of TTS in Victory Loan No. 6 emphasizes once again the part played by the armed forces in putting the loan "over the top." The services have bought well over $45,000,000 worth of bonds.

Victory Loan Salesmen For Drive At TTS

Following were the Victory Loan salesmen in the various divisions:

Station Committee: Honorary president, W/C Marks; president, W/C Dunn; secretary, F/L J. A. Reynolds. Members: S/L A. B. Taylor, S/L R. H. Bishop, S/L J. J. Bennett, S/L W. J. Reid, S/L G. E. Wilson, S/L O. R. Alty, S/L J. K. Hope, S/O E. N. Hill, F/L's J. R. Ruel, J. M. Skeaff, J. L. Rogers, A. Nimmo, J. W. Peers, G. F. H. Greening, G. W. Wilson, W. E. Tuer, J. J. McGarry, Mr. Frank Gray.

Technical Section: Building 19, F/O J. O. Clarke, F/S R. A. Beckett, Cpl. G. A. Leighton. Building 21, F/O C. E. Elliott, F/S M. D. Lowe, F/S S. S. Barnes. Building 17, F/O F. L. Benson, F/S K. W. Langdon, Sgt. J. E. Catherall. Building 16, F/L C. J. Baker, F/S W. E. MacDonald. Building 18, S/L P. S. Morton, Sgt. J. B. Ledger, Cpl. H. W. Wrigley. Building 23, F/O D. E. Whyte, Sgt. R. M. Collier, Cpls. E. Jones and A. A. Leach.

Headquarters: F/Sgts. W. E. Young, W. Arnold, A. J. H. Filiatrault, T. E. Forman; Sgts. J. B. Dietrick, C. Jenkins, J. B. Barrett, B. Jackman, A. D. Smith, M. L. Crew; Cpl. J. W. Miller.

Women's Division: Sgts. Dietrick, Keays, Mackintosh, Sullivan, Crew; Cpls. Shatford, Etches, Miller, Janes, Walker, Beggust; LAW's Meek, Olsen, Wilson.

No. 1 Squadron: Sgt. Eacrett, Cpls. Seymour, Bradbury, Thompson, Ferguson, AC1 Greun.

No. 2 Squadron: Sgt. Griner, Cpls. Smigarowski, Wilkie, Downey, Stahl, Higginbottom.

No. 3 Squadron: Sgt. Livingston, Cpls. Onis, MacMillan, LAC's Binley, Bordon, AC1 Gard.

No. 4 Squadron: F/L Pierce, Cpls. Rabin and Leach, AC2 Bennan.

No. 5 Squadron: Sgt. Craig; Cpls. Boyd, Wrigley, Seligman, Duy, Louis; AC2's Rooke, Hahn, Eddison, Renaud, Lunan, Newcombe, Goodman, Kennedy, Bancroft, Kwas.

No. 6 Squadron: Cpl. Jones; AC2's Meade, Huckerby, Miller, Polts, Birrell, Glassen, Jackson, Anderson, McKeown, Cohan.

TTS Scores Again!

Highlights of the Sixth Victory Loan campaign at TTS are shown in the pictures on this page. Above, left, is the "sign-post," showing daily progress in the loan, with, left to right: W/C Dunn, president of the Station Committee; F/L Reynolds, secretary; Group Capt. Keens; and W/C Marks, honorary president. Above shows Cpl. "Pop" Wrigley, ace salesman of No. 2 Wing, selling bonds to F/S Howard White, accounts section, who sold his home and bought bonds with the money. The cartoon at the left speaks for itself.

THE FLUX GATE COMPASS

By Flt. Sgt. G. B. MacGregor

THE accuracy with which a navigator can plot a course from one point to another on the earth has its foundation on a simple and ancient instrument, the magnetic compass. Without a directional reference, travel across the trackless oceans, even with the aid of the stars, would still be an extremely hazardous venture. Unfortunately for the navigators, the stars are not always visible.

On shipboard, the magnetic compass was fairly reliable. As ship speeds increased the gyro stabilized compass and gyro compass were developed to give even greater accuracy in direction indication. However, the advent of air travel brought on new problems. The saving of weight became a paramount consideration.

The evolution of the aircraft compass started with the simple magnetic compass again, but it was inaccurate because aircraft manoeuvres were more violent and through greater limits of movement than ships of the sea. Then, too, magnetic influences in an aircraft structure are at their greatest concentration near the cockpit where a compass would normally be located.

This condition brought about the development of the gyro direction indicator. This indicator is not affected by the magnetic influences of the aircraft or by changes in plane direction or altitude during normal flight. However, a gyroscope is subject to the phenomenon of "precession" or "wander" due to friction or minute unbalance and must be periodically reset by the pilot.

In order to overcome the deficiencies of the ordinary magnetic compass and of the directional gyro, a type of earth inductor magnetic compass, known as the Flux Gate Compass, has been developed by Pioneer Instruments.

The strength of the earth's magnetic field is comparatively weak and must be magnified many times to be of any practical use.

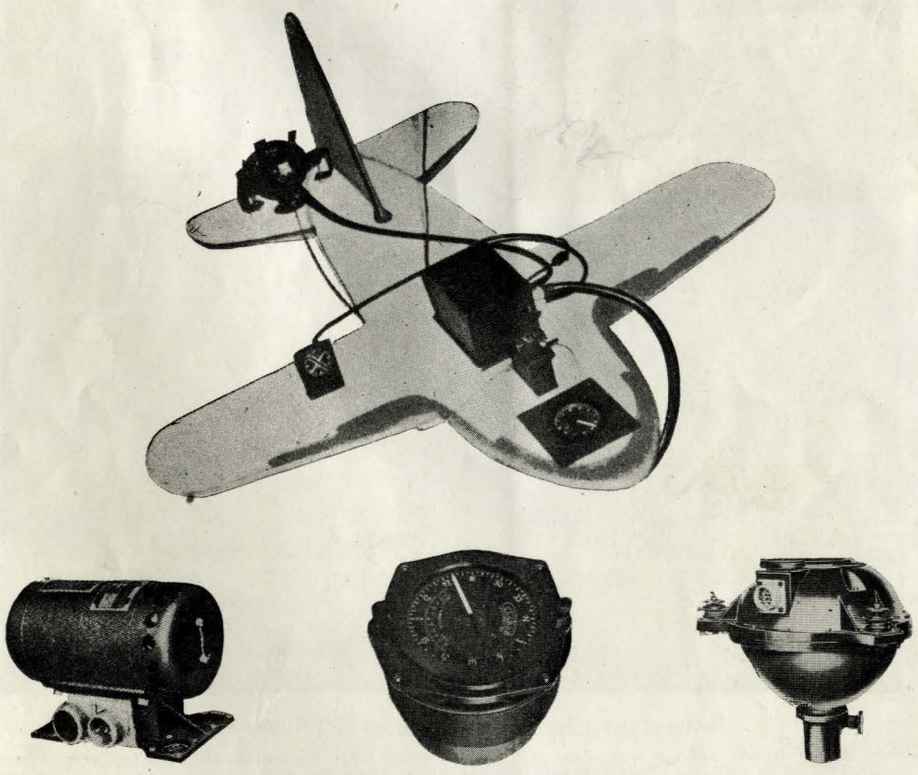
This problem of magnification of the magnetic field of the earth is attacked in an entirely new way by the Flux Gate principle. Instead of using the mechanical force of this magnetic influence, it is converted into electrical energy and magnified electronically through a high frequency electrical circuit.

The flux gate element itself is mounted in a horizontally level position under an electrically driven gyroscope which is held vertically by an erection device using the powerful pull of gravity as a control. This gyro mounting eliminates the vertical effect of the earth's field or "magnetic dip" affecting the accuracy of the compass.

As the flux gate element is rotated in direction, the earth's field has a rotating effect on the three-phase alternating current controlled by the flux gate. When the flux gate remains in a constant direction, the phase rotation of the alternating current circuit stops. This varying phase alternating circuit is fed into an induction motor in the master compass indicator. This motor follows the rotation of the flux gate and has coupled to it the pointer of the master indicator and armature of a Magnesyn transmitter.

A sub scale of the master indicator gives the direct reading of the flux gate position on a 360-degree dial. By means

(Continued on page 13)



Here's What Makes It Tick

The components of the Flux Gate Compass are shown in the pictures above. Upper, centre, is a mock-up of a complete Flux Gate Compass installation. Lower left is the Master Indicator; lower centre is the Transmitter, while lower right is the Inverter which supplies the high frequency alternating current.

"Now It's Farewell" As C.O. Leaves TTS

On the occasion of his retirement from the service, Group Captain J. H. Keens, A.F.C., leaves the following message for the staff and trainees of the Technical Training School, where he has been Commanding Officer since 1941.

IT IS with deepest regret that I leave old TTS, the more so because I had not the foggiest idea when I left the station for the Easter week-end, that I wouldn't be back on the job on Monday morning. During the thirty months in which it has been my privilege to command the unit, one's roots become deep, and to pull them up is painful. We have had our ups and downs over that period, but with the help of one of the finest and most loyal staffs which anyone has ever had, one by one the difficulties have been surmounted.

There is little need to refer to the useful Job TTS has done in the great Commonwealth Air Training Plan, in which it was one of the very first schools to function, for I believe that it is well known throughout the Service. Just the same, sometimes one is a little too close to it all to see it in proper perspective and perhaps some will not fully appreciate his or her own part in the success of the school until some later date. I sincerely hope that the support and co-operation of all, staff and students alike, which I have enjoyed so much, will be given in full measure to my successor, whoever he may be. A word in particular to those stout fellows, the technical instructors, who are the backbone of this establishment. Their jobs are exacting and tend toward monotony at times, but they have stuck it out in a very praiseworthy manner. When the time comes to total up Canada's war effort I am sure they will feel that theirs was an important part to play and that they will rest with the feeling of a job well done.

We have just completed our campaign in the Sixth Victory Loan at the time of writing this, and while I have not the final figures, it appears that we are knocking on the door of $200,000, or twice the original objective. We thought last October that we had hit the jackpot in passing $160,000 and this time we have a lot less people on the station. It has been accomplished only by the grand reception and spirit with which the airwomen and airmen tackled the task and by the excellence of the organization which carried on down through the squadrons, floors and bays. My heartiest congratulations to all, particularly to the O.C. and personnel of No. 3 Squadron, which has emerged on top in the station competition for the sale of bonds, and I hope that they enjoy their extra "thirty-six."

And now it is farewell. It looks as if we are on the eve of great events and I know that you will continue to do your part. The best of luck to you all and God bless you.

Paper "Gas" Tanks RAF Auxiliaries

Some British fighters, Typhoons in particular, now are using long-range auxiliary fuel tanks. The RAF tanks are constructed of paper, animal glue and gelatine formed into an economical, light, leakproof structure, shaped like a cigar.

"So You're a Flight Engineer"

By Sqn. Ldr. G. Adams, RAF

(Sqn. Ldr. Adams, before coming to Canada on liaison duties, was the chief instructor of the Flight Engineer Type Training School at St. Athan, England, where many thousands of flight engineers have already been trained.)

What exactly does a flight engineer do? I think that question is best answered by telling of an experience I had before coming to Canada.

I was making a tour of inspection of operational units to see if they could tell me anything to improve the training of flight engineers. At one of them the C.O. said, "I'd like you to meet Jones, one of your trainees who put up an exceptionally fine show a few nights ago." Jones naturally was completely dumb about it, but later I learned just what that show had been.

Jones was the flight engineer in a Lancaster aircraft attacking a target in the heart of Germany. It was his sixth or seventh trip. Over the target his aircraft was heavily attacked by a fighter, and the rear gunner was wounded. Jones made his way aft, removed the injured gunner from the turret, took over the guns himself and, helped by the mid-upper from the turret, drove off the fighter. He then found that a fire had been started in the fuselage by one of the fighter's shells, so he went forward again and put it out. While the bombardier took over the rear guns, Jones gave first aid to the injured gunner and made him comfortable on the floor of the fuselage. The damaged Lancaster had meanwhile turned for home. Going forward again he found that the pilot had also been injured in the fighter attack and so, as well as could be managed, Jones gave the pilot first-aid, and then to relieve him as much as possible, he fitted up the second pilot's seat and flew the aircraft home. Occasionally he had to get down to attend to the tank changes to ensure that an engine did not cut for lack of gas.

Arriving back over base, Jones fed hot coffee to the injured pilot to stimulate him for the landing and then helped as much as he could with it, with the result that a safe landing was made. When the crew came to leave the aircraft Jones collapsed, and only then was it found that he, too, had been wounded in the fighter's attack. It was a show for which, I think you will agree, he deserved the reward he actually got, the award of the Conspicuous Gallantry Medal.

Fortunately all flights are not as exacting and exciting as that one. For every one like that there are dozens which are as quiet as routine runs, when the engineer looks after his tank changes, advises the pilot on engine performance for best results, enters up his log every twenty minutes or so and just listens to the engines to detect if possible, any early symptoms of trouble. But he must be prepared to take on strange jobs at times and at very short notice.

Still Too Many Boomerangs

When any large number of raiders set out there are always some turn back. Officially known as "early returns," they are more commonly known in the squadrons as "boomerangs." Although the percentage of these boomerangs is steadily decreasing, there are still far too many, and quite a few of them are for avoidable causes. Some, of course, cannot be helped. If a con rod gets tired of always living inside an oily sump and decides that it will have a look at the great big world outside, well, there is just an expensive noise and nothing can be done about it except to turn back. But such happenings are very few, and far too many aircraft boomerang for silly causes such as a crew man walking along the fuselage and catching his oxygen pipe on a projection and holing it. Nowadays the flight engineer should be able to make a temporary repair to such things, and incidentally to see that the projection is, if possible, reduced so that the same thing does not happen again.

An alert flight engineer gradually accumulates odds and ends which may be of use to him in the air, special clips to fit round hydraulic pipes, split rubber tubing of different sizes, a made-up electric lead to make a connection from the battery to any point where current is urgently needed, all sorts of odd bits according to his type of aeroplane, a few special tools and finally a handy box to keep it all together. He does not rely on his pockets, which if he did, would soon become far worse than any small boy's, with the added risk that the special bit he wanted in emergency had been left in his other trousers or some such place.

But even with all this preparation, situations may arise which call for considerable ingenuity on the part of the flight engineer, as this exploit, which earned the immediate award of the DFM will show.

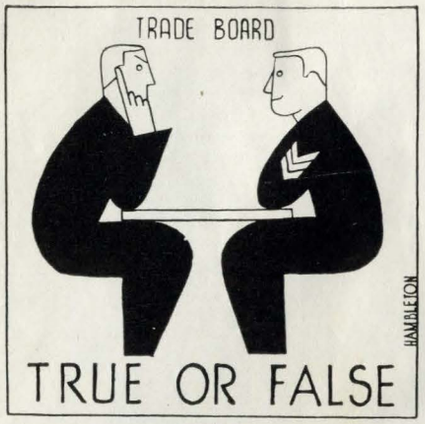
A Liberator was out, as it had been many times before, on anti-submarine patrol. But this patrol was different. A submarine was actually encountered on the surface. As the Liberator manoeuvred to attack, the sub opened fire with its deck gun, and an unlucky hit put all the Liberator's electric bombing system out of action so that the bombs could not be released. The flight engineer, however, was equal to the occasion, and with the lead from the Aldis lamp and an electrically heated flying suit, he succeeded in making a connection from the battery to the bomb gear, and the submarine was sunk.

So if sometimes your training seems long and arduous, remember that you can't learn too much about the job or, when you are on type training, about your own type of aeroplane.

In conclusion I'd like to say a few words about one part of the job I have not yet mentioned, and that is liaison with the ground crew. You are the man who should be in constant touch with the ground crew, so that they know the snags that develop. If there is a big job, work with them. If they do a good job, don't be afraid to tell them so. Inevitably and quite rightly the limelight falls upon the air crew, yet most of their exploits would be impossible without the devoted toil of the ground crew, who work long hours under difficult conditions so that the aeroplane and crew in which they take a fierce pride and proprietary interest, shall be the best in the squadron. A few of you may have been Joes yourselves in operational squadrons and so know the score, but a mighty good motto is still "Blame if you must, praise if you can." It pays dividends.

Protestant Chapel Is Scene of TTS Wedding

An interesting wedding took place at TTS last month when Nursing Sister Jean Fearman Martyn became the bride of Lieut. Robert Forbes Colgate. Both bride and groom are stationed at TTS, the former being on the staff of the hospital and the latter being supplies officer. Pictured above is the wedding party, showing, left to right: Flt. Lt. J. Reynolds, who attended the groom; Nursing Sister Harriet Rainsforth, who attended the bride; Lieut. Colgate; Nursing Sister Martyn, and Flt. Lt. A. Nimmo, senior Protestant padre, who performed the ceremony. Spring flowers and ferns formed the setting, while Charles Kilgour, of the YMCA staff, presided at the console of the organ, and Nursing Sister Elizabeth Haylock sang during the signing of the register. The bride was the guest of honor at a number of social functions prior to her marriage.



By Flt. Sgt. S. Gay

1 • "Bower Barff" is a finish applied to steel.
2 • There are three volumes to CAP 78.
3 • "Merlin" is a bird.
4 • A thermostat controls temperature.
5 • The Taurus engine has poppet type valves.
6 • DRO's are in two parts.
7 • Parker Kalon screws are self-tapping.
8 • The command "Halt!" is given on the left foot.
9 • A "stored" magnet has a keeper.
10 • The station whistle blows five times during a normal working day.
11 • When shutting off a blow torch, the needle valve should be tightly closed.
12 • A balance tab is an aid to control.
13 • When the undercarriage is safely locked down the electrical indicators are red.
14 • The R.R. Merlin has 24 exhaust valves. *Answers on page 11.*

The article entitled "So You're a Flight Engineer," which appears on the opposite page of this issue, will be followed by others on the same subject, by the same author. Watch for them in subsequent issues of *The Aircraftman.*

STATION CHATTER

(Continued from page 3)

Okay, so they're checking up on shirts, but why the come-on? Wouldn't it be better if all and sundry received the stentorian cry that wallops the poor AC2—**"Hey You! Where do you think you're going with that shirt? Get back and change it!"**

But of course, maybe there's an object lesson behind all the subtle by-play used on the NCO—maybe it's to teach him to beware the wiles of wayward women, lest he, too, become a "casualty" on the home front.

Ah yes, dark and mysterious are the ways of the Air Force . . .!

• • •

On the Lighter Side

There were the usual station dances and merriments during the month, though latest advices from the WD canteen indicate that Thursday nights no longer see the chaste canteen dances resounding to loud and boisterous—oh, pardon me, I didn't know you drank—merriment. Though, of course, now that the guardian angel has departed from the door, the girls say that things might pick up again.

Happily enough—rejoice the enthusiasts—there is no curb yet put upon the merriment of the monthly square dances in the Recreation Hall. April's affair was another great show, they tell me, with a truly cosmopolitan gathering of WD's, Nursing Sisters, Officers, NCO's and airmen swinging around to the music of a real old-time hayloft crew.

And among these amusements of the month was the smoker staged in the Sergeants' Mess. With several officers dropping in as guests, the evening ran along in true smoker style—cards, golf (the African variety), songs, sandwiches and Blue Top. Host of the evening was the indefatigable "Skipper" King, here, there and everywhere, assessing everyone an ale who would dare call his projected Port Stanley yacht a SCOW!

Speaking of Port Stanley brings to mind the opening of this season's fun in that well-known local spot. The official opening of the dance hall, etc., did not occur until early May, but the unofficial opening—that of the famed salon in the Orion Hotel, familiarly known as the "snake-pit," took place on the evening of April 28. A fine, warm spring evening it was, too, and a truly representative gathering of the faithful of TTS were on hand to make the evening resound. Easily discernible among the throng, they could be resognized by the great number of tables pushed together in one part of the room. Songs and laughter poured forth unabated from this gathering until the last drop of foam had poured from the spigots. And all agreed, homeward (?) bound, that the season promised to be a great one after such a formidable launching.

We shall probably hear more from this sector as the season progresses.

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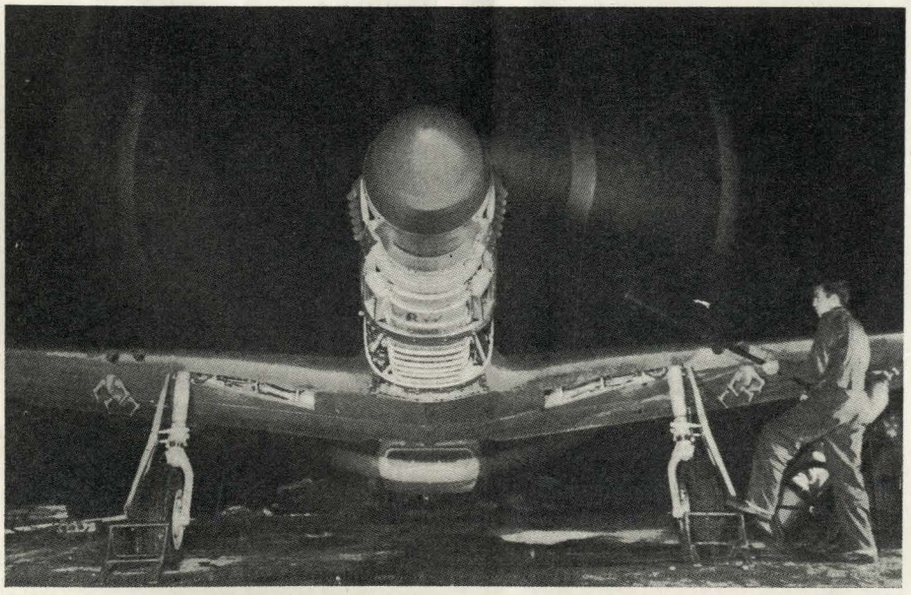
Cartoonist

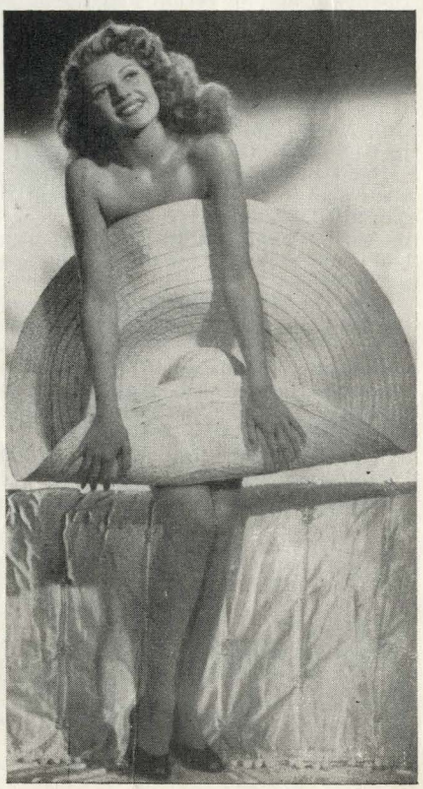
You will quite possibly be considerably bemused by the "wolf" cartoon that should greet you from somewhere in this column. It and the appropriate Victory Loan sketch are the work of a new Service Police NCO, Cpl. Fred E. Graham.

Cpl. Graham hailed originally from Estevan, Sask., but a penchant for designing took him to New York for a year to study and work at commercial art. Following this he established himself as a commercial artist in Toronto, where he practiced his skill for six years until joining the RCAF Service Police about a year and a half ago.

He arrived at TTS in March from No. 6 Repair Depot, Trenton, and has already decorated the Service Police quarters with humorous take-offs on the activities of the members. We shall hope to see several of these and other cartoons of his in *The Aircrfatman* issues of the future.

Heaven will protect the working girl, but — who will protect the guy she's working?





Bet We Know Which Is the Pin-Up Picture

Our picture gallery this month presents, above, a striking shot of a Mustang undergoing a night engine run-up, and right, a "hatful" of the beauteous film star Rita Hayworth, in her current vehicle, "Cover Girl." This should be hitting the local screens pretty soon.

What's Doing with the WDs

By LAW Olson

Postings to—and from! We're a bit late in mentioning it, but better late than never, so they say. In the latter part of March we lost Cpl. Mary Rollefson, the dry-witted lady from Regina, who used to hang out in 4 Squadron; and LAW's Meta Perry, Rita Bruce and Pat Taschereau, all of the Hospital staff. Meta, who inhabited the operating room, is greatly missed. Rita and Pat, those gals from the Medical Orderly Room, were the ones responsible for ferreting out that annual TABT you should have had long ago. These four were among the first WD's to be posted to the Radio School at Clinton. From all reports, it's not a bad spot to be; maybe those Americans have something after all!

There was great rejoicing in the M.T. section when LAW Anne Henderson broke out with German measles just the day she was to leave on posting to Toronto. We sympathize with poor Audrey Baker, who had to go in her place, very reluctantly. Dirty work there, Anne; we know you took a hot bath to bring out those spots.

Off to Tor Bay go LAW Peggy Duncanson of the Accounts section and LAW Mae Bell, radiographer, a comparative newcomer at TTS. Another old-timer in the person of LAW Gwen Langley departed for points west, namely MacDonald, Man., and Sgt. Brant's familiar figure won't be seen around the station any more. The popular sergeant has gone to Training Command, Toronto — who will take Winnie for his daily dozen around the grounds now? On course at Trenton for six weeks are S/O Fenton and Cpl. Helen Finlayson.

We must include Sgts. Mullinger and Sheppard among recent arrivals at TTS, the former a dispenser and the latter our first librarian. Don't look for her in the library yet, though she developed scarlet fever the day she arrived—what luck!

We roll out the welcome home mat to Cpl. Anne Goodfellow, an old friend who just couldn't stay away from TTS.

Some of the older members of the staff were glad to see Cpl. Peggy Palmer from No. 3 R.D., Vancouver, the last week-end in April. Peggy left TTS April, 1943, and had come back east for the Admin. course at Trenton.

Dan Cupid is wreaking havoc among the girls these days. His latest victims are S/O Ellen Trotter, of Little Current, Manitoulin Island, and F/L John Hill of Hamilton, whose marriage took place Saturday, April 22, in Toronto. The bride is a well-known WD officer at TTS. We extend them our best wishes for their lasting happiness.

Brand new sparklers are sported these days by LAW Mary Wheeler and Cpl. Vera Biggs. Mary's fiance is Charlie Foster, arranger and pianist of the station band; and Vera's Bill Kerwin is a corporal at Moncton, and formerly of Gander, Nfld.

Back to civilian life and college goes Cpl. V. Browne of the Equipment Section.

"Congrats" this month to three brand new sergeants: Betty Prasse, clerk accountant; and "Rosie" McHardy and Marj. McCubbin, clerks medical. Up from the ranks to corporal goes Agnes Henderson, also of the Accounts. And from Trenton comes word of S/O Fenton's promotion to Flt./O.

Last month we told you of Anne Johnson's husband winning the DFC. Well, Anne's cup is overflowing these days, for that same husband arrived home in Toronto April 30 — we can imagine that those 14 days of furlough will seem all too short for Anne. Maybe a little compassionate leave will be forthcoming—we hope.

They March With the Boys, Too!

Here are the lovely lasses who are making the boys put their best forward in the IM course these days. Left to right, they are AW2's Irene Newton, Evelyn Brown and Janet Murray.

WE thought that the WD's had filled just about every trade in the service, but on Easter Sunday three young ladies arrived at TTS to explode that theory. They are AW2's Evelyn Brown and Irene Newton of Toronto, and Janet Murray of Carleton Place, and came here for an Instrument Mechanics course. Janet, we might add, is the redhead.

The girls are very willing to talk about their interesting trade and so we plied them with questions. Newton and Brown, we found, had a month and a half contact training at No. 17 E.D., Ottawa, which prepared them for their three months W.E.T.P. at Central Tech., Toronto, where Murray joined the trio. Their course here is 14 weeks duration and they are the first and last girls to take it. All other feminine counterparts of the I.M. go out from Central Tech. as contact trainees.

We were curious to know if the boys and the instructors treated them as equals or if they made exceptions for them. "Nothing doing," said Janet emphatically. "We march in working parades with the boys, we have P.T. when they do and all this week I'm on extra T.T." The girls didn't seem very optimistic about getting on the advanced course at Dorval after they finish here, but we wouldn't be surprised at anything, because Brown did confess that she once headed the whole entry in the weekly exams.

How do they like TTS? — "just fine" was the unanimous verdict. "There's lots to do, both on and off station, and the Thursday night dances in the WD canteen are the bright spot of the whole week." (Plug).

We talked to an anonymous corporal who had instructed the girls in their second week and he had this to say: "They are good students and not nearly the disturbing element we expected. They are handicapped in that they lack the inherent mechanical instinct most boys have, but they make up for it in memory and book work." So here they are, TTS, first feminine Instrument Mechanics, Course 117. We extend them a very hearty welcome and wish them all success in their chosen trade.

Sports Notices

The TTS girls can roll 'em down the alley with the best of them — so they proved at the Service Bowling Meet at Olympia Gerrard alleys in Toronto, April 21. Sgt. Doris James, LAW's Chris Siverston, Isabel Ferguson, Pat Hodges and Marg Martin made a good showing for the Air Force by defeating the Army girls in each of the three games played. To quote Chris Siverston: "We thought we were bad, but I guess the Army were worse, and we nearly fell over when we found we had won."

The badminton team, consisting of Sgt. Marjorie Robinson, Cpl. Eleanor Johnston, Cpl. Helen Brown and LAW Mary Bolton, took a trouncing at Crumlin in the district finals. The girls wouldn't talk except to say that they had a lot of fun and enjoyed the dance in the sergeants' mess after the games. "Nobody was too drunk," said Sgt. Robbie with a grin.

• • •

TTS mermaids placed third in the district swimming finals on April 25, with Sgt. Carrie Harbour winning the 100-yard relay. Five girls composed the team which went to Toronto on the week-end of May 5, namely, Sgt. Harbour, Sgt. Linda Mackintosh, Cpl. Joan (Crash) Miller, and LAW's Anne Henderson and Mickey McLean. The girls got in a lot of practice at Alma College before the two contests.

(Continued on page 11)

The Handicraft Club in Session

Here is a happy group of WD Handicraft Clubbers busy at their usual Monday night session in the WD canteen. The gals do everything from making slippers to carving things in soap.

WD Handicraft Club

We give you TTS' youngest and most interesting organization—the WD Handicraft Club—under the supervision of Willard Trafford of the YMCA (he of the sun-burned complexion—rushing the season a bit, Willard). As yet the club has no executive but no doubt that will be remedied in time.

The club holds its meetings in the WD canteen on Monday of each week, and Mr. Trafford assures us all ranks are welcome and as a further inducement he says that informal attire is the order of the day—slacks, sports dresses, whatever you choose.

The membership of the club averages about a dozen, although as many as 25 have been present on occasions. The nursing sisters and hospital assistants seem to be the most interested, said Mr. Trafford, probably because they have seen some of the beautiful work done by the boys in hospital.

Work done by the club so far has included many leather pieces such as slippers, gloves, hobo bags (Mr. Trafford recommended Anne Morgan's as a good example), billfolds, picture frames, using X-ray plate as glass, and some leather-tooling. In addition, the girls have done some loom weaving, knitting and soap carving. The work is not done for any monetary gain at all but purely for pleasure and as gifts.

Mr. Trafford voiced the opinion that the Handicraft Club might be held in conjunction with the Music Appreciation Group held in the writing-room in the Blue Room on Monday evenings. There are so many activities on the station that the girls find their interests conflicting—in this case the two might blend together very well and the members of the Handicraft Club could work to the strains of Bach and Beethoven. Mr. Trafford added with his tongue in his cheek that Flt./O Moyle has become a recent member of the club and that if some day soon you should find a tender piece of meat in your stew, maybe it's a piece of one of her leather slippers.

Which One Would You Fire At?

Not at No. 1! It's the British Arvo "Manchester," a mid-wing, twin-engine medium bomber. It has a long nose extending ahead of the engine nacelles. The centre section of the wings is rectangular and the outer panels taper to equally rounded tips. Both edges of the tailplane taper slightly to square tips and it has twin fins and rudders.

Fire at No. 2! It's the Nazi Heinkel He. 177, a low mid-wing heavy bomber. This plane gives the appearance of being equipped with twin engines but each nacelle houses two engines. It has a long, narrow fuselage. Both edges of the wings taper to rounder tips. The tailplane is swept back on the leading edge to square tips, the training edge is straight with single fin and rudder.

(Continued from page 10)

After the housecleaning "bee" in the WD barracks on Wednesday, May 3, you'd be treading on dangerous ground if you mentioned brooms or cleaning pails to any of the girls. CB was in effect until every window was shining, every wall brushed off and every floor waxed to a dangerous degree of polish. Sergeants and corporals were "joed" to "joe" the girls, if you see what we mean, and everybody really pitched in and did a bang-up job. We're sure that some of those corners hadn't seen a broom since Adam was a pup—it was worth the effort to see the amazing difference!

Bouquets and Brickbats

You've heard stories about the meanest man on earth who stole the blind man's money—well, four flight engineers ran him a close second when they crashed the WD canteen dance one Thursday night and even though it was pay day, refused to pay the dime asked for admission. We'd like to hand out a bouquet to the fifth member of the gang who, after watching the whole procedure, asked how much they owed and then forked over the required 40 cents. It wasn't the money itself, but the principle of the thing. Feel just a little bit ashamed, boys?

Personalities at TTS

Flt. Lt. Carver, the new matron of the TTS Hospital, brings to her position a wealth of experience in service nursing. As Helen Ruth Kerr she worked as a civilian nurse with the RCAF under Wing Commander Ross Tilley at Trenton. In 1940 she was posted as a Nursing Sister to TTS where she remained as surgical nurse until early in 1941.

Flt. Lt. Carver

Subsequent postings included Port Albert, Yorkton, Sask. (where her brother was a flying instructor), MacDonald and Rivers, Man., Dartmouth, N.S., Clinton, Rockcliffe and finally again to TTS last March.

The new matron is one of the two original Nursing Sisters to come into the RCAF. Her sister, also a nurse, is serving in England with the British Civil Nurses and her brother is with a Mosquito squadron overseas.

The former Helen Kerr and F/O John Carver were married in October, 1943, when the latter return from flying duties overseas. He is now with 164 Heavy Transport Squadron in Moncton, N.B.

Nursing Sister Carver's duties include supervision of all nursing care, operating room procedure, planning of diets, and jurisdiction over the 25 nursing sisters on the staff. It's a large order for the attractive young matron, but her air of quiet efficiency assures everyone that the job will be well done.

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With the posting of Flt. Lt. Sedgwick to Hagersville last month, TTS has lost a technical supervisor with 20-odd years' experience and *The Aircraftman* lost its technical editor. Flt. Lt. Sedgwick spent more than two years at TTS and at the date of his posting was engaged in supervising maintenance and installation work in the AEM division.

Flt. Lt. Sedgwick

For nine years prior to his enlistment Flt. Lt. Sedgwick was on the teaching staff of Kingston Collegiate and Vocational School, instructing in motor mechanics.

A flying station will not be a new experience to the flight lieutenant. Back in 1941 he was at No. 8 SFTS at Moncton and he chalked up some flying time on his own before the London Flying Club ceased operating.

With the arrival of good summer weather, there will probably be many amateur camera fans from TTS "shooting" scenes that meet their fancy about the countryside. If you have any especially good pictures which you think *The Aircraftman* might like to use, please send them along to the No. 2 Wing "Y" office. Requirements are: good composition, clear details, not fogged or blurred, and lots of "human interest."

True or False Answers

True—1, 2, 3, 4, 6, 7, 9, 10, 12, 14.
False—5, 8, 11, 13.

TTS Swimmers Put Up Good Show

It was the WD's swimming team that kept the name of TTS to the fore in the No. 1 Training Command swimming championships held recently at Toronto. Only two TTS men went along, making it pretty tough for the male sex to come any better than fifth. Here are the airmen and WD's who won the Western Ontario title at London a week orsobefore the Command meet was held.

Top row: A. Ducklin, AC2 A. D. Philips, AC2 C. O. Graham, LAC D. Parsons, LAC Samuelson, Sgt. M. Lashin (coac)h, F/O Mike Sansome. Second row (standing): Sgt. L. M. McIntosh, Sgt. C. Harbour, LAW M. McLean. Second row (sitting): AC2 W. Firth, LAC C. J. Pailkrabik. Bottom row: AC2 V. Mathews, LAC Aldrich, AC2 R. Corners, AC2 J. Alexander, Cpl. W. Rozinski. Missing: Cpl. "rash" Miller, LAW Henderson, LAC Beaudin.

WD Swimmers Bring Crown to TTS

Win 40-Free and 88-Relay

It was the Women's Division team that upheld the honors for TTS in the No. 1 Training Command championship swimming meet that was held early this month in Toronto. Winning the 40-yard free style race and the 80-yard relay gave the St. Thomas gals enough points to put them on top in the tussle for the women's crown.

Winner of the short distance free style sprint was Sgt. Harbor, who made it in 24 seconds, while the relay was won in 53 6/10 seconds by a team composed of Sgt. Harbour, Sgt. McIntosh, Cpl. Miller and LAW's McLean and Henderson.

Only two of the TTS men made the Toronto trip, which accounted for the male division having placed only fifth, but nevertheless they put up a good show, AC2 Samuelson winning the breaststroke race in 32 seconds from representatives of Belleville and Brantford, and also placing third in the 100 yards free style.

The TTS representatives won the right to go to Toronto by virtue of having made the best showing at the Western Ontario swimming championships held in the London YMCA a week or so earlier, TTS standing at the top of the heap there with 19 points. Fingal came second and Centralia third. In the women's team events, however, TTS came third, behind Clinton and Centralia.

LAC Samuelson was again to the fore in the London meet, winning the 100-yard free style and the 50-yard breast stroke. TTS also took second in the 100-yard free style and second in the 200-yard relay race.

Levity was added to the meet by the clever clowning act by Arnold Ducklin, YMCA war services supervisor at TTS, who was also chairman of the committee which directed the meet. Coach of the TTS team was Sgt. M. Laskin.

News for Ball Fans

No doubt there are many rabid baseball fans among the staff and trainees at TTS, who like to hike off to a ball game whenever a 36 or a 48 allows them to. For their benefit, here are the Saturday and Sunday games, to the end of June, scheduled for Detroit (Detroit Tigers, American League), Buffalo (Buffalo Bisons, International League), and Toronto (Toronto Maple Leafs, International League). At all parks, servicemen in uniform are admitted free of charge.

At Detroit (home games) — Saturday, May 27, Philadelphia; Sunday, May 28, Washington; Saturday, June 3, and Sunday, June 4, Boston; Saturday, June 17, and Sunday, June 18, St. Louis. All Sunday dates double-headers.

At Buffalo (home games) — Sunday, May 21, Toronto; Sunday, May 28, Rochester; Sunday, June 4, Syracuse; Saturday, June 24, and Sunday, June 25, Baltimore. All Sunday dates at Buffalo are double-headers.

At Toronto (home games)—Saturday, May 20, Montreal; Saturday, May 27, Rochester; Saturday, June 3, Buffalo; Saturday, June 24, Jersey City; Saturday, July 1, Baltimore. All dates except June 3 are double-headers.

Soccer Players, Ahoy!

In the very near future, the call to arms will be sounding for all soccer players who wish to try out for the station soccer team.

According to all reports received by last year's captain, Corp. "Scotty" McDonald, TTS should be able to field a team which will really be in the running for the Command Championship. As soon as the playing field is available, all aspirants for a place on the station team will be asked to come out and show their wares. Considerable help is expected from the stars on the various squadron teams.

A few of last year's players are still available, including Sgt. Elliott, Cpl. McDonald, and LAC's Tapper and Irwin. Anyone interested in playing should leave his name at his squadron orderly room.

No. 4 Squadron Sets a New Mark

Athletes from No. 4 Squadron, under the leadership of the capable Cpl. H. Rabin, were again very much to the fore last month in the competition for the C.O.'s Sports Trophy, performing the unusual feat of winding up the month's schedule with a score of 100 per cent in basketball, badminton and volleyball.

Over the past winter season No. 4 had things pretty much their own way in basketball, as during that time they took the basketball title in every month but one. In the past seven months, in fact, they have emerged the winners of the sports trophy no less than five times, and are now the only squadron on record as having won every game for a month.

The keen rivalry between No. 4 Squadron and No. 3 may be understood from the fact that Flt. Lt. Peers, in charge of No. 4 Squadron sports, was once a noted baseball player, and in fact 20 years ago, in Toronto, played against Flt. Lt. Junor of No. 3.

Bad news for other squadrons, as far as summer sports are concerned, lies in the fact that No. 4 Squadron now holds the pennant for the track and field championship of the station, which is run off every September, and also in that Cpl. Rabin is coach of the station hardball team, which went to Command last year for the finals and only lost out to Trenton after a close game.

Following are the members of the winning teams in basketball, badminton and volleyball which took the title for No. 4 Squadron in April:

Basketball

Cpl. H. Rabin (captain), AC2 W. A. Edwards, AC2 E. C. Demerse, AC2 H. J. Coughlin, AC2 E. J. Tuite, AC2 H. D. Shearer, AC2 D. K. G. McLeod, AC2 H. Lampert, AC2 L. Giffen, AC2 Lesperance.

Badminton

Cpl. A. A. Leach (captain), Cpl. H. A. Pluym, Cpl. G. Follett, AC2 G. M. Harrison, AC2 W. E. Harvey, AC2 W. W. Hudson, AC2 W. M. Crawford, AC2 J. W. Dayman.

Volleyball

Cpl. J. Marowitch (captain), Cpl. A. A. Leach, AC2 L. F. Winchester, AC2 R. G. Johnston, AC2 T. J. Mounsey, AC2 E. A. Rosgen, LAC A. G. Smith, AC2 R. D. Grant-Henderson, AC2 H. J. Haver, AC2 A. G. Barnett.

Sportettes

By Cpl. "Lefty" Bartlett

Cpl. McDonald expects to have a powerful soccer team this year and all experienced players willing to try out are asked to leave their names at their respective orderly rooms.

• • •

In the No. 1 Trainnig Command bowling championships, a team from TTS, composed of Flt. Lt. Ruel, LAC Webber, LAC Gillespie, and Sgts. Thompson and Huxworth were eliminated, despite the fact that the team bowled over 3,000 points, which is good bowling in any man's league. LAC Webber was high scorer with a 232 average.

• • •

Something new is being tried out for the month of May in the C.O.'s Trophy sports. May 1 to May 15 witnessed an elimination series in badminton, basketball and volleyball. May 15 to May 31 will feature an elimination series in outdoor sports. Total points of both series will go to decide the winner of the trophy for May.

Badminton Crown Brought to TTS

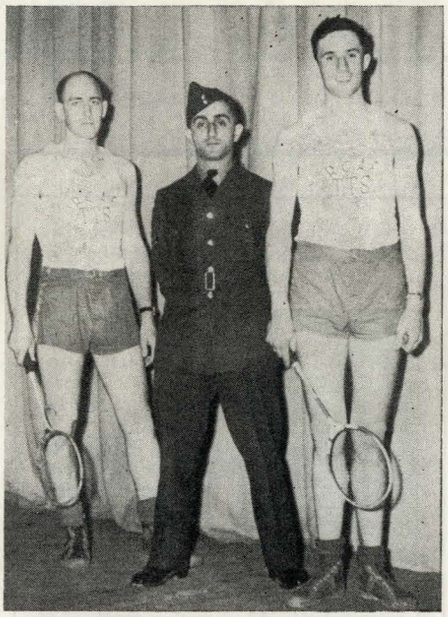
ANOTHER championship was brought to TTS on April 28 when Al Harvey and George Harrison stepped off the badminton courts at Manning Pool, Toronto, winners over the Toronto entry 13-15, 15-10 and 15-6. Harvey had to exercise all his calculating cunning and Harrison all his cold determination to smash through a clever defence that saw the Manning Pool pair seven points from victory as they built up an impressive lead of 8-1 in the second game. From there on it was TTS all the way as the powerful dark horse team pulled a surprising win even as they had done at Crumlin ten days earlier.

Fine competition that was the feature of the entire Command playdowns was evidenced from the first of the Crumlin tournament. Cpls. Lando and Follett put up one of the stiffest arguments of the night before bowling out in the first round. With the extra points favoring them at 4-2 in the third game they suffered the agony of watching their opposition creep past and eventually earn the trip to Toronto as runners-up.

Cpl. Leach and LAC Robinson fell before the favorites, a pair of RAF flight lieutenants from Port Albert. Cpls. Moore and Pluym played inspired badminton to reach the semi-finals. At the semis they ran into difficulties and watched some nice smashing from the wrong side of the net.

Bouquets were the order of the day for Harrison and Harvey as they swept aside all opposition in convincing style. Their toughest matches were with the Englishmen, who turned in a fine display of the more subtle points of the game before yielding to the powerful smashes of the TTS pair. The final was an anti-climax in straight games and the surprise of the win was actually less stunning than the ease with which it was executed.

The pair are truly worthy champions and TTS extends its heartiest congratulations as does No. 4 Squadron.



The New Badminton Champs

Meet the two men who have upheld the honor of TTS and brought home the Command Trophy in badminton. They are, left to right, LAC's Al Harvey and George Harrison. In the centre is Cpl. H. Rabin.

The band softball team, that won the softball title in Newfoundland last year, is getting into shape and would like to play teams from different squadrons or sections.

• • •

No. 3 Squadron unwittingly transgressed one of the station sports rules in April by playing a man not eligible by reason of transfer from another squadron. The committee regretfully had to reverse the decision of the game. This technical win gives No. 4 Squadron the unusual total of 100 per cent in the C.O.'s Trophy sports for the month of April.

LAW Smith Does Her Bit

Here's an example of the sort of patriotism that helped put TTS "over the top" in the Victory Loan. LAW Helen Smith, confined to hospital since Christmas, buys a bond from Cpl. "Pop" Wrigley to help her country speed the victory.

Honour Graduates

The following are the honor graduates for April, with their courses and their home addresses:

AC2 H. E. Brown, Carp. 17, Dunnville, Ont.
AC2 D. Grevstad, Carp. 18, Winnipeg, Man.
AC2 A. J. Hale, Carp. 19, Toronto, Ont.
AC2 J. B. Russell, Carp. 20, Winnipeg, Man.
AC2 N. J. MacDonald, Carp. 21, Toronto, Ont.
AC2 T. H. Smith, AFM 192, Kingston, Ont.
AC2 L. G. Warne, AFM 193, Toronto, Ont.
AC2 W. Brydges, AFM 194, Cornwall, Ont.
AC2 J. M. Sirois, AFM 195, Langbank, Sask.
AC2 D. O. Lane, AFM 196, Milton, Ont.
AC2 R. D. Moxon, Elect. 102, Mimico, Ont.
AC2 A. E. Woods, Elect. 103, Ottawa, Ont.
AC2 R. Ellerker, Elect. 104, Forest, Ont.
AC2 N. A. Ryzuk, IM 110, Edmonton, Alta.
AC2 O. V. Oistad, IM 111, Kelvington, Sask.
AC2 F. W. Stern, AEM 192, Vancouver, B. C.
AC2 J. Wood, AEM 193, Austin, Man.
AC2 A. Farrington, AEM 194, Nassau, Bahamas.
AC2 B. H. Thorne, AEM 195, London, Ont.
AC2 M. Shaw, AEM 196, Calgary, Alta.
Flt. Sgt. H. S. Lewis, F/E 1, Danvers, N. S.
LAC H. J. Weber, F/E 2, Bruno, Sask.
LAC A. Dawson, F/E 3, Toronto, Ont.
LAC H. F. Lunn, F/E 4, Florenceville, N. B.
LAC H. E. Pyche, F/E 5, New Glasgow, N. S.
A/Cpl. E. L. Colter, F/E 6, Hazlet, Sask.
LAC J. Duggan, F/E 7, Toronto, Ont.
Sgt. S. R. Cannings, F/E 8, Penticton, B.C.

The Flux Gate Compass

(Continued from page 7)

of a gear system and two setting adjustments, the main pointer may be offset for magnetic deviation and variation. This corrected indication is transmitted through the magnesyn system to as many as six repeater indicators located in various parts of the aircraft.

The flux gate unit itself is located as far away from magnetic disturbances such as bomb load, armament, engines, etc., as possible. The gyro may be caged during taxiing or take-off by either a remote electrical or mechanical caging unit. A motor generator inverter and an electronic oscillator-amplifier supply the necessary high frequency alternating current for the instrument operation.

To the combat flier, the indication of a corrected magnetic course is a boon indeed. No more valuable time need be wasted in correcting mathematically for deviation or variation before a true course can be determined. The navigator has one more accurate instrument to aid his course plotting along the air trails of the world.

Share Your Magazines

With the Boys in the Hospital

Our hospital can use all the magazines that are read then discarded in the barracks.

How about you Bay and Entry Corporals collecting up such reading matter and turning it in to the "Y" office? Thanks!

TECHNICAL TOPICS

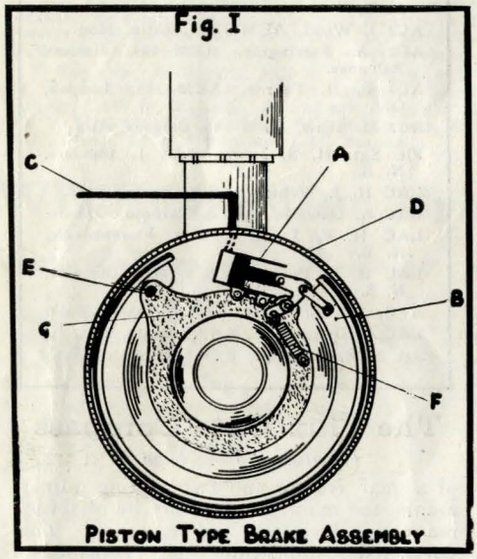
Aircraft Hydraulic Brakes

By Sgt. C. G. Courage

AIRCRAFT brakes fall into three classifications or types. Mechanical, Pneumatic and Hydraulic. Mechanical brakes are fitted now only to small and very light aircraft. Modern airplanes are fitted almost exclusively with the second and third types.

Generally speaking, the English aircraft manufacturer has manifested a marked preference for pneumatic operation, while the American has equally as strong a preference for hydraulic operation. A comparison of these is beyond the scope of this article it is sufficient to say, each has its own merits.

Fig. I



PISTON TYPE BRAKE ASSEMBLY

Remarkably few varieties of pneumatic brake equipment exist today; these are made chiefly by the Dunlop and the Vickers companies. No such uniformity, however, concerning hydraulic brake equipment. The various systems are almost as numerous as the types of aircraft on which they are fitted. This lack of uniformity may prove disconcerting to the trainee, however, when it is learned that all manufacturers must necessarily adhere to, and utilize the same few basic principles of operation, the problem resolves itself into one offering a comparatively easy solution. The task, then, is to simplify the problem, to discover the general principals inherent in particular cases.

All aircraft brakes accomplish the same thing, i.e., they prevent a stationary wheel from turning when the aircraft is parked or they stop or reduce the speed of a wheel that is revolving. This statement may seem puerile, yet it is worth remembering. This phenomenon, this braking action, is the result of friction being created between two objects, one (usually the brake drum) attached to the wheel, and the other (usually the brake shoe or blocks) attached to some stationary object on the aircraft.

Hydraulic brake systems employ three varying methods to obtain this friction.

Sgt. Courage, the author of this article, won distinction when he was placed first in ability among a large group of instructors from many units, who took a ground instructor's course at Rockcliffe last December.

He came to Canada from Scotland in 1924 at the age of 16 and was a sheet-metal worker in the C.N.R. shops in Winnipeg. He has taught in Hydraulics section at TTS since February, 1941.

Figures 1 and 1A illustrate these methods. Figure 1 illustrates an assembly having a small hydraulic jack (a) fixed to a stationary torque plate (c), the piston of which is attached indirectly to the brake shoe (b). When the piston is moved forward under the influence of hydraulic force transmitted through pipe (c), the brake shoe makes contact with the brake drum (d). Because of the friction at the point of contact, the motion of the wheel attempts to revolve the shoe which is fastened securely to and held stationary by the anchor pin (e). The result is a slight enlargement of the shoe diameter and this produces efficient braking action. It should be noted and remembered that the small but strong "pull-off" spring (f) is the principle agent resisting the forward motion of the piston. When the hydraulic force is removed it will pull the brake shoe and the piston back to their original positions. This assembly, which utilizes the motion of the wheel to expand the brake shoe, is commonly referred to as a "self-energizing" type.

Figure 1A (x) illustrates an assembly which employs the same general principles as those usually found on a pneumatic brake system. Liquid, under pressure, is introduced into the hollow rubber chamber (a), which is fitted around the periphery of the stationary part of the wheel assembly. Between this chamber and the brake drum are fitted a number of brake blocks (b). The expansion of the chamber, under the influence of liquid pressure, forces the blocks against the drum, thus friction is created over the entire area. When the brake is released, the "pull-off" spring (e) ensures the collapse of the chamber.

Figure 1A (y) illustrates another assembly which also employs an expanding rubber chamber. This chamber (c) is fitted around the side of the stationary portion of the brake assembly. Varying numbers of metal discs (d), depending upon the assembly, are installed across the width of the wheel, and are fitted alternately to the axle and the wheel, i.e., the first to the axle, the second to the wheel, the third to the axle, etc. Those attached to the wheel are free to rotate with it, those attached to the axle are held stationary. Liquid, under pressure, introduced into the chamber, causes expansion and the metal discs are pressed firmly together, thus friction is created between them. This assembly has the advantage of having a large frictional area.

Figure 1 illustrates the hydraulic brake assembly most commonly found on aircraft. For the sake of simplicity, this article will deal chiefly with this type, but it will be realized that this article will be generally applicable to all types.

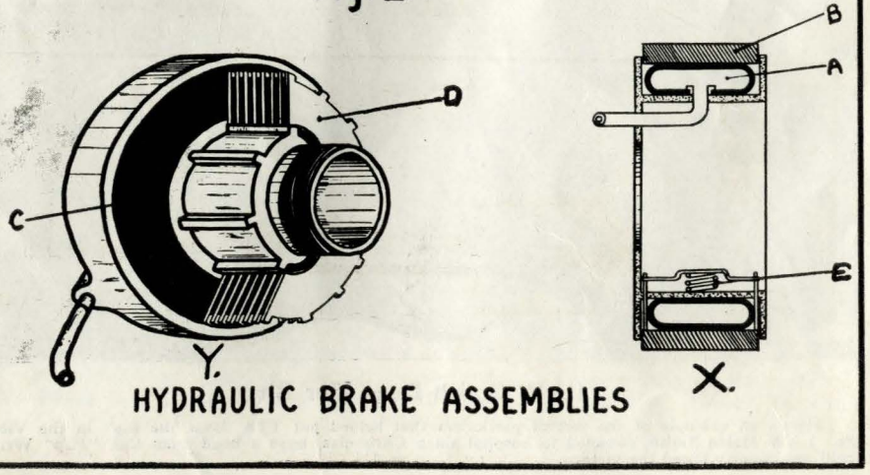
Hydraulic System

FIGURE 2 represents the barest essentials of a hydraulic brake system. Before further progress is made, something of the basic principles of general hydraulics should be learned. A special hydraulic fluid is used for several reasons, chief of which is due to the essential use of rubber parts within the system, e.g., glands, flexible hose, etc. This hydraulic fluid conforms with the fluid laws governing liquids:

(a) A liquid is, practically speaking, incompressible, i.e., its volume is not decreased under pressure.

(b) Pressure applied is felt equally and

Fig. IA



HYDRAULIC BRAKE ASSEMBLIES

instantly throughout a column, and at right angles to all surfaces.

(c) Movement of a piston at one end of a column will result in an immediate movement of a piston at the other end.(It should be fully realized that the presence of air—which is compressible—will permit the movement of a piston at one end without necessarily producing movement at the other.)

The importance of acquiring a clear knowledge of the above facts at this time cannot be too greatly stressed.

In figure 2, (a) represents the Master Brake cylinder found in the cockpit (an explanation of which will later be given), (b) the hydraulic jack attached to the torque plate, and (c) the pipe line carrying the liquid which communicates them. The arrows represent the forces concerned. The force (d) may be the direct result of foot pressure applied by the pilot, the operation of a hand lever, or energy exerted by the engine-driven pump in the main hydraulic system. This force may push or pull the piston in the Master Brake cylinder (in figure 2 the piston is pushed), or it may move the cylinder about the stationary piston. It is inconsequential how the action takes place, the result in every case is the same, i.e., the liquid is displaced by force out of the Master Brake cylinder and discharged into the pipe line. The column of liquid is moved forward and the piston in the wheel jack is forced to extend. The brake shoe is thus forced into contact with the brake drum.

Force (e) represents the resistance offered against the movement of the liquid. For purposes of simplicity this is considered to be only the "pull off" spring (see figure 1) which, when the brake is applied, is compelled to extend. When the brake is released, i.e., when force (d) is removed, force (e) drives the column of liquid backwards and the whole mechanism assumes its original position. In an actual brake system additional springs are embodied to assist this backward movement. Hydraulic operation of a brake is the result of a column of liquid being forcibly driven forward and backward through a pipe line. Reference to figure 1A will prove that this phenomena also obtains to the assemblies illustrated there.

A parallel may be drawn between a hydraulically and a mechanically operated brake. Substiute the backward and forward motion of a metal rod for the liquid in the pipe line and the resemblance is striking. Many advantages are obviously apparent in favor of hydraulic operation. Few areas are more congested than the close confines of service aircraft, innumerable objects must necessarily be crowded into small space, therefore a mechanical connection between cockpit and wheel, especially on aircraft equipped with retractable undercarriages, must be tortuous.

THE Master Brake cylinder is usually situated in the cockpit in a position which enables the pilot, by some mechanical means, to exert the necessary force to discharge the desired amount of liquid into the pipe line and thus to the wheel jack. The nature of the mechanical connection to the brake pedal, hand lever, etc., is not of great concern, as it differs on each aircraft.

We are mainly concerned with three distinct aspects of the operation of the Master Brake cylinder itself. These are:

(a) The methods employed to compensate for slight leakage of liquid.

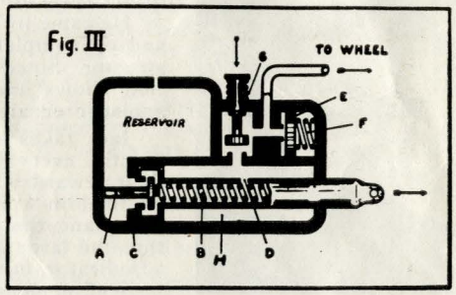
(b) Methods used to "park" the brake.

(c) Methods commonly employed to prevent excessive thermal pressures existing.

Figures 3 and 4 are not intended to represent any particular Master Brake cylinder, but rather merely to illustrate the methods generally employed to secure (a), (b) and (c) above.

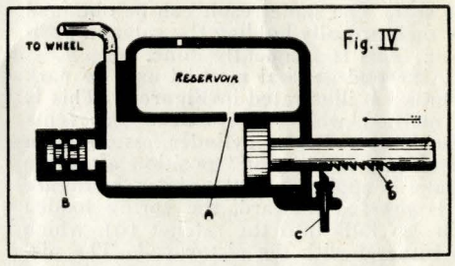
Figures 3 and 4 illustrate both the brakes in the "off" position. Figure 3 shows that the liquid stored in the reservoir is communicated throughout the entire system due to the fact that valve (a) is held in the open position, despite the compression of spring (b), because the projection of the valve strikes the body of the cylinder. Stops (c) prevent the piston from moving further forward. The hole (d) in the hollow piston permits the access of the liquid through to the wheel jack. When the pilot applies force the piston is pulled outward and after the first slight movement, the small valve (a) is secured on its seat against the piston head by the impulse of spring (b). Note that this now separates the liquid into two distinct and separated bodies, that in the reservoir, and that which is trapped between the piston head and the wheel jack. Subsequent movement results in the liquid in the annular space (h) being discharged out of the cylinder into the pipe line, thus compelling forward movement of the wheel jack piston. (It must be remembered that the resistance offered to this movement is the "pull off" spring as shown in Figure 1). When the brake is released the piston in the Master Brake cylinder is forced back to its original position and valve (a) is once more held open. The liquid in the reservoir is again communicated with that in the rest of the system and is able to compensate for any small leakage which may have occurred when the brakes were applied. This action does much to ensure that the system will at all times be completely full.

Figure 4 illustrates another method employed to secure the same result. A small drilling (a) communicates the liquid in the reservoir with that in the



remainder of the system. The piston in this example is forced inwards by the pilot, as illustrated by the arrow. During the first movement the piston head covers the drilling (a), and as in Figure 3, again the liquid is separated into two bodies, that in the reservoir and that which is trapped between the piston head and the wheel jack. The subsequent action which occurs as the brake is further applied and released should be obvious.

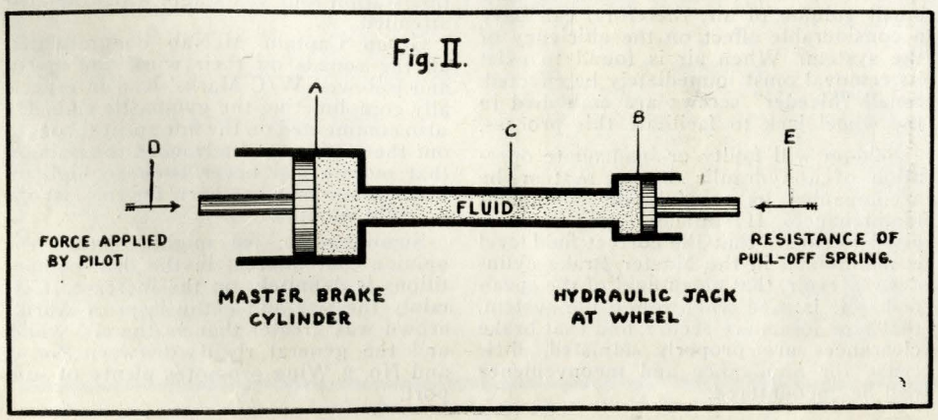
It must not be construed that the construction of any particular brake cylinder will necessarily follow the lines indicated in the above examples; however, the principles of one of the two methods



employed for leakage compensation, as illustrated, will usually be found embodied in any Master Brake cylinder, namely: (a) A valve by some means is held open when the brake is released, and securely seated directly the brake is applied, or (b) a drilling communicates the reservoir with the remainder of the system when the brake is released and is plugged by the piston head immediately the brake is applied. The design of the valve and the mechanism actuating it, must to circumvent the laws governing patents, differ. These differences should not prove difficult to understand when the trainee knows exactly what he is looking for.

IT may be found expedient, under varying conditions, that the brakes remain applied over considerable periods of time. This is called Parking. Methods of accomplishing this without applying continued force must be found. One of two methods is generally employed, each of which is illustrated by Figures 3 and 4.

Imagine that the brake cylinder piston on Figure 3 to be fully extended, i.e., in the brakes "on" position. A pressure consequently would exist in the pipe line, the result of the resistance offered to the expelled liquid by the "pull-off" spring. If the Parking valve (g) were forced on its seat at this time and the brake subsequently released, liquid pressure would



Orchids to Cpl. Wood

Cpl. John Wood, AEM instructor at TTS, and well-known local tenor, added measurably to his singing laurels this month. Jack, as he is familiarly known, has been really enthusiastic about making singing his career for the last two years . . . that is, since he decided to give up playing professional hockey to devote all his time to his vocal studies.

He came to TTS in the fall of 1943 as an AEM trainee, and on completion of his course was retained as an instructor. Since that time he has taken part in many station shows and local entertainments, winning marked applause on all occasions with his lyric tenor voice.

Jack takes his singing seriously enough to study and practice every day, and his efforts in this direction brought their reward when he competed in the Stratford Musical Festival on April 24. Accompanied by Cpl. Henry Pluym, Jack sang the test piece "Bendemeer's Stream" so well that the large audience applauded most heartily, and the adjudicator, in declaring him winning tenor soloist at the festival, comended him on his work.

remain above the valve but there would be an absence of pressure beneath it due to valve (a) opening. The Parking valve, then, would remain indefinitely in this position and the brake shoe would remain against the brake drum because the liquid could not escape out of the wheel jack. This condition will prevail until a pressure is again created underneath the Parking valve, enabling it to rise off its seat. This valve-releasing pressure will result when the Master Brake piston is again fully extended. This is only one method of securing a Parking valve on its seat. The same result can be obtained by mechanically holding the valve in position. This is frequently done.

A second general method used to park a brake is illustrated in Figure 4. This is a method which mechanically prevents the Master Brake cylinder piston from returning to the "off" position after the brake is applied. As the piston in Figure 4 is pressed forward, the spring loaded pin (c) falls into the ratchet (d), which is integral with the piston rod. The piston is thus prevented from returning to the "off" position until such time that the pin is withdrawn from the ratchet. Many hydraulic brake systems use a mechanical means of parking, only the principle is illustrated above.

In most hydraulically operated brake systems precaution is taken against the possibility of excessive pressure existing as the result of thermal expansion of the liquid when the brake has been long applied. Figures 3 and 4 illustrate the two methods principally used to overcome this danger. An inspection of Figure 3 will show that when the brake is applied and the liquid is discharged into the pipe line it has access also to the small chamber in which is fitted piston (e), behind which is incorporated spring (f). If the brake is parked for some time it is possible that the trapped liquid may expand due to a general rise in temperature. By being able to compress under the influence of increased pressure, spring (f) will allow piston (e) to move forward, thus allowing the necessary increase in volume to accommodate the expanding liquid.

Figure 4 illustrates another method employed to prevent excessive pressure existing in the trapped line. Under conditions similar to those explained above, the liquid has access to the small chamber in which is incorporated the flexible rubber spool (b). When subjected to the same circumstances, the rubber spool will compress to create a larger volume for the expanding liquid. The method illustrated in Figure 3 is by far the more common, i.e., a mechanism governed by a compressed spring. Both, however, efficiently perform their function.

Unlike an automobile hydraulic brake system which must be constiuted so that essentially equal pressure is applied to all wheels and at identically the same moment, the hydraulic brake system on an aircraft is so constructed that, when desired, the brakes, port and starboard, may be applied independently of each other. By this arrangement the pilot is assisted when manoeuvering his craft when taxiing. This requirement necessitates the operation of two separate Master Brake cylinder pistons. These may be found incorporated in one unit supplied by a common reservoir, but it is more usual to find two separate units, each functioning independent of the other. No essential difference exists whether one common unit or two separate ones are installed. The chief difference is that the system is filled at one point on the former and two points on the latter.

The advantages of a hydraulically operated brake have already been paraded. Naturally there are disadvantages but these are mainly minor in nature. The chief concern is the possibility of air ingress into the system. The clearance between the brake shoe and the brake drum, in all assemblies, is extremely small, usually between 5 and 15 thousandths of an inch. The piston at the wheel travels only a short distance, consequently the volume of liquid displaced out of the Master Barke cylinder is small. A very small volume of air, therefore, can have a considerable effect on the efficiency of the system. When air is found to exist its removal must immediately be effected. Small "bleeder" screws are embodied in the wheel jack to facilitate this process.

Seldom will faulty or inadequate operation of a hydraulic brake system be accompanied by careful and competent maintenance. If sufficient care is exercised to ensure that the correct fluid level is maintained in the Master Brake cylinder reservoir, that clean fluid of the specified type is used when filling the system, that pipe joints are secure, and that brake clearances are properly adjusted, little cause for annoyance and inconvenience will be encountered.

C.O.'s Drill Trophy

Before a large and enthusiastic crowd, the competition for the Commanding Officer's Drill Trophy for the month of April battled its way to a successful conclusion on the evening of the 26th in the station drill hall.

The evening was enlivened by stiff competition, a thrilling tumbling display, a novel idea in the appearance of a really good clown, and was topped off by a decision that was not altogether of the popular mind.

The drill itself was of an improved standard, and W/C Marks, presiding in place of Group Captain Keens, drew attention to this fact. It witnessed the return to top place of No. 1 Wing in the competition after last month's 2 Wing sweep. It saw the appearance of three really smart squads in addition to the winner, Cpl. Seymour's No. 1 Squadron squad, Cpl. Wilkie's of No. 2 Squadron, and Cpl. Munro's of No. 6 Squadron. All three later squads drew the marked applause of the crowd, who looked for the winner from among them. However, the official dictum had it that in all three cases the cadence was too high, and so Sgt. Livingston's well-drilled, though not spectacular squad from No. 3 Squadron was able to cop the trophy on points.

Highlight of the evening was the excellent tumbling display by the TTS Gymnastic Club under Sgt. Laskin. The club has staged several of these performances to date, and each one sees an improvement in finesse and presentation. The members of the club are trainees who have had some previous experience at gymnastics. They have been trained in their displays by Sgt. Laskin of the P.T. and D. staff and Cpl. Huntingdon of the S.W.O.'s office, a former "Y" gymnast.

The tumbling display was given added animation by the antics of a genuine clown—circus variety| The clown's antics—purely inspirational—kept the crowd laughing from the beginning when he dragged in a tiny kitten at the end of a great long rope to his climactic leap noto the top of a simultaneously collapsing pyramid.

The clown, incidentally, is an experienced showman—Arnold Ducklin, the YMCA supervisor on the station.

Witnessing the drill competition were Group Captain C. McNab of No. 1 Training Command, and Col. Nichol of No. 1 M. D. Col. Nichol presented the trophy to Sgt. Livingston of the winning squad, while Group Captain McNab addressed the audience. He commented on the excellence of the whole performance, remarking upon how the current drill display excelled the first such ceremony on this station four years ago, which he also attended.

Group Captain McNab congratulated all the squads on their work and spirit, and followed W/C Marks' lead in especially complimeting the gymnastic club. He also commented on the fine spirit throughout the station, and advanced the opinion that morale had never been so high on this station as it has been for the last six or eight months.

Summing up, we might venture the opinion that interest in the drill competitions is definitely on the increase. Certainly the size and enthusiasm of April's crowd was greater than in the last while, and the general rivalry between No. 1 and No. 2 Wing promotes plenty of support.

Paper Bag

I'm gonna get a pilot I can call my own,
A guy who steers the aircraft straight and true,
And when that super-super guy
Takes me way up in the sky,
He'll never have to tell me what to do.

Each time he alters course to bomb the target,
He'll bring it down the drift wires all the time,
And when I make a dummy run
He'll take it all in fun,
That super-dooper pilot of mine.

—Anon., Fingal Observer

* * *

CNS, New York. — A barnacle-studded old salt, retiring after 30 years in the Navy, decided that the best way to pass his fading years was to buy a saloon in New York.

He bought an old tavern, boarded it up and began to paint and redecorate it. After a week had passed, residents of the area gathered outside and knocked on the door.

"When are you going to open up?" their spokesman asked. "We'd like to patronize your place."

"Open up!" the old sailor hollered, "I'll never open up. I bought this place for myself!"

* * *

Missing Link

If you ask what the officers think,
They'll assure you first hand
That there's many a missing link
In the chain of command.

—S/Sgt. A. L. Crouch, in "Yank"

* * *

One Way of Doing It!

Bombers of the Royal Canadian Air Force had returned from a heavy bombing raid on Germany and were flying around their aerodrome awaiting permission to land. Suddenly over the radio came the call: "Request permission to land—only got three engines." Permission was immediately given to the four-engined Lancaster making the request. It made a perfect landing. Immediately there was another request: "Request permission to land—only got three engines." Again, a Lancaster landed with one engine out of commission. Then came this request over the radio: "Request permission to land—urgent—only got two engines." The flare path was made brighter, and the ground staff watched the best landing of the night — by a twin-engined Wellington whose pilot was tired of "stooging around" in the sky.

—"Contact," R.N.Z.A.F.

* * *

Goosy, Goosy, Gander

Visitor: "How do you tell the ganders from the geese?"

Farmer: "Oh, we never worry about that—just turn them all out together and let them figure it out for themselves."

—GM Front Line, Oshawa

* * *

It's Love, Love, Love

When first he came to see her
He had a bashful heart,
And when the lights were burning low
They sat this far apart.

But when their love grew warmer
And they learned the joy of a kiss,
They knocked out all the spaces—
And sat closetogetherlikethis.

—Judge

Perfection

To his Negro company, a colored topkick spoke dire words:

"From now on, when Ah blows this whistle, Ah wants to see a huge impenetrable cloud of dust come boiling outa dem tents. When dat dust clears away, Ah wants to find three rows ob statues."

—Tail Skid, Lawson Field

* * *

London (CNS).—American soldiers are giving British girls a new slant on kissing, according to research recently completed here. GI's tilt their heads to the left to kiss, while the English tilt theirs to the right. The girls, the report continues, are now becoming ambidextrous.

* * *

My roommate inquired
About my sweetheart Bess,
He asked me, "Is she a nice girl?"
And I answered, "Mor-a-less."

—Tyndall Target, Tyndall Field

* * *

Around the Circuit

Compiled by Sgt. G. P. Hawke

Daughter: "Mother, may I keep a diary?"

Mother: "Why, certainly, dear."

Daughter: "And may I do the things I write in it?"

—Wing Tips, Mather Field

* * *

Feminine Influence

There's lipstick on the drinking fount,
There's talcum on the bench,
There's cold cream on the surface plate,
Hand lotion on the wrench.
And "Evening in Paris" scents the air
That once held only machine oil's smell.
I just picked up a bobby pin—
Believe me, war is hell!

—Pure Oil News

* * *

Camouflage

When Adolph Hitler was preparing his wardrobe for a second dismal winter on the Russian front: "Mein Fuehrer," suggested his valet, "remember what Napoleon did when he was in Russia? He wore a uniform of bright red so in case he was wounded his men wouldn't notice the fact that he was bleeding."

"Ach!" said Adolph, "das iss an excellent idea. Pack my brown pants!"

—Tail Skid, Lawson Field

Those Link Blues

While I'm sitting, sitting waiting
For my last check on "the Link,"
A voice within me is debating
Whether I shall swim or sink.

Oh, I know to fret is foolish,
All you do is take your ease:
Still, that voice is very mulish,
So's the trembling in my knees.

Lord, I pray thee, give me strength
And courage in my hour of need;
Yea, I must confess, at length
This Link has got me treed.

Now I hie with lagging footsteps
To that chamber thrice accursed,
Haunted by the wispy tendrils
Of the dreams it has dispersed.

Here I sit alone and friendless
In the cockpit of the Link,
Glancing wistfully about me
Ere I plunge into the drink.

But still the moments linger,
And my flight is still serene,
Moving lightly but a finger
To control it, as you've seen.

Then with vicious, mad upheaval,
Flinging me from side to side,
Comes the brutal, yes, primeval
Rough air from which I'd like to hide.

Bravely did I battle it until
Silent and subdued it rested,
And 'twas time, I'd had my fill,
Even though the brute I'd bested.

Weary, worn and all perspiring,
Staggered I from thence to here,
No longer fearful and retiring—
A hero, for I'd conquered fear.

—P/O E. Kasycz, Skywriter, Dunnville

• • •

"A woman's mind is cleaner than a man's; she changes it oftener."

—Oliver Herford

• • •

The bigger a man's head gets the easier it is to fill his shoes.

• • •

Hitler's Lament

Dream of going North or South;
Hatch a Westward plot;
But all those dreams of going East . .
Ach, du lieber Gott!

—Released by Assoc. Newspapers

• • •

Indecent Exposure

A grave digger, absorbed in his thoughts, dug the grave so deep he couldn't get out.

Came nightfall and the evening chill, his predicament became more and more uncomfortable. He shouted for help and at last attracted the attention of a drunk.

"Get me out of here," he shouted, "I'm cold."

The drunk peered unsteadily into the grave and finally distinguished the form of the uncomfortable grave digger.

"No wonder you're cold," he said. "You haven't any dirt on you."

—Fingal Observer

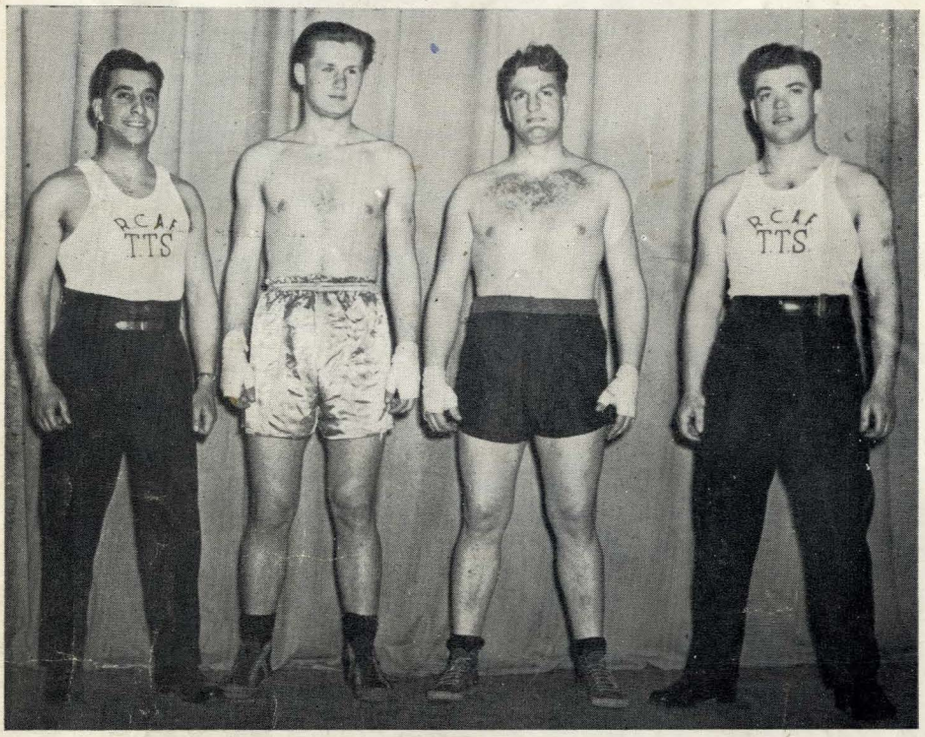
• • •

The Settler

He oggles the charms of each pin-up lass,
And his standards are high for a week-end pass,
But notice the girl on his arm in town;
He settles for less when he's pinned down.

—Pfc. Sidney Mason in "Yank"

April Doings at TTS



Highlights of the April activities at TTS included the drill competition, the Alf Tibbs review, and the various command championships, in which the station more than held its own. Top left are, left to right: Sgt. Tammaro, AC2 Szymanski, AC2 Paquette and Sgt. Hughes, who were in the command boxing. LAC Cullaine, another boxer, is not shown. Top right is one of the stars of the review. Bottom left shows the TTS Gymnastic Club at work on the night of the drill competition. The clown is "Duck" Ducklin, the senior "Y" man at TTS. Bottom right shows a group enjoying the Recorded Symphony program which takes place every Monday in the Blue Room.