The ROUNDEL

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This Month's Cover

When Flt. Lt. W. F. Jacobs, medical officer, accompanied a flight from Edmonton to Cambridge Bay in one of 435 Squadron's aircraft, eight Eskimo patients approached him for treatment. Among them was David Aktakohak, suffering from an abscessed tooth. Flt. Lt. Jacobs, who had never before functioned as a dentist, borrowed a pair of forceps from the Hudson Bay Co.'s factor, injected David's arm with a shot of morphine, and speedily restored him to the full enjoyment of life on the tundra.

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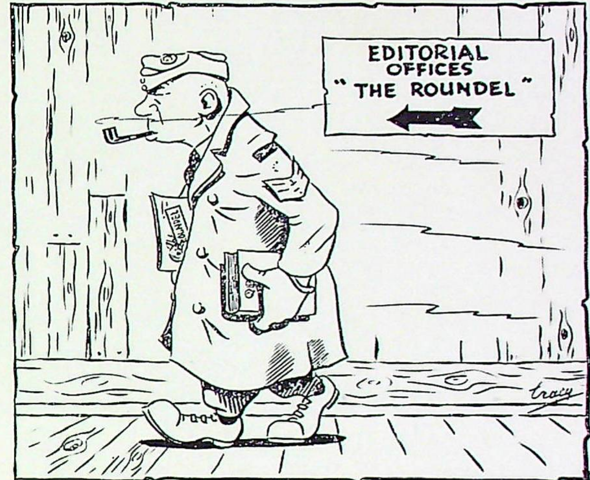
SGT. SHATTERPROOF CRIES "HOLD"



Sir:

I have not, at the time of writing, seen the copy for the February issue of "The Roundel". I have, however, glanced at the issue which appeared in January. I glanced at it yesterday evening, over the pre-prandial pint — and I would be failing in my duty to Her Majesty if I did not advise you that the nut-brown brew lost its flavour and that the subsequent curried chicken turned to ashes in my mouth. In the name of Q.R. (Air), Sir — in the name of all that we hold most holy — let us cry "Hold!" before the mighty presses that spawn "The Roundel" crush from our Service what little life there yet remains in it. The year is still young and full of promise. Let us not cause it to be remembered by posterity as the darkest year in the history both of literature and of the R.C.A.F.

Search your conscience well, Sir — and let the Brass search theirs too. And while thus murkily engaged, let them reflect that, though they themselves look to "The Roundel" for other and more sinister things than guidance, occasionally some escapist airman (surfeited with swimming-pools, winter sports, dances, and rich food) may turn to its pages in a last desperate attempt to relieve the grim monotony of his lot.

What, Sir, will that airman think when he reads such an article as "The Laws of the Navy"? Can you, Sir — or can the Brass — really believe that he will not detect the all-too-evident relish with which the article speaks of the death-sentence as a deterrent for minor offenders against these Laws? What morale-building value could it possibly have for the boys in the field to realize that behind the T-bone steaks, behind the porcelain baths and tesselated showers that surround them, lurks ever the dreadful shadow of the Security Branch Executioner?

Will he tighten a bolt the more surely if he knows that, should he even so much as pilfer the aircraft, he will be fed to the air intake of an F-86 during the morning run-up? I think not. No man can give of his best if he is constantly haunted by the vision of his emergence from the tail-pipe after such an experience. Though the gallant sailor may be urged on to heights of enthusiasm by the spur of a possible keel-hauling or session in the bilboes, I feel that a spell of C.B. is an adequate restorative for the peccant boy in the field.

I need comment on your January issue no further. From the few remarks I have made already, it should be apparent to the Brass that the sword of Shatterproof is again unsheathed and quivering for the deft riposte. Seasoned campaigners that they are, they will doubtless devise new stratagems before the year is ended. But, Sir, let them have a care! Their opening gambit has failed.

Shatterproof

Determined to Deliver

The War-Time Story of No. 435 (Chinthe) Squadron

By Flying Officer David Martin

(The author of this story, which was written during the war, was himself a pilot in the squadron concerned. He now lives in the United States, and is the author of a book on Yugoslavia.—EDITOR.)

WHEN WINGATE'S RAIDERS set off on their epic expedition into Burma, they chose as their emblem the Chinthe, a mythical monster, half-dog, half-lion, ferocious and eternally watchful, images of which stand guard over the Burmese pagoda.

When No. 435 R.C.A.F. (Dakota Transport) Squadron began operations in support of the 14th Army it, too, adopted the Chinthe as the squadron badge, combining it with the motto: *Certi Provehendi* —"Determined to Deliver."

The Chinthe Squadron more than lived up to its motto. After commencing operations in December 1944, it chalked up a record unsurpassed by any other unit in Combat Cargo Task Force in South-East Asia. The Chinthes followed the 14th Army all the way from Kawlin to Meiktila and Thazi. They flew the first transport to cross the Irrawaddy in support of the 14th Army bridgehead. Their jump-masters played a prominent rôle in the airborne operation against Rangoon. They flew by day and they flew by night. They flew with fighter escort and without fighter escort. They landed at airfields which were under enemy fire and at airfields whose ownership at any future moment could not be vouched for by briefing officers. They dropped on D.Z.'s (dropping-zones) no bigger than geranium pots. They braved Jap fighters and Jap ground fire to deliver their loads. But the Chinthes always delivered the goods. And they brought back their cargoes of army casualties without suffering a single loss.

The Chinthe Squardon was one of two R.C.A.F. transport squadrons (Nos. 435 and 436) which came out to India in September 1944. Its first Commanding Officer was Wing Commander T. P. Harnett, one of a group of Canadian flyers who had joined the R.A.F. in 1938. Before commencing operations, the Chinthes embarked on a programme of intensive training at Gujrat in the north of India. Particular attention was paid to paratrooping exercises. And though no one knew definitely, everyone surmised that they were being groomed for some big "do"— perhaps even for an airborne operation against Rangoon.

In November the Chinese armies began to retreat before the hard-pressing Japs. In order to meet this critical situation, several of the American transport squadrons supplying the 14th Army were hurriedly shifted to the Chinese front. To fill the breach, the Chinthe Squadron was ordered to move up to a forward position immediately. Immediately meant *immediately*. By flying 28 hours out of 36, the squadron succeeded in trans-

porting itself to its new Station at Tulihal (Assam) in little more than one day. The last remnants of aircrew and groundcrew taxied in towards midnight. By eleven o'clock the next morning, December 19th, the squadron was operational.

* * *

When the squadron's old-timers get together, they frequently reminisce about those early days. On arriving at their new Station, the Chinthes found themselves without tents, without cots, without cooking facilities, without food, without anything. That night the groundcrew performed their daily inspection by flashlight, and with nothing more than hammer and screwdriver. They slept on the ground and they thanked Providence for inventing the K-ration.

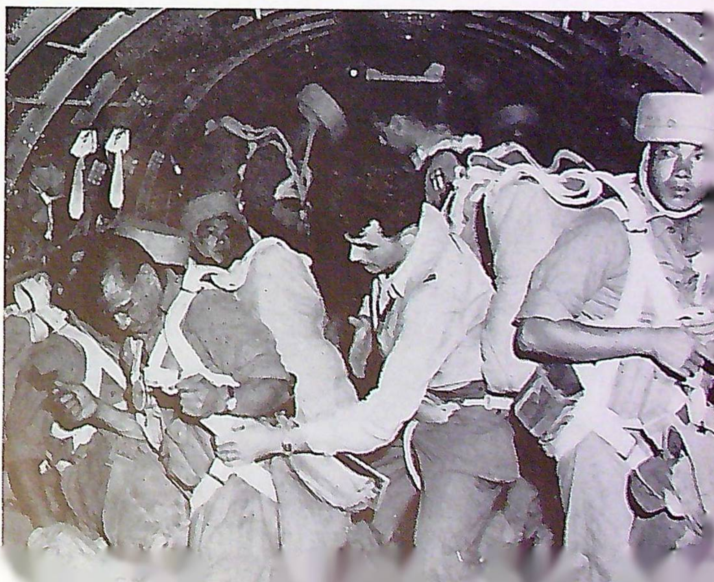
Lack of equipment was partly compensated for by ingenuity. Beds were made by stretching gunny-sacks between bamboo poles. Showers were constructed with odd parts taken from a wrecked aircraft. A stove was built with steel plates and locally procured brick. Gradually the squadron began to take on some semblance of order.

While all this was going on, operations were being pushed at top speed. There was no surplus of air transport, and in order to keep the Army supplied, it was necessary to eke the last ounce of air tonnage out of every available aircraft. On its record day the squadron flew in 199 tons of supplies, its aircraft flying as much as 13 and 14 hours per day. Turn-around was cut down to an almost unbelievably fine limit. Frequently the Dakotas unloaded their 7,000-odd pounds of supplies and were airborne again within 10 minutes of touching down. One enthusiastic crew established an all-time record of eight minutes from air to air — that is, from touch-down to take-off.

Christmas came, and by way of celebration the squadron flew all day. Most of the cargo consisted of Christmas puddings, rum, turkeys, and mail for the 14th Army, which was then around Kawlin and Yazagio. When the day was over, the Chinthes

Groundcrew of No. 435 at Tulihal, Dec. 1944.

Troops emplaning in Chinthe Dakota.



Jumpmaster Flying Officer M. McLean checking harness of Indian paratroopers.

settled down to a heartbreakingly untrimmed Christmas dinner, the highlight of which was canned chicken, served cold; and on New Year's the squadron again flew all day.

On 9 January 1945, the 14th Army fought its way into the town of Shwebo, an important road junction about 16 miles west of the Irrawaddy. A dropping-zone was marked out some four miles east of the town, almost within range of the Japanese guns. Now, to the layman the location of a D.Z. may seem like a fairly simple business. You merely mark the exact position on the map and then you set course. In reality things were far from being so simple. Since the Army was constantly on the move, and since it was of the utmost importance that the supplies be dropped as near the front line as possible, it was necessary for Headquarters to send in predictions to Combat Cargo Task Force several days in advance. Often the predictions gave no more than the approximate locations. The D.Z.'s themselves were, generally, tiny jungle clearings, and transport aircraft frequently had to search the predicted area minutely before they discovered the white "T" and code markings of the D.Z. And, since the fortunes of war are not altogether predictable, it happened on more than one occasion that the Japs were in possession of the D.Z.'s at the time the transport aircraft arrived over them.

* * *

On 12 January the squadron went out in force to carry out a drop on the D.Z. near Shwebo. As the aircraft came in, they joined the dropping-circuit, until there were six or seven of them wheeling over the D.Z. in a continuous circle, unloading a portion of their cargo on each trip. Squadron Leader H. L. Coons, D.F.C., was in charge of the flight. His wireless operator, Warrant Officer R. O. Buckmaster, was in the astro-dome, keeping a look-out for enemy aircraft.

There is something placid about a blue sky, something which makes the danger of death seem utterly unreal. Buckmaster scanned the blue sky lazily. Suddenly he stiffened, and looked hard. High up above their shoulder a tiny speck of an airplane was rapidly closing in on them. He bent down and shouted to the pilot:

"There's a strange aircraft above us?"

"What is it?" asked Coons.

"Can't see yet. It looks a bit like a Harvard."

He looked back again. "No, it isn't a Harvard. It's — it's a Jap! It's a *Zero*!" Coons cut his throttles and hit for the deck. Then he opened up and headed north. A few minutes later the Jap came for them. Buckmaster remained in the astro-dome, calling out distances and directions.

"He's closing in fast . . . 1,000 yards . . . 500 yards . . ."

At 500 yards the modern fighting 'plane is within firing range. Danger really begins at about 300 yards. The fundamental technique of evasive action in the case of large, slow, and completely defenseless aircraft like the Dakota consists first of hitting for the ground as rapidly as possible. This leaves only the upper surface of the aircraft exposed, and at the same time compels the fighter to pull out of his dive early. The next important thing is to wait until the enemy has closed to effective firing range, and then to do a steep turn at slow speed towards the quarter from which he is approaching. The comparatively high speed of the fighter makes it impossible for it to turn with its target, and in a matter of split seconds, if the turn has been properly executed, the target aircraft will be out of the fighter's angle of fire.

At 400 yards Coons turned his aircraft over on his wingtip, and the fighter went skidding by them. The Jap pilot executed a neat stall turn and again renewed the attack. Again Coons evaded him, though this time he came so close that Buckmaster afterwards swore he was smoking a Camel. The Zero made four passes at the Dakota, its guns blazing each time. Bullets whizzed through the wings and fuselage. One of them hit Corporal A. M. White, a groundcrew member who had come along as "kicker". (A "kicker" is a man who helps to chuck out the cargo.) The bullet traversed his chest laterally, ricocheting off a rib and missing his heart by several sixteenths of an inch.

On the fifth pass, Coons was hugging the ground tight when the *Zero* came in. Again he evaded by swinging over into a steep turn. His starboard wing hit a treetop, there was a rending

Tiddim village amid the Chin Hills.

sound, the aircraft shuddered, and righted itself. Somehow Coons managed to break free and scoot for base. He arrived home full of holes and minus four feet of wing tip. For his coolness and courage under fire, Sqn. Ldr. Coons was awarded a Bar to his D.F.C.

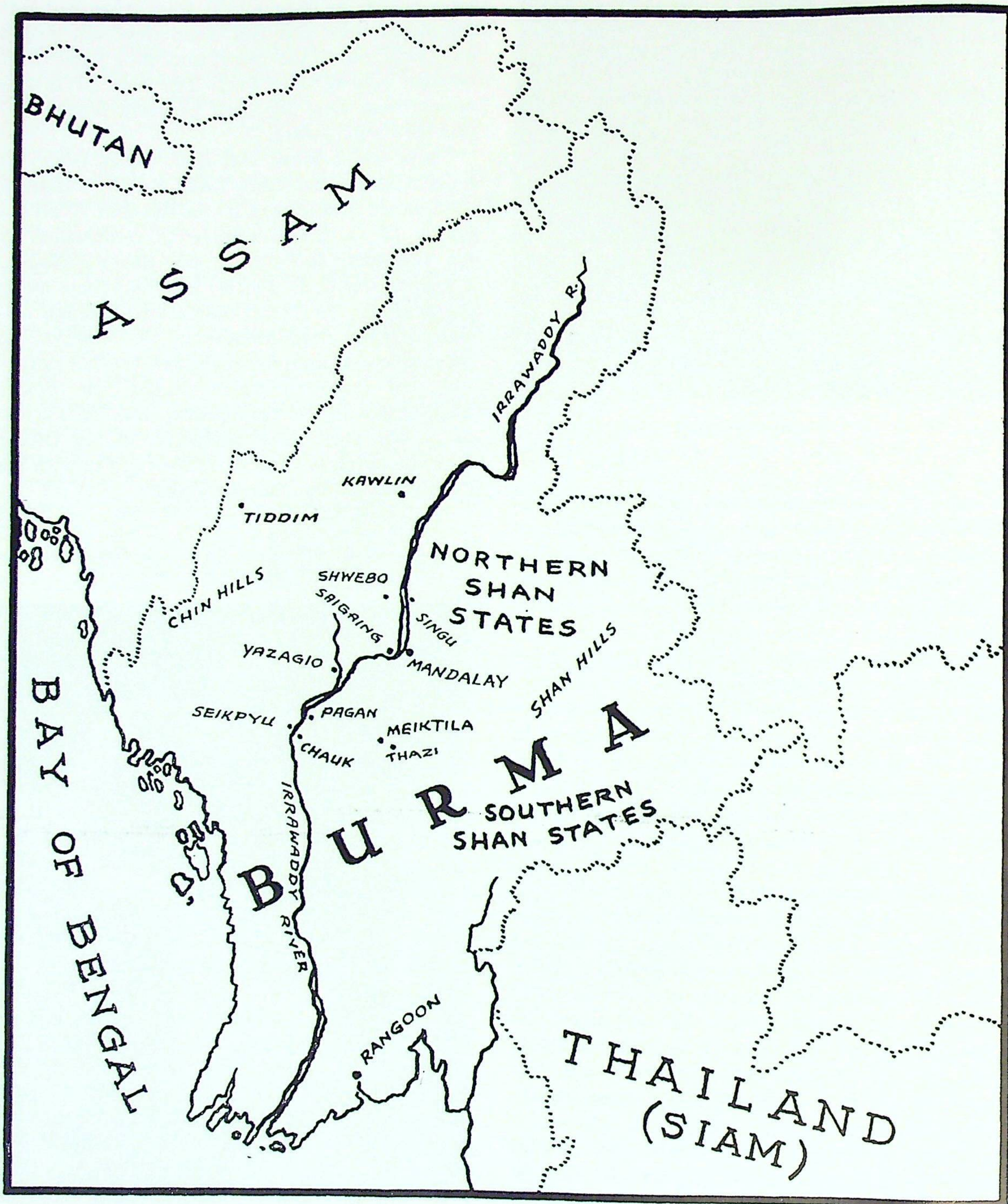
Meanwhile the other Daks were hard pressed. According to counts made by ground observers, there were a dozen Zeros in the circuit diving on the defenseless transports. The next Dakota to be attacked was that of Flying Officer J. K. Ramsay. Ramsay didn't have a chance. The Zero got him cleanly on the first pass. In a twinkling his aircraft was plunging to earth, enveloped in flames.

At such moments a pilot knows what is coming; he knows that it is only a matter of seconds before the end. It is to his eternal credit that during these last few precious seconds Ken thought of his crew and rang the bale-out bell. There wasn't much chance for any of them. But still he rang it. Hopeless though it may have seemed, his action was probably instrumental in saving the sole survivor of the crash, Flying Officer A. L. Thomson, the co-pilot.

The third aircraft to be attacked was piloted by Flt. Lt. R. F. Simpson, the squadron's only English skipper. Flying Officer T. Jordan-Knox was co-pilot. As they tell the story, they had just completed their first run when they saw a Jap attacking from the port quarter. Their first thought was of their load. The bulk of it was ammunition. One Jap shell properly placed and and they were goners.

There was a blast, and then things began to happen thick and fast. LAC R. G. Evans, a groundcrew kicker, was hit in the arm. Warrant Officer D. G. Cotter received a cannonshell in his abdomen, and fell to the floor, groaning. Flying Officer A. E. Foster, who had come along for the ride, had two bullets rip through his shirt, cutting deep grooves in the flesh of his back. The ammunition caught fire, the tail caught fire, and the port engine caught fire. Foster started shoving off the burning ammunition for all he was worth. The navigator, Flying Officer L. B. Dumont, beat away at the tail fire with his bare hands until he had put it out.

Sqn. Ldr. J. M. Bélanger, the R.C. padre, shaving in front of his bamboo "basha".


BHUTAN
ASSAM
IRRAWADDY R.
KAWLIN
TIDDIM
NORTHERN
SHAN
STATES
CHIN HILLS
SHWEBO
SAIGAING
SINGU
YAZAGIO
MANDALAY
SHAN HILLS
SEIKPYU
PAGAN
MEIKTILA
CHAUK
THAZI
BAY OF BENGAL
BURMA
SOUTHERN
SHAN STATES
IRRAWADDY RIVER
RANGOON
THAILAND
(SIAM)

There was no alternative to staying with the aircraft. Simpson picked out a jungle clearing and brought his blazing plane in for a perfect crash landing. When the Dak skidded to a halt, they evacuated as fast as their legs could carry them, taking the gravely-injured Dave Cotter with them. They made the stricken man as comfortable as possible, and, while the aircraft blazed away near them and the ammunition went off wildly in all directions, they applied what first aid they could. Cotter died in a hospital a few days later.

For his skill and courage in crash-landing under extraordinarily difficult conditions, Flt. Lt. Simpson was awarded the D.F.C.

That is the story of what happened in the air above the D.Z. on the morning of January 12th. Down below, the hard-pressed British troops watched the battle above them, choking with helpless anger. "It was terrible to watch," said the major in charge of ground defenses at the D.Z. "Your boys had been supplying us for several weeks. They'd made a damn good job of it, and we'd sort of come to feel that they were our special friends. I know it's war, and I know our aircraft would have done the same thing, but it was maddening to see those Jap fighters go for the helpless Daks. There wasn't much we could do on the ground because we had no anti-aircraft guns with us. Our men popped away furiously with their rifles whenever a Jap seemed within range, but they had no effect. After it was all over, a Sikh Sepoy came up to me and said: 'Sahib, if Canadian sahibs must lose their lives to bring us food, then perhaps we can go on half rations.' At the time he made the suggestion, we were already on half rations."

* * *

In view of the increased Jap fighter activity, it was decided, towards the middle of January, to start making deliveries at night. After dark the Chinthe flare-path became a scene of bustling activity. The crews were briefed, the engines were started, and the C-47's queued up for take-off. They took off at intervals of three minutes, turning off their navigation lights as soon as they left the circuit. At that time the squadron shared its airfield with an American transport squadron. The two Units together put up thirty aircraft per night, each of which flew two sorties.

The landing field was a rough strip a few miles east of Shwebo. The runway was a bit too short for comfort, and, as often as not, they had to land downwind. But by touching down accurately within a few yards of the top end, and by applying the brake generously as soon as the tail wheel was on the ground, the Chinthe pilots pulled through without a single major accident.

At nearest point, the Japs were no more than six to eight miles from the strip — near enough to be able to see the lights of aircraft coming in to land and to lob over the occasional mortar shell. One night, just after the Chinthes had settled down on the strip, the Japs staged a surprise attack and succeeded in capturing Army Headquarters, seven miles from the field. A contingent of Ghurkas was detailed to handle the situation. Shortly after they went into action, word came back that the Japs had been wiped out.

On January 14th, the 14th Army established a bridgehead across the Irrawaddy, near Singu, 40 miles above Mandalay. During the first few days it was touch and go. The bridgehead was a tenuous affair, covering about two square miles and surrounded on all sides by fanatically-attacking Japs. The Chinthe Squadron had the distinction of flying the first transport aircraft to cross the Irrawaddy in support of the bridgehead. The pilot of this first aircraft was Warrant Officer F. M. Smith.

Smith didn't know the exact location of the D.Z., and he had to search for a while before finding it. No matter in which direction he flew over the D.Z., it was obvious that it would be impossible to avoid the Jap lines.

No sooner had Smith and crew entered their dropping circuit than they heard crackling and saw tracers coming up at them. It was admittedly unhealthy for an aircraft as big and slow and helpless as the Dakota to be flying through ground fire at 500 feet, the standard height for dropping. But the goods had to be delivered. Smith made three circuits, picking up a few bullets on each trip. On the third run his groundcrew kicker, Sgt.

Parachutes from Warrant Officer Smith's aircraft dropping on D.Z. near Tiddim.

Nick Jarjour, was wounded in the foot and arm. While another crew member applied first aid, Smith made two more runs. By this time Jarjour seemed to be in a bad way, but there was still one-quarter of the original load left — priceless cargo for the men in the hard-pressed bridgehead. Smith solved the problem by flying Jarjour back to the field hospital at Shwebo. Then he took off again and headed for the bridgehead.

To be brave is not to be foolhardy. The D.Z. laid out by the Army was too hot for safety. Smith flew low and dropped a note to some men near the beach telling them of the difficulty he had been having and informing them that he intended to make his final drops on the beach itself instead of on the D.Z. Then he turned into his circuit and delivered the remaining quarter of his load on the narrow strip of sandy beach. He arrived home safely, with nine bullet holes and minus one crew member.

The situation around the Singu bridgehead did not improve for some time. The day after Smith's first adventure, another of the squadron's aircraft picked up a bellyful of bullets over the D.Z. The pilot this time was Flying Officer W. J. ("Bill") Rodgers; the second pilot, oddly enough, was Flight Sergeant W. B. ("Bill") Rodgers. They made four circuits over the D.Z., dropping each time. On the fourth trip around they were met by a hail of Japanese ground fire. Bullets pinged through the aircraft. One cut the electric control cable. Another pierced the hydraulic fluid tank. And the navigator, Flying Officer Glen Lineham, had another bullet cut through the back of his shirt without touching him.

Knowing that his aircraft had been seriously hit, Rodgers set out for base. He landed, switched the remainder of his load to another aircraft, and took off again for the Singu bridgehead. When they got back, the D.Z. markings were nowhere to be seen. It was not clear whether the Japs or our troops held the D.Z., and there was no way of finding out. Rodgers and his crew held a council of war, and decided in favour of dropping on the beach. The remainder of their load went off in three circuits without mishap.

When the fighting eased up a bit, Captain Scott, the Officer Commanding the 9th Ghurka Rifles in the bridgehead, sent a message to the Chinthes, expressing his gratitude to the crews "who continued their dropping despite the enemy action they encountered. Their efforts were greatly appreciated by all ranks."

* * *

On the night of February 11th-12th, units of the 33rd Corps crossed the Irrawaddy near Myinmu. Knowing that the entire fate of the Burma campaign depended on their ability to confine the British to the west bank of the Irrawaddy, the Japs reacted as fiercely as they had at Singu, throwing every available unit into battle to destroy the bridgehead. Certain important units were held in reserve, however, to cope with the eventuality of another bridgehead. During the previous week the 14th Army had thrust to within distance of the great Ava bridge,

near Sagaing, and it was here apparently that the Japs anticipated the next effort. But the British proved very unobliging.

On the morning of February 13th, under cover of two feint crossings at Chauk and Seikpyu, further down the river, elements of the 7th Division crossed the Irrawaddy near Pagan, where the river turns south again after looping west from Sagaing. The enemy was taken completely by surprise. So confident had they been that this area was safe, that they had left very large food, fuel, and ordnance depots in the vicinity. The 7th Division had no difficulty in consolidating its position. After being joined by armoured units of the 17th Division, they struck eastwards towards Meiktila, south of Mandalay on the Rangoon railway, and perhaps the second most important communications centre in Burma. Overcoming the single road-block erected to obstruct them, they raced on to occupy the vital airfields surrounding the town. So rapid was their advance that the Japs were compelled to retreat, leaving the airfield virtually intact. Thabukton airfield was occupied on February 27th. On the following day transport aircraft began to land there with supplies and reinforcements.

The capture of Meiktila cut the Japanese lines of communication southwards, and made the fall of Mandalay almost inevitable. The enemy was not unaware of the gravity of the situation. Into the battle to recover the town he threw choice troops of the Imperial Guards. For the next three weeks Meiktila and its airfields comprised a no man's land. By day the British made strenuous efforts to keep the airfields clear for their transport squadrons. By night the Japs almost invariably attacked. Sometimes they succeeded, only to be driven off again the following day. At other times bitter battles raged between the runways until morning came to the aid of the defending British, compelling the Japs to retreat to their jungle lines.

"Kickers" of No. 435 shoving out supplies for a garrison near Tiddim.

This was a particularly hectic period for the Chinthe Squadron. The units fighting for Meiktila had no solid rear, and all their supplies, from food to ammunition, had to be flown in. From Myitche south to Meiktila the aircraft had to pass over a corridor that was far more solidly controlled by the Japs than by the British. At Myitche they would contact our ground forces and ask them whether it was safe to land at Meiktila. Sometimes the answer was "O.K. for Meiktila." At other times the instructions came back "Don't land. Drop at D.Z., position X."

On March 18th Warrant Officer Frank Smith went out to do a drop at Meiktila. The crew dropped their cargo on a D.Z. near the highway, with Jap guns firing at them from four directions. While bullets whistled all around, the Army men raced for the parcels, hustled them into waiting trucks, and rushed them back to safety. Again Smith came home with some bullet holes for the groundcrew to repair.

Two days later, he again ran into enemy fire at Meiktila. This time they got him on take-off. When he was a few hundred feet up and about half-a-mile away from the airfield, the Jap machine-guns opened up. Smith came through with seven bullet holes but no serious damage. He seemed to have a special affinity for Jap bullets. Whenever the groundcrew saw his aircraft taxiing in, they would ask each other, "Wonder how many he's got this time?"

* * *

After Meiktila, came the offensive against Mandalay. By March 15th, the 14th Army had

taken Mandalay Hill and was besieging Fort Dufferin, the bastion of Mandalay proper. Though their road of retreat to the south had already been cut, the Japs resisted fanatically. Medium artillery was brought up, and for days it blasted away at the 20-foot walls of Fort Dufferin and at Jap positions in the city. Mitchell bombers and Mustang fighters swarmed over the battlefield from dawn until dusk, strafing and blasting the enemy from tree-top level. When the Japs finally did withdraw in the direction of the Shan Hills, they left behind them a ruined city and all their heavy equipment.

In the battle for Mandalay, the Chinthe Squadron again figured prominently. The first aircraft to arrive dropped on a hurriedly improvised D.Z. at the foot of Sacred Hill. The D.Z. itself was approximately 50 yards wide by 100 yards long — tiny enough when you consider that at a dropping-speed of 120 miles per hour an aircraft traverses 100 yards in a little better than 1½ seconds. The wonders of the modern bombsight coupled with an electro-magnetic release had no application here. The drops were made visually, and the cargo was unloaded by hand, the trick being to drop as many parcels as possible per circuit, and to drop them all accurately. To make matters worse, this particular D.Z. was in a valley so narrow that it was necessary to fly some distance before room could be found for circling round.

There was only one blessing about the D.Z. at Mandalay. It was easy to find. The flames of the burning city were visible for enormous distances. Mitchells, Hurri-bombers, and Thunderbolts, on close support work, zoomed and dived within the D.Z. circuit as the Chinthes delivered their loads, and artillery shells whined over and around them. The situation improved immensely, however, when the 14th Army captured the airfield at North Mandalay and transport aircraft were able to come in and land.

After Mandalay had been taken and the Japs had been routed, the Chinthe Squadron was assigned to fly out the heroic 36th Division, which had fought almost 400 miles from Myitkyina to Mandalay. The Chinthes were already on excellent terms with the men of the 36th Division. At the height of the battle, Army priorities had left little room for such things as cigarettes. But battle is precisely the time when a man needs a cigarette most. Hearing about the situation from the Army men with whom they came into contact, the Chinthes banded together and dropped 50,000 cigarettes out of their own issue to the men of the 36th Division. When they brought the 36th Division out, the Chinthes were thanked profusely for their generosity.

* * *

When Mandalay and Meiktila fell, Rangoon could not be maintained. But the speed with which it was taken surprised even the military experts. As matters turned out, the Japs evacuated Rangoon without a fight. This, however, was not something that could have been counted on. Allied plans called for the continued advance of the 14th Army down the Mandalay-Rangoon railway, coupled with an air and sea operation against Rangoon itself. The airborne operation took place on May Day. Again the Chinthe Squadron figured in the news.

Both No. 435 and No. 436 Sqns. had concentrated on paratrooping exercises during their training in North India. The troops who took part in the final airborne operation against Rangoon were the same troops with whom the two Canadian squadrons had trained. Due to disposition of air units and exigencies of the military situation, the aircraft participating in the operation were provided by American C.C.T.F. Squadrons, but the paratroopers, not unnaturally, asked that their original jump-masters be allowed to travel with them. This request was very wisely granted. Twenty jump-masters were provided by the Chinthes and twenty by their sister squadron.

The jump-master (in Transport Command the wireless operator was also trained as jump-master) is rarely mentioned in accounts of airborne operations, and still more rarely given credit for the importance of his work. A skilled jump-master, commanding the confidence of the paratroops under him, can make all the difference in the world to the success of a drop. It is the task of

the jump-master, working on signals from the pilot, to see that the troops are dropped accurately and as rapidly as possible. The importance of speed cannot be over-emphasized, because if troops are scattered over too wide an area, their concentration becomes proportionately more difficult. A good jump-master working with experienced troops gets a "stick" of twenty men off in 16 or 18 seconds, and a stick of ten in half that time. And that requires some mighty fast moving.

Before embarking on the final operation against Rangoon, the American aircraft, the Canadian jump-masters, and the British and Indian troops went through a final rehearsal. The drop was 100% successful — a rarity even for practice drops. Then, on May 1st, they took off with target Rangoon. Again the drop was 100% successful. Not one man missed the dropping zone; not a single casualty was suffered. This was something unheard of. In a letter of congratulation to the participating units, Major-General E. E. Downs, C.-in-C. of the Airborne troops, said:

"I wish to thank you for the co-operation you gave me and to say again what a magnificent effort was made by all ranks under the command of the 1st Provisional Command Group and the C.C.T.F. Group. I hope that we will have the luck to do another operation together. This one is the first I know of in this war in which paratroops were dropped 100% accurately. You and your boys have set a standard for this theatre, under poor weather conditions, which will make others who come after always strive to equal your effort."

* * *

The men of Combat Cargo Task Force had to cope with other enemies than the Japs. For a time in February vast forest fires swept the jungles of Burma, and the Chinthes flew through dense smoke which billowed up to 15,000 feet and more, with horizontal visibility virtually nil. It was good instrument-flying practice.

The Chinthes had to fly over some of the worst jungle in the world and through what is unquestionably the worst weather in the world. In Burma the monsoons break near the end of May, and continue with fluctuating intensity until September. They are characterized by swiftly-changing weather, much rainfall, and frequent and violent thunderstorms. Over the Chin Hills the storms are especially widespread and violent. Cumulus and cumulo-nimbus clouds build up to 15,000 to 25,000 feet, and at their base they frequently envelop the hill-tops.

Ordinarily it is possible for a pilot to see cumulo-nimbus and to avoid it by flying around. In Burma, however, the matter is not quite so simple. The question which the pilot must constantly ask himself is: "Over — or under?" If the cloud base is above the level of the mountains in the vicinity, he is safe in flying under. If it is not, then he must try to fly above the weather. This is not always easy when the stratus reaches to 15,000 feet and the cu and cu-nim break through to 25,000 at frequent intervals. If the pilot runs into a solid front of weather with apparently no top or bottom, he may attempt to reach his destination by flying around it. The only remaining question is whether his destination will be cloud- or storm-bound on arrival.

A pilot must try to get his load through if it is reasonably possible. On the other hand, he must also think of his aircraft and his crew. And the decision — whether to return or to carry on — is sometimes hard to make. Every pilot, at one time or another, has an adventure with cu-nim. A careful weather pilot may head for what seems to be

(L. to r.) Flt. Lt. H. L. Coons, D.C.F.; Wing Cdr. T. P. Harnett; Sqn. Ldr. R. J. Clement.

an adequate opening ahead of him, only to have the opening close in solidly as he reaches it. This is what happened to one Chinthe aircraft shortly after the monsoons broke.

Flying Officer Paul M. Houser was at the controls. The weather was solid and menacing, and they were over the Chin Hills heading out for Burma. Ahead of him "Pappy" saw an opening which seemed ample. He turned towards it. Alas, when they reached the spot where the opening had been, there was no opening! Instead they were caught in the downdraft of a cu-nim!

From 8,000 feet they were hurled down to 4,000 — and this over an area where the hill-tops run over 6,000 feet. "Pappy" opened the throttles and pointed the nose of his aircraft up as far as safety would permit, but the aircraft continued to descend at a rate of several thousand feet per minute. It required all his strength to keep the aircraft in anything that resembled a flying attitude. It pitched and rolled, dropped suddenly, shuddered, then lifted suddenly. The gyro instruments toppled. The navigator, Flying Officer G. P. Hewer, who was sitting in the second pilot's seat, set up the gyros again. They toppled again. And again. Gradually "Pappy" managed to turn the aircraft through 180 degrees and bring her back into the clear. They returned to base with a few torn rivets and a badly warped aileron.

That night Ed Hewer wrote a letter to his father in which he told him about the incident. "I'm not telling you this to make you worry," said Ed, "I'm telling you this to let you know that we are now the most careful weather crew this side of the Brahmaputra."

On another occasion Flt. Lt. C. P. Kenworthy was flying home through rather solid weather. He entered cloud and decided to get above it. At 14,500 feet the aircraft suddenly dropped — it almost seemed as if it fell out of the sky. The crew were held down to their seats by their safety belts, but their stomachs rose to their throats. As soon as the downdraft hit him, "Chuck" cut his throttles to reduce speed. The rate of descent indicator went off the clock. Airspeed built up to 260 miles per hour. (Maximum safe diving speed for the Dakota unloaded is 230 m.p.h.). The gyros toppled. They hit 10,000 feet, still descending madly. Kenworthy and his co-pilot, Flying Officer Hugh Jenner, hauled back on their steering columns for all they were worth — 6,000 feet — 5,000 feet — and then, at 4,500 feet, their descent stopped, and they started travelling up almost as rapidly as they had travelled down. In this way they were tossed violently up and down, 5,000 feet and more at a time, until at last they broke clear at 18,000 feet. Kenworthy gave much of the credit for their escape to his co-pilot, who, with great presence of mind, kept calling out headings, airspeed, and altitude while "Chuck" was struggling with the controls.

* * *

There was one extraordinary personal adventure that had nothing to do with weather, enemy fire, engine failure, or any of the normal hazards of flying. Flying Officer John Mackie was the pilot of the aircraft. He was sitting in the co-pilot's seat while his co-pilot, Flying Officer Manly Spencer, was sitting in the first pilot's seat. They were flying along serenely at 10,000 feet. The navigator, Flying Officer Norman Collins, came forward to give them an alteration of course. As he poked his head into the pilot's compartment, something moved underneath the automatic pilot, which is situated in the central part of the instrument panel.

"Holy Moses!" ejaculated Collins. "YOU'VE GOT A SNAKE RIDING WITH YOU!"

As he said this, a snake slithered out from behind the throttle quadrant, wrapped itself around Spencer's right rudder pedal, and looked up at him questioningly.

Spencer froze. This was the wisest thing to do, although, during the first few seconds at least, wisdom had little to do with his freezing. For a minute that seemed like an aeon, Spencer sat there looking down at the snake, while the snake looked up at him from the rudder pedal with its cold unblinking eyes.

"Take over while I get out of here," he said quietly to Mackie. In the second pilot's seat Mackie was safely out of range. He took the controls and Spencer eased himself slowly out of his seat, his eyes fixed all the time on the rudder pedal.

At this point, Collins, who had been rummaging about for a suitable weapon, came forward with a large jungle-knife. He reached gingerly around behind the rudder pedal and slashed at the snake. He slashed some half-a-dozen times before the snake relaxed its hold on the pedal and fell to the floor, coiling and twisting in its death agonies.

When the crew arrived home, they were informed that the stowaway was a Russell's viper, one of the most aggressive and deadly snakes in India. How the serpent succeeded in climbing up into the fuselage is something that has never been figured out.

* * *

With the Japs driven out of Burma, things became much quieter for the Chinthes. For some weeks in June and July, most of their work consisted of freighting rice for the communities of North Burma, where the food situation was acute as a result of the ravages of war. Some of the rice was landed at airfields. Much of it was dropped at unheard-of little villages like Atankawng, Launkaung, Htawgaw, etc., on D.Z.'s set up by the Army Civil Affairs Officer in charge of local food distribution. The work in itself was undramatic, apart from the adventures of monsoon flying. Nevertheless, but for the transport squadrons, there would have been starvation in North Burma.

On the eve of their departure for England, the Chinthes were called upon to carry out one of their most trying assignments. Southeast of Toungoo, several groups of British guerrillas were fighting desperately against surrounding Japanese forces. In this remote region the fighting went on for several weeks after the official cease-fire, and the Japs, because of their numerical superiority, were able to make things very hot for the British guerrilla bands. When the transport squadrons supplying the guerrillas were called away on other duties, the Chinthes were asked to fill the breach. Altogether three detachments of aircraft were sent to Toungoo, each detachment operating full-time for four or five days before returning to base.

Pilots who had been accustomed to bad weather and difficult D.Z.'s reported afterwards that, of all the flying they had done in Burma, their operations from Toungoo were the trickiest. The beleaguered guerrillas laid out tiny D.Z.'s on the mountain-sides, D.Z.'s that would have been difficult to find even in the best of circumstances. With the mountains covered in almost continuous cloud, it was a real test of skill, persistence, and courage. Knowing that the clouds concealed 7,000-foot mountains, pilots wove their way through little openings, searched the mountain slopes for the elusive D.Z.'s, and four times out of five they succeeded in getting their loads through.

"Q for Queenie" making the squadron's first supply-dropping sortie on the Burma front.

After the second detachment had returned to base, the following message was received from the Senior Army Liaison Officer at Toungoo:

"To all members of the Chinthe Squadron Detachment. You have in four days broken all previous records. T.A.C.H.Q. are grateful beyond words for your efforts. Field reports are slow to arrive, but those so far received report excellent drops. Canucks, we wish you a good trip home and happy landings."

When operations ceased at Tulihal in the last days of August 1945, the Chinthes had completed just over eight months of service with Combat Cargo Task Force. For those who can cope with the astronomical, we offer the following figures. During its eight months of operations, the squadron flew 29,873 hours on 16,592 sorties, averaging almost 120 hours per day throughout the whole period. Its aircraft consumed over

1,760,000 gallons of gasoline and covered more than 4,000,000 miles. The average Dakota flew seven hours and covered 980 miles per day, which was very close to what was considered the absolute optimum for an operational transport squadron. The cargo delivered totalled 27,460 tons, in addition to which 14,440 passengers and 851 casualties were carried.

Only those who know something about the problem of aircraft maintenance will be able fully to appreciate the meaning of these figures and the magnitude of the debt owed to the groundcrew, too often forgotten when narrating the drama of the Air Force. Working under the most difficult conditions, they chalked up a maintenance record which the best-equipped station would consider creditable. With their meagre equipment they performed wonders. Engine changes, normally a job for repair depots and not for station maintenance, were carried out in half a day and less. Serviceability during the crucial months was kept up around the 90 per cent mark — a truly amazing figure for a tropical station. And on one day, having been challenged by a certain pilot who offered to buy beers all round if they could do it, they actually succeeded in having the station's entire complement of aircraft simultaneously serviceable. They shared all the hardships of life in the Far East with the aircrew whose craft they serviced. And when they travelled as kickers, as they often did, they shared the dangers of flying as well. Their work on the ground was routine, tedious, exacting. But without their efforts the fine showing of the squadron would have been unattainable.

* * *

After V-J Day, which the Chinthes celebrated at the estate of the Maharajah of Manipur, the squadron prepared to fly back from Burma to Britain. Late in August the first wave of Dakotas left Tulihal, followed at intervals by other groups, until the last departed on September 11th. Their homeward course took them via Alipore, Maharajpore, Karachi, Masirah, Aden, Wadi Halfa, Lydda, El Adem, El Aouina, and Istres, to Down Ampney, England. Since the end of August, a training unit had been at work at this station to prepare crews for replacement of those due for repatriation. When No. 435 Sqn. arrived at Down Ampney, Wing Cdr. C. C. N. McVeigh, A.F.C., the commander of the training unit, succeeded Wing Cdr. Harnett as C.O. of the squadron.

Teamed in a wing with two other R.C.A.F. squadrons (Nos. 436 and 437), the Chinthe unit embarked on a new phase of transport work, carrying supplies and personnel to and from many places on the continent. Istres, Ghent, Brussels, Naples, Hamburg, Copenhagen, Oslo, and Buckeburg were the principal ports of call. These operations continued for seven months. Then, on March 31st, 1946, No. 435 Squadron was officially disbanded overseas, and the 25 Dakotas were flown home to Canada.

Within a few months, the squadron number was revived by the redesignation of No. 164 Transport Squadron, R.C.A.F., as No. 435, on August 1st, 1946. From their new base at Edmonton, the Chinthes embarked upon another tour of transport operations, and in the past six years have added fresh laurels to those won in two overseas theatres.

Canada may well be proud of its Chinthe Squadron and cherish the memory of those Chinthemen who gave their lives while carrying the means of battle to the Army in Burma.

HOT PILOTS

Without refrigeration today's hot pilots would really be hot. It takes the equivalent of twenty family-size refrigerators to cool the cockpit of a supersonic aircraft. At 670 mph, the inside temperature of the plane is increased eighty degrees by the friction of the air it moves through.

("*Air Force*": *U.S.A.*)

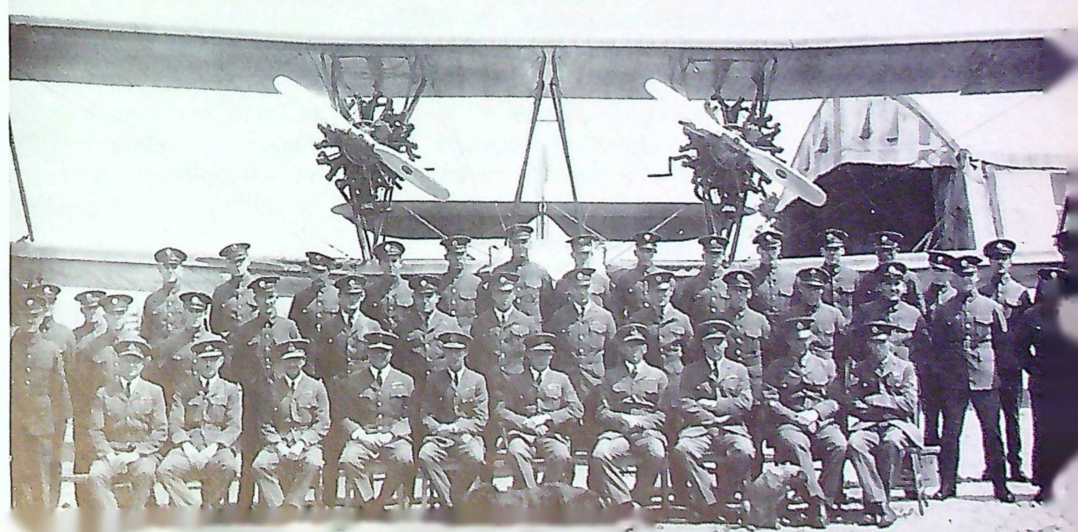
Pin-Points in the Past ★ ★ ★

Eleven years and four miles separate this month's pin-points on our space-time map.

One of the two photographs shows the R.C.A.F. detachment arriving on Parliament Hill during the Royal Visit of 1939; in the other, the personnel of Ottawa Air Station pose in front of a Varuna, symbol of Canada's air power in 1928.

The officers in full-dress uniform are (l. to r.): Wing Cdr. E. R. Owen (Group Capt., ret.), Sqn. Ldr. J. L. De Niverville (Air Vice-Marshal ret.), Sqn. Ldr. M. Costello (Air Cdre.), Flt. Lt. H. H. C. Rutledge (Air Cdre.). Behind them marches W.O.1 George Moon (Wing Cdr., ret.).

In front of the Varuna are (seated, l. to r.) Flying Officers F. M. Carter (rel.), A. R. Collis (rel.), G. A. MacLean (rel.), S. R. Sunnucks (rel.), F. G. Wait (Air Vice-Marshal), Sqn. Ldr. R. S. Grandy (Group Capt., ret.), Flying Officers E. A. Copp (rel.), R. K. Rose (deceased), W.O.2 M. "Tiny" Graham (rel.), Flt. Sgt. W. J. McGrandle (Sqn. Ldr., ret.); (middle row) Cpls. C. H. Nolet (deceased), G. P. A. Rathwell (Sqn. Ldr., ret.), R. E. Chasse (Flt. Lt., ret.), W. Gear (rel.), Sgts. H. Roberge (Sqn. Ldr., ret.), D. E. MacKell (Air Cdre., ret.), W. M. Pearce (Flt. Lt., ret.), W. G. Attewell (Wing Cdr., ret.), G. L. Hobson (Sqn. Ldr., ret.), W. O. Silsby (Sqn. Ldr., ret.), Cpls. R. J. Shaw (deceased), W. J. Larock (rel.), J. G. Ault (deceased), W. F. McCauley (W.O.1, ret.), Mr. J. Guigan (cook); (back row) A.C.1's J. E. Fortey (rel.), A. J. Wilcox (rel.), Boy J. C. J. B. Mirabelli (Wing Cdr.), A.C.2 B. D. Kehoe (Wing Cdr.), A.C.1's J. E. Dagenais (Sqn. Ldr.), H. F. Anderson (Flt. Lt.), W. T. C. Attwood (Wing Cdr., ret.), L. G. Saunders (rel.), LAC F. A. Bonshor (W.O.1, rel.), A.C.2 J. W. Warrington (deceased), A.C.1's R. S. Brownlee (rel.), F. C. Webster (rel.), H. F. Shaw (rel.), LAC J. McLeod (rel.), A.C.1's J. Nicholas (rel.), E. L. St. Jean (rel.), H. F. MacDonald (rel.).



PROMOTION IN THE R.C.A.F. (REGULAR)

By Wing Cdr. D. A. Willis, D.F.C.
Directorate of Postings and Careers, A.F.H.Q.

(*Promotion policy is a never-ending topic of discussion in all Service circles. In this article, Wing Cdr. Willis explains how the R.C.A.F. seeks to ensure, in the advancement of its personnel from rank to rank, the optimum compromise between seniority — i.e. experience — and individual merit.*—EDITOR.)

Until 1952, the system followed in selecting officers and N.C.O.'s for promotion to ranks higher than that of Sergeant in the R.C.A.F. (Regular) was to request individual Commands to consider unit recommendations and then forward Command recommendations to A.F.H.Q. At A.F.H.Q. a board of senior officers selected, from all the Command recommendations received, the number of candidates permitted by the rank vacancies existing at that particular time.

While this system assured good screening of recommendations, it had some weaknesses, the most serious of which was the lack of a common standard for rating personnel according to their suitability for promotion. Candidates at a certain level of suitability in one Command might be recommended for promotion, whereas candidates of similar qualifications in another Command might be considered as unsuitable. It could be claimed, therefore, that the likelihood of promotion depended to some extent on being in the "right" Command at the right time.

In recognition of this weakness in promotion procedure, it was decided, at the Senior Personnel Staff Officers' Conference held at A.F.H.Q. late in 1951, to eliminate the varying standards between Commands and replace them with a common yardstick by simply eliminating the Command Promotion Boards themselves. To accomplish this, and at the same time to retain an appropriate Command influence on promotions, the semi-annual promotions after 1 January 1952 were made according to the procedure outlined below.

* * *

Under the new procedure, Station Promotion Boards convene and function exactly as before, except that narrative reports are required on all

eligible personnel, whether or not they are recommended for promotion.

All Command Headquarters ensure that no individual of the Regular Force, who is carried on the strength of their respective Commands and who is eligible for promotion by reason of time in rank, is overlooked. They forward the narratives, with comments as desired, to A.F.H.Q.

At A.F.H.Q. a Central Promotion Board, composed of representatives of the Air Member for Personnel and senior Personnel Staff Officers from all Commands and autonomous Groups, convenes and proceeds to function in the following manner.

- All eligible candidates are considered and rated as Superior, Very Satisfactory, Satisfactory, or Unsatisfactory.
- Candidates within each group are listed in order of relative seniority.
- The selected candidates are recommended to a senior A.F.H.Q. board for promotion in order of grouping and seniority.

The senior A.F.H.Q. board, composed of high-ranking officers, modifies the recommendations of the Central Promotion Board whenever it seems that any changes are called for, and chooses candidates to fill the promotion quotas by selecting all those rated as Superior and as many of those rated as Very Satisfactory or Satisfactory as may be required. For example, if a quota for any one rank and branch could be filled by selecting all the Superior candidates and half of those rated as Very Satisfactory, then those promoted from the latter group would be selected in order of seniority. Again, if the quota exceeded the number of candidates in both the Superior and Very Satisfactory groups, the additional number of promotions required would be made, in order of seniority, from the Satisfactory group. This procedure reflects the policy that, in the determination of suitability for promotion, demonstrated superior merit should take precedence over seniority, with seniority being the guide when distinct differences in relative merit are not evident.

One point in regard to rating of personnel should be clearly understood, and that is that the ratings given by one board are not regarded as permanent, but may well be changed by subsequent boards. In other cases records may indicate that, although candidates have demonstrated only average or below average performance for some time, the most recent reports show an upward trend which, if continued for a further period, will justify a higher rating by a subsequent board.

It will be obvious that the Central Promotion Board system, by gathering all the "standard-setters" together, permits the adoption of a common standard for each of the categories of recommendation that have been mentioned. All available records are carefully examined, and the recommendations made to the senior A.F.H.Q. board represent the unanimous opinion of the Central Promotion Board members. It is of interest that, throughout the deliberations of the Board to date, there has not been the slightest evidence of favour or prejudice from the individual Command standpoint. On the contrary, the strongest support for higher categorization of an individual has often been put forth by representatives from other Commands. There has been no trace of inter-Command rivalry to obtain the largest number of promotions; in fact, no tally has been kept to show the number of candidates selected from the various Commands.

In short, the Central Promotion Board system not only ensures a thorough review of each individual's suitability for promotion, but also makes certain that every candidate for promotion is measured against a common standard, without favour or prejudice. It is realized that no promotion policy or procedure will please everybody, but it is felt that we have now taken a long step ahead in the direction of serving the interests both of the Service and of the individual.

It's in the Wind

7-Waterspouts

By R. A. Hornstein, Meteorological Division, Dept. of Transport.

(Reprinted by permission of the Dept. of Transport)

Breasting the wind in flocks the sea-mews sail,
And smooth their plumes against th' opposing gale. ARATUS.

WHEREAS A TORNADO is the most devastating atmospheric phenomenon to be seen on land, the most remarkable spectacle to be observed at sea is the waterspout.

Waterspouts closely resemble true tornadoes in most features of outward appearance. Also, they have many other qualities in common. However, in the way in which they form and in some individual characteristics they are often distinctly different from tornadoes.

In the tornado the winds always blow around its centre in a counter-clockwise direction. Consider for a moment, though, those dust whirls which are often seen blowing down the road or across a field on a hot summer day; it will be recalled that sometimes they rotate to the right and at other times to the left. The waterspout acts like both the tornado and the dust whirl, depending on the circumstances of its origin. When the waterspout originates at the cloud level and develops downward its rotation is counter-clockwise, in the manner of the tornado. This is the true waterspout. When it is born at the water's surface and builds upward it may whirl one way or the other depending upon the local conditions prevailing at the place and moment of its birth. This is the so-called "fair-weather spout."

Many waterspouts are destroyed almost immediately upon touching land. The base breaks up and the upper part of the funnel withdraws into the cloud. Others, though, may become dangerous land tornadoes after passing the coastline. An interesting example of a spout going ashore is found in one which did much damage southwest of Miami, Fla., a number of years ago.

It is commonly believed that waterspouts develop exclusively over oceans or other bodies of salt water. True, they have been seen in most sections of the North Atlantic and its surrounding gulfs and bays, including the Gulf of St. Lawrence, and one has been reported in the St. Lawrence River. However, fresh-water surfaces also give rise to waterspouts. They occasionally make their appearance on the lakes and rivers of many lands. Lake Erie seems to have the greatest number so far as the Great Lakes are concerned, but water-

spouts have been reported in numerous inland waters such as the lakes of Saskatchewan.

Waterspouts are likely to occur at any time of the year. In general, though, the greater number form in the tropics during the fall and winter months, whereas in Canadian latitudes the late spring, late summer and early fall months are the most favoured. On one August day as many as seven distinct spouts were seen on Lake Erie between 7.30 and 9 in the morning.

As to the time of day, waterspouts may occur at any hour if the proper conditions exist. Usually the right situation develops during the daylight hours, but several have been seen during the hours of darkness, both before and after midnight. They seem to be most frequent during the early forenoon, late afternoon and midday hours.

As waterspouts occur over such a wide variety of locations and times, it would seem that no particular set of weather conditions is required for their production. It is quite true that they occur fairly often in connection with ordinary thunderstorms. They do not, however, necessarily require warm sultry weather. They are by no means uncommon during times of low air temperature, especially if the surface of the sea is warm.

A majority of the fully developed spouts carry a certain quantity of water in suspension. Still, many are simply wind whirls which contain no more water vapour than is found in a bank of ordinary fog. This type throws up a small cloud of spray into the air to a height of a few feet. The true waterspouts, however, contain both the condensed water vapour and a quantity of sea water. The height to which this sea water can be carried depends on the strength of the disturbance. Under extreme circumstances the height is so great, and the amount of water so large as to produce a veritable cloudburst when it falls. Some sailors, who have been on ship, struck by waterspouts, claim that the water is entirely fresh, whereas others state that it has a salty taste. Obviously, both reports could be true, depending on whether the falling water came entirely from the clouds or from sea water which had been carried aloft.

Faint and uncertain murmurings are sometimes heard before a spout develops, but when full development is reached, the sounds swell into roarings, grindings and hissings. The violence of the winds is almost certainly far less on the average than in the tornado, although the force exerted in the waterspout has not been determined as exactly as in the tornado. Small vessels that have passed through spouts have often received only local damage; sometimes, though, there has been an overturning or a complete wrecking of the craft. Often the mischief is caused as much by the deluge of water as by the force and twist of the wind.

Many spouts are practically stationary throughout their brief careers. Others are reported as travelling at a high rate of speed, estimated from 50 to even 80 m.p.h. In most instances it is of the order of 15 to 20 m.p.h.

Very few spouts are known to have existed for more than an hour or so. The average life is probably some 15 to 20 minutes, and during that time a waterspout can travel only a few miles.

Perhaps the highest spout known was one which occurred off New South Wales, Australia. It was accurately measured at 5,014 feet. It was about 10 feet wide along its entire length except at the top and bottom where it was somewhat larger. Short spouts, 200 feet and less in length are fairly frequent, but the most common lengths are from 1,000 to 2,000 feet. Some of these shorter ones are remarkably thick, one off California having been 100 feet high and 700 feet thick. On the other hand, the longer ones are usually very narrow. A spout seen off Morocco was 1,050 feet high and only 3 feet in diameter.

Their shapes vary, too. Some are like a pipestem, and others are like a huge circular tower. Some gradually narrow, until they are little more than points at the surface. Occasionally the reverse is true, and some are shaped like an hour-glass. On rare occasions fantastic shapes and coils are observed. There are even some instances of double-walled tubes. In one case on record, after about 15 minutes the inner spout suddenly drew upward while the outer one moved away and disappeared.

If the winds are the same at all levels from the earth up to the clouds, the spout moves along as a straight up-and-down column. However, if the

winds are different at various levels it will bend backward or forward, either in a straight line or in a curve. If the winds are strong and conflicting the spout takes on a twisted shape and may even be torn asunder at the weakest point, which is somewhere mid-way along the stem.

Strangely enough, the air currents near the core of the spout may either rise or descend. One vessel collided with and went through the centre of a waterspout. During this period the upward rising air currents drew several objects upward off the deck, among them the Captain's log which went vertically into the air a distance of 40 feet, the entire length of the attached line. On the other hand, Benjamin Franklin referred to a spout which had air descending so violently as to make a hollow about 6 feet in diameter on the surface of the water.

ORENDA ODDITIES

Here are some facts about the Orenda engine:—

In flight at 600 m.p.h. it produces enough power to drive 100 cars or enough heat to supply 6,500 standard homes.

At high speeds the engine grows three-quarters of an inch in length, while each turbine disc and blade grows a quarter of an inch.

Blades and nozzle are at orange heat when running.

There are over seventeen hundred blades in the engine and a total of about twenty-five hundred parts altogether — excluding nuts, bolts and washers.

Tolerances of parts run to two ten-thousandths of an inch — or one tenth the thickness of a human hair.

Tips of the turbine blades travel at 750 m.p.h. Each blade — weighing only a third of a pound — produces the equivalent of 170 h.p.

Turbine and compressor blades weigh 20,000 times their own weight when spinning, causing a pull on the engine disc of about half a million pounds.

In aerial maneuvers the engine shaft actually bends and tilts the whole disc a quarter of an inch out of vertical.

The fuel is rotating at 500,000 revolutions per minute when it leaves the feed nozzle. This atomizes the fuel to droplets ten millionths of an inch in diameter.

Amount of air sucked through the Orenda within a minute would empty a building 100 ft. square and 8 ft. high.

(*"Avro Canada News"*)

The Suggestion Box ★ ★ ★

The chief of the Air Staff has written letters of thanks to the undermentioned personnel for original suggestions which have been officially adopted by the R.C.A.F.

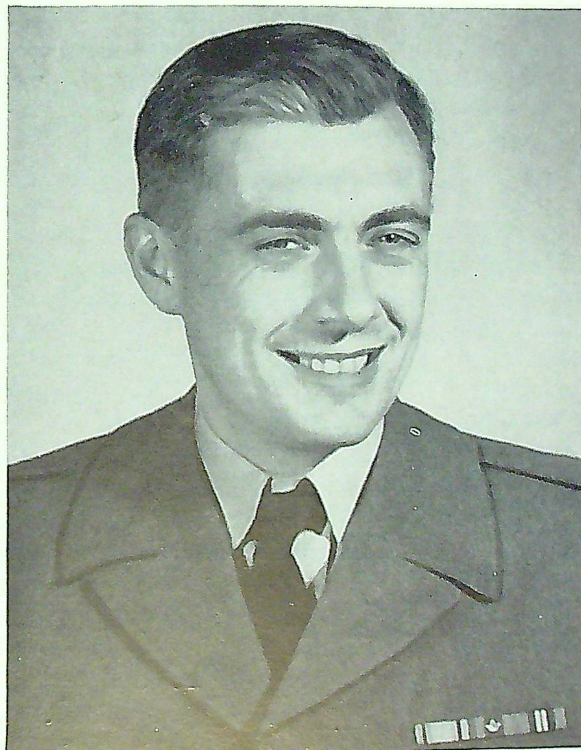
Flying Officer R. H. Mitchell, now of A.A.F.C.E. (France), designed a chart to assist telecommunications personnel in the reading and accurate interpretation of the numbering system used for Engineering Orders. His chart has been printed and distributed to all Training Command units. (Only readily available photograph shows him as a W.O.2 at T.C.H.Q.)

Sgt. G. F. Hand, of Air Materiel Command H.Q., designed a wrench for the Harvard undercarriage jack which will save many man-hours and eliminate the possibility of injury to the mechanic's hands.

Flt. Lt. M. J. Kobierski, of Central Flying School, designed an Automatic Radio Compass Procedure trainer which is considered to be a great improvement on the device that has hitherto been in use.

Flt. Lt. M. J. Kobierski.

Flying Officer R. H. Mitchell.



Sgt. G. F. Hand.

Personnel Movements ★ ★ ★

OFFICERS: NOVEMBER

G/C A. P. Blair — R.C.A.F. Station Summerside to R.C.A.F. Station Claresholm.

S/L A. L. Brown, D.F.C., A.F.C.—A.F.H.Q. to T.A.G.H.Q., Edmonton.

S/L J. C. Hall, D.F.C.— 1 A.R.O.S., Clinton, to 405 (M.R.) Sqn., Greenwood.

S/L A. N. Harris — A.M.C.H.Q., Ottawa, to A.A.F.C.E., Paris, France.

G/C J. K. F. MacDonald, D.F.C.— 2 (F.) Wing H.Q., Grostenquin, to A.F.H.Q.

S/L D. W. MacKellar — C.J.S. Washington to A.F.H.Q.

G/C M. E. Pollard, D.S.O., D.F.C., A.F.C.— A.F.H.Q. to 2 (F.) Wing H.Q., Grostenquin.

S/L T. W. Stewart — R.C.A.F. Station Rockcliffe to R.C.A.F. Station Edmonton.

OFFICERS: DECEMBER

A/C C. L. Annis, O.B.E.— A.F.H.Q. to C.J.S. London.

S/L F. H. Battison — 2 A.C. & W. U., Chatham, to 21 A.C. & W. Sqn., Chatham.

S/L M. J. H. M. Belleau — 2 A.F.S., Macdonald, to R.C.A.F. Station Macdonald.

S/L L. P. S. Bing, D.F.C.— 2 A.F.S., Macdonald, to 3 (A.W.) O.T.U., North Bay.

A/C S. W. Coleman — A.F.H.Q. to T.A.G.H.Q., Edmonton.

S/L J. D. Dickson, D.F.C., A.F.C., D.F.M.— 1 P.R.C., Lachine, to 412 (T.) Sqn., Rockcliffe.

S/L R. D. Forbes-Roberts — C.J.S. Washington to 21 A.C. & W. Sqn., Chatham.

S/L H. B. Hay, D.S.O., D.F.C.— I.A.M., Toronto, to C.J.S. London.

W/C F. F. Lambert, D.S.O., D.F.C. — 2 A.C. & W.U., Chatham, to 21 A.C. & W. Sqn., Chatham.

S/L J. D. Lindsay, D.F.C.— C.J.S. Washington to 413 (F.) Sqn., Bagotville.

W/C H. A. Morrison, D.S.O., D.F.C., A.F.C.—R.C.A.F. Station Rockcliffe to 412 (T.) Sqn., Rockcliffe.

S/L E. L. Olson — A.F.H.Q. to C.J.S. London.

G/C J. G. Stephenson, O.B.E., A.F.C.— C.J.S. London to R.C.A.F. Station Rockcliffe.

W/C C. C. Underhill — C.J.S. Washington to 33 A.C. & W. Sqn., Falconbridge.

OFFICERS: JANUARY

S/L B. F. Stoughton — R.C.A.F. Station Edmonton to 2 (F.) Wing H.Q., Grostenquin.

WARRANT OFFICERS: NOVEMBER

WO2 D. M. Abolit — R.C.A.F. Station Whitehorse to 2 C.M.U., Calgary.

WO2 W. J. Brown — R.C.A.F. Station Macdonald to R.C.A.F. Station Portage La Prairie.

WO1 J. R. Probert — R.C.A.F. Station Trenton to 2 T.T.S., Camp Borden.

WO2 D. S. T. Stirling — 2 T.T.S., Camp Borden, to 2 P.S.U., London.

WARRANT OFFICERS: DECEMBER

WO2 C. W. Baine — C.J.S. London to R.C.A.F. Station Rockcliffe.

WO2 D. Brydon — M.G.H.Q., Halifax, to 12 A.C. & W. Sqn., Mont Apica.

WO2 H. L. Mayhew — 11 T.S.U., Montreal, to 33 A.C. & W. Sqn., Falconbridge.

WO2 I. Nicholson — T.C.H.Q., Trenton, to R.C.A.F. Station Aylmer.

WO2 J. A. P. Perrault — A.F.H.Q. to A.D.C.H.Q., St. Hubert.

WO2 T. A. Prest — R.C.A.F. Station Edmonton to R.C.A.F. Station St. Hubert.

WARRANT OFFICERS: JANUARY

WO2 L. D. McTavish — C.J.A.T.C., Rivers, to 2 (F.) Wing H.Q., Grostenquin.

KEY TO ABBREVIATIONS

A.A.F.C.E. — Allied Air Forces Central Europe
A.C. & W. — Aircraft Control & Warning
A.C. & W.U. — Aircraft Control & Warning Unit
A.D.C.H.Q. — Air Defence Command Headquarters
A.F.S. — Advanced Flying School
A.M.C.H.Q. — Air Materiel Command Headquarters
A.R.O.S. — Air Radio Officers' School
(A.W.) — All Weather
C.J.A.T.C. — Canadian Joint Air Training Centre
C.J.S. — Canadian Joint Staff
C.M.U. — Construction & Maintenance Unit
(F.) — Fighter
I.A.M. — Institute of Aviation Medicine
M.G.H.Q. — Maritime Group Headquarters
(M.R.) — Maritime Reconnaissance
O.T.U. — Operational Training Unit
P.R.C. — Personnel Reception Centre
P.S.U. — Personnel Selection Unit
(T.) — Transport
T.A.G.H.Q. — Tactical Air Group Headquarters
T.S.U. — Technical Service Unit
T.T.S. — Technical Training School

Sedes Angelica ★ ★ ★

The Miracle of the First Ejection Seat

By Wing Cdr. F. H. Hitchins, Air Historian

When the balloon was invented in the closing years of the 18th century, its first practical use, other than as a sporting novelty, was for military observation in the 1794 campaigns of the French Republican armies. Within a few years the balloon was also used for scientific research. Credit for this pioneer application of aeronautics to the promotion of science goes to a young French scholar, Louis-Joseph Gay-Lussac, who was just starting on a career which established him as one of France's greatest physicists and chemists.

For some time the Institute of France had been anxious to test the validity of various theories that had been propounded on the effect of altitude upon the earth's magnetic force. Gay-Lussac volunteered to use a balloon to put the theories to the test and, securing an old aerostat of the defunct French balloon corps, he loaded the nacelle with scientific instruments and gear, including a menagerie of birds and insects. On 6 fructidor XII (24 August 1804), Gay-Lussac and a companion made an ascension which lasted 3½ hours and reached an altitude of 4000 metres. In the report which they presented to the Institute the two scientists stated that, according to the observations which they had made, any decrease or variation in magnetic force due to altitude was illusory.

But Gay-Lussac was not satisfied; he wanted to make further tests at even greater altitudes. So, on 29 fructidor (16 September), he made a second ascension, this time going up alone. With less weight on board the balloon rose to 7,016 metres (23,018 feet). It was an extraordinary, and astonishing feat — and showed that the aeronaut had a very robust constitution. Not until 1875, twenty-five years after Gay-Lussac's death, was his altitude record surpassed (and two of the three men who set the new record were dead when their balloon returned to earth). It was 1914 before an aeroplane succeeded in reaching a greater height.

During the ascension and descent Gay-Lussac was busy with various scientific experiments. He confirmed his previous observations on magnetisms, tested the composition of the atmosphere at various altitudes, and calculated that the temperature lapse rate was one degree centigrade per 173.30 metres (568½ feet) of height.

For the present-day reader, probably the most interesting feature of Gay-Lussac's balloon ascension a century and a half ago was not the altitude record which he set, nor the scientific observations that he made, but a minor "miracle" for which he was responsible. By the time the gasbag had reached 6000 metres the aeronaut had released all the normal ballast carried. Anxious to gain more height, he threw overboard a rough wooden chair that had been placed in the nacelle. Down it tumbled through the clouds (which hid the balloon from the view of observers on the ground) and landed with a thud in a hawthorn hedge. A shepherdess nearby was startled out of her wits and fled screaming; her sheep scattered in all directions while the dog ran about barking frantically. Attracted by the commotion, the inhabitants of the village hurried up to investigate, and, seeing the chair that had descended from the heavens, cried "a miracle." Most interested of all were the local carpenters who, after critically examining the curiosity from every angle, expressed the opinion that their heavenly *confrères* were not very skilful. They thought that paradise would be more richly furnished!

For several days the miracle of the angelic chair was the sole topic of conversation in the village — until the newspapers arrived from Paris with the account of Gay-Lussac's balloon flight and destroyed the pleasant illusion.

(Based on: "La Vie Emouvante et Noble de Gay-Lussac", by Edmond Blanc and Leon Delhoume.)

★ What's the Score?

("Now that my policy for 1953 is set," writes Sgt. Shatterproof, in a vein of rare optimism, "you may inform the boys in the field that the Service structure, if not actually resting on a solid base, is at least unlikely to come crashing down upon their loyal heads during the next twelve months. The shoulders of Shatterproof are once more firmly braced beneath its roof-tree; Argus-eyed, the old eagle keeps watch from sea to sea. Secure in the present, we may therefore bend our minds to the task of preparing for the future — that imminent future when our gallant groundcrews will fry in the Martian desert as light-heartedly as they now freeze in the Canadian Arctic, and when our aircrew trainees will buckle their landing-fins on the lava plains of Luna no less debonairly than they now write off their undercarriages on the runways of their native planet. To this end, Sir, I enclose a few questions prepared by LAC Bladder for publication in "The Roundel." There would have been more of them but for the fact that the necessary research imposed too great a strain on the boy. We felt it advisable to discourage him when he took to eating his meals while hanging by his feet in the parachute tower — in order, as he assured us, to discover what happens to an airman's appetite when unassisted by the normal action of gravity."

Of the 563 questions enclosed with Sgt. Shatterproof's letter, we have selected the twenty least controversial. The remainder will probably have to await confirmation by posterity. The correct or probably correct answers appear on page 48.— EDITOR.)

1. Earth's atmosphere, as breathed by all Service ground crew engaged in the normal execution of their duties, is a mixture of:

(*a*) 21% oxygen, 78% nitrogen, 1% other gases.
(*b*) 78% oxygen, 21% nitrogen, 1% other gases.
(*c*) 50% oxygen, 30% nitrogen, 10% hydrogen, 10% other gases.
(*d*) 62.5% oxygen, 36% nitrogen, 1.5% ozone.

2. An airman may regard himself as being in space as soon as the air's friction becomes virtually negligible. This occurs at an altitude of about:

(*a*) 1,000 miles.
(*b*) 100 miles.
(*c*) 120 miles.
(*d*) 210 miles.

3. Aircrew happening to find themselves in the region between the upper limit of the ionosphere (as given in the correct answer to question 2) and that indeterminable point at which not even a single atom of air exists, will be in:

(*a*) The troposphere.
(*b*) The exosphere.
(*c*) The bathysphere.
(*d*) The soup.

4. The well-informed Met. Observer refers to the layer of atmosphere which extends from an altitude of about 8 miles to 60 miles as the "stratosphere." The most interesting chemical property of this layer is the abundance of ozone, which is one of the atmosphere's minor constituents and which:

(*a*) Is responsible for the Aurora Borealis.
(*b*) Ionizes meteoric dust.
(*c*) Absorbs enough of the sun's ultraviolet light to make life on Earth possible.
(*d*) Imparts the luminosity to noctilucent clouds.

5. An ordinary sheet of bond paper can protect a conscientious airman from:

(*a*) The smallest known meteors.
(*b*) Solar radiation.
(*c*) Cosmic rays.
(*d*) Gamma rays.

6. "Weather" is made in the lowest layer of the atmosphere, which is known as:

(*a*) The troposphere.
(*b*) The exosphere.
(*c*) The bathysphere.
(*d*) The tropopause.

7. The present altitude record, made by a manned rocket-plane, is:

   (*a*) 48,556 ft.
   (*b*) 72,395 ft.
   (*c*) 58,431 ft.
   (*d*) 79,494 ft.

8. The present speed record, made by the 'plane referred to in question 7, is:

   (*a*) 856 m.p.h.
   (*b*) 941 m.p.h.
   (*c*) 1,238 m.p.h.
   (*d*) 1,001 m.p.h.

9. In 1935, a manned balloon reached a height of:

   (*a*) 72,395 ft.
   (*b*) 78,395 ft.
   (*c*) 69,395 ft.
   (*d*) 43,395 ft.

10. Tests have shown that sturdy Service personnel can tolerate (in a prone position) a load of 7g for:

    (*a*) 1½ mins.
    (*b*) 30 secs.
    (*c*) More than 2 mins.
    (*d*) 3½ mins.

11. The maximum load to be sustained (but only for a second or so) by sturdy airmen during take-off for the moon will be:

    (*a*) 7g.
    (*b*) 10g.
    (*c*) 8g.
    (*d*) 9g.

12. The largest meteorite so far discovered on Earth weighs about:

    (*a*) 42 tons.
    (*b*) 65 tons.
    (*c*) 12,800 tons.
    (*d*) 763 lbs.

13. The establishment of a space-station in an orbit 1,075 miles from Earth's surface is now feasible. The cost of so doing has been fairly accurately estimated at:

    (*a*) $10,000,000,000.
    (*b*) $4,000,000,000.
    (*c*) $900,000,000.
    (*d*) $750,000,000.

14. The greatest danger to personnel on detached duty in space-stations, or to rocket crews in space, will probably be:

    (*a*) Meteors.
    (*b*) Cosmic radiation.
    (*c*) Solar radiation.
    (*d*) Dyspepsia.

15. In a space-ship, where weightlessness will in all probability be an unavoidable factor in life, the well-mannered airman's eating-irons will not include:

    (*a*) Spoons.
    (*b*) Knives.
    (*c*) Forks.
    (*d*) Tongs.

16. Nor will the cook have any use for:

    (*a*) An electronic range.
    (*b*) An ordinary pressure-cooker.
    (*c*) An ordinary toaster.
    (*d*) An ordinary kettle.

17. In space, the minimum thickness of armour plate necessary to exclude the most dangerous types of cosmic ray (and thus protect the serious-minded airman from siring possible mutants) is:

    (*a*) 6 ins.
    (*b*) 2 ins.
    (*c*) ½ in.
    (*d*) 2¾ ins.

18. The Milky Way:

    (*a*) Is a phenomenon similar to the Aurora Borealis, and occurs in the exosphere.
    (*b*) Is an illusion occasioned by the curved path of light.
    (*c*) Consists of countless isolated molecules known as cosmic dust.
    (*d*) Is composed of stars, and is visible to any officer or airman who looks towards the rim of the saucer-shaped galaxy at whose approximate centre we are.

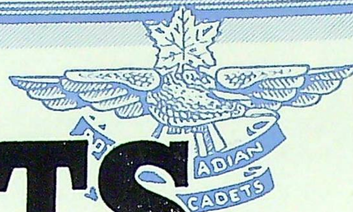
19. Our own galaxy contains stars (of which our sun is a rather small representative) to the roughly-estimated number of:

    (*a*) 100 billion.
    (*b*) 10 million.
    (*c*) 1,000 billion.
    (*d*) 950 million.

20. Mars has a considerably rarer atmosphere than Earth. The courteous airman will therefore express no surprise at finding its inhabitants (if any) equipped with:

    (*a*) 6 legs.
    (*b*) Enormous chests.
    (*c*) No chests at all.
    (*d*) Gills.

The ROYAL CANADIAN AIR CADETS



By Arthur Macdonald, Air Cadet League of Canada.

THE R.T.T.P.

A new and important avenue of training for air cadets opened last month when the R.C.A.F. announced details of the Reserve Tradesmen Training Plan to squadrons across the country.

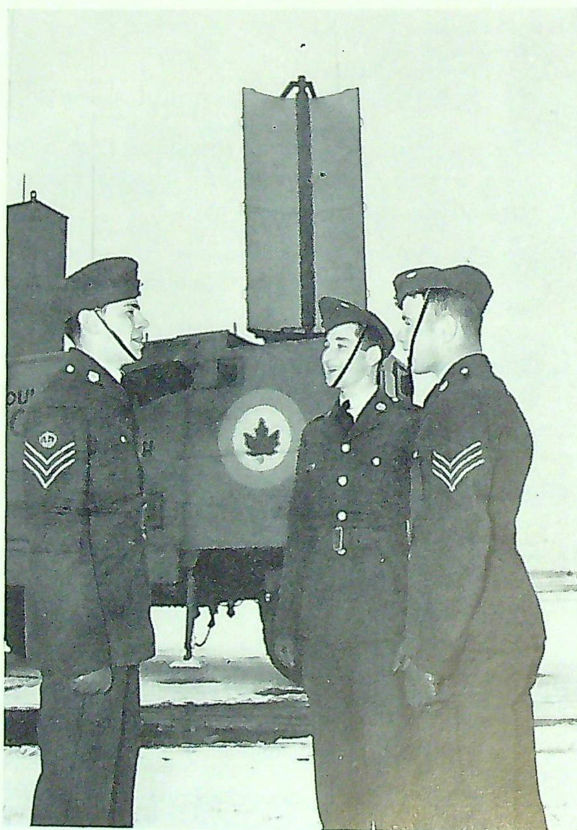
The new scheme is to some extent a development of the highly successful summer training plan for high-school students which has been functioning for several years now. Under the scheme, the R.C.A.F. will provide winter courses in selected R.C.A.F. trades for large groups of young men in preparation for eight weeks of continuous trades training during the summer months. Aim of the training will be to bring each student up to Group 1 standard in one of thirteen Regular Air Force trades.

The project has been set up in such a way that it provides not only an attractive outlet for senior air cadets but also an opportunity for Air Cadet squadrons in certain areas to be of greatly increased usefulness to the R.C.A.F.

For the present, the scheme will operate only in areas where there is an active R.C.A.F. Auxiliary or Reserve unit. The target for 1953 is 2250 trainees, and a quota of 1200 vacancies has been set aside for air cadets in Auxiliary unit areas. Although all of the details have not been worked out at this writing, the plan will operate substantially as follows:

An air cadet will be eligible for R.T.T.P. training this year if he reached his sixteenth birthday on or before September 1st, 1952. Upon enrolling in the scheme, the cadet will be taken on strength

G.C.A. unit at R.C.A.F. Station Trenton forms background for conversation between (l. to r.) Cadet Flt. Sgt. J. Brown and Cadets J. Board and F. Tice.



of the R.C.A.F. Primary Reserve as an A.C.2 but will remain on the strength of the Air Cadet squadron until required to report for summer training. Winter training will be given *at the squadron* in accordance with a special syllabus provided by the R.C.A.F., and trainees will be entitled to 12½ days' pay (approximately $36.25) for successfully completing this phase of the Group 1 training. (The cadet will receive his winter pay within thirty days after reporting for summer training).

During the summer period of continuous training (8 weeks at an R.C.A.F. Regular or Reserve unit) the cadet will be entitled to normal pay for an A.C.2 — $87 per month. Permission to live out will be granted in certain cases and a subsistence allowance of $61 per month will be paid. It can be seen, therefore, that an air cadet, training under the R.T.T.P. and living out, can earn a maximum of $330 to $335 by the end of his Group 1 training.

On completion of the summer course, trainees will be in a position to follow one of three courses:

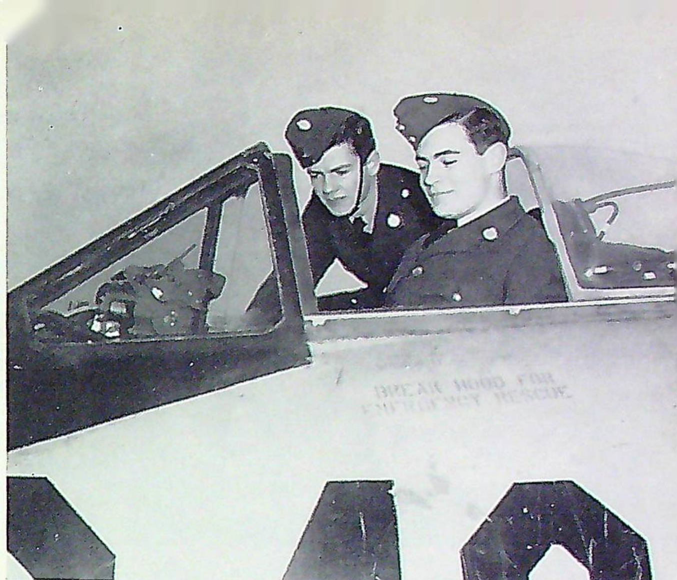
- to transfer to the R.C.A.F. Auxiliary for duty with a local squadron,
- to remain with the Primary Reserve for additional periods of continuous duty, or
- to transfer to the R.C.A.F. Supplementary Reserve.

Should either of the latter two openings be selected, there is no reason why the cadet should not return to his squadron after the summer training has been completed.

Special literature covering R.T.T.P. has been distributed to the squadrons concerned by Air Cadet League Headquarters. Cadets wishing to apply may obtain complete details from their squadron commanders. All units are asked to co-operate to the fullest possible extent in ensuring that the League meets — and perhaps exceeds — its official quota of 1200 trainees for 1953.

CADET ENLISTMENT

Although the exact figure was not available at press time, it is now definitely established that over 1100 graduate air cadets signed on for service with the R.C.A.F. Regular during 1952. Returns



Cadets E. A. Day (left) and R. Heenan, both of Mexico City, study cockpit of Vampire at R.C.A.F. Station Trenton.

covering the Reserve Air Force have not been received as yet, but it is anticipated that the total number of cadets who have moved into the Regular or Reserve Air Force during the past year will prove to be in excess of 1500.

Another interesting figure, turned up by a recent survey conducted by Air Force Headquarters, disclosed that approximately 20% of all personnel currently serving in the R.C.A.F. Regular have had the benefit of Air Cadet experience. This means that one out of every five airmen is a former air cadet — a very fine record indeed for Canada's Air Cadet movement.

NO. 176 SQUADRON'S SHARPSHOOTERS

An interesting item from a recent edition of the Winnipeg "Free Press" tells of the terrific progress in indoor rifle-shooting being made by members of No. 176 (Optimist) Squadron. The cadet sharpshooters took on the Queen's Own Cameron Highlanders in an evening match and defeated them by a score of 483 to 480. This was the second win in three tries for the Air Cadet team.

MILLIONAIRES' NIGHT IN OTTAWA

Yet another approach to the problem of raising money for special purposes was tried out with considerable success by No. 51 (Ottawa Optimist) Squadron recently. The squadron celebrated its eleventh anniversary in a big way by holding a

(L. to r.) Cadets A. H. Bogart, H. P. La Fleur, and H. L. Ross.

(L. to r.) Cadets N. Thornton, D. Seymour, and J. Cran.

"Millionaires' Night" at its training headquarters.

More than 400 hopeful "gamblers"— cadets, families, and friends — attended the party and took part in the games. The winners all received prizes, the top award being a radio.

Proceeds from the affair will go toward buying sports equipment for the squadron, which is one of the most active in eastern Canada.

CADET RADIO STATIONS

There was a great deal of talk a few years ago about a nation-wide network of radio "ham" stations operated by Air Cadet squadrons. The programme got off to a slow start because of equipment shortages and other problems, but more and more often these days we hear of squadrons going "on the air" for the first time.

One of the latest units to get its station functioning is No. 84 (Port Arthur) Squadron, which has applied for a Department of Transport license to operate an amateur radio station. This station, which will handle both radio telephone and wireless, will be the first in north-western Ontario.

Also nearing completion are cadet radio stations at No. 85 Squadron, Port Arthur, and at Geraldton, where No. 227 Squadron is based.

The license for the Port Arthur radio station is being taken out in the name of William Astle, electrical instructor at the Technical School, who possesses an amateur operator's license. The cadets have been preparing for the operation of their station and for their amateur licenses by attending the international Morse code course now being given by instructor Mathias Carelius of Port Arthur. Officials of the Air Cadet League have provided individual Morse code keys for each of the cadets undergoing instruction.

When the two Port Arthur units and the third at Geraldton are in operation, the cadets are looking forward to maintaining communications contact with squadrons in Manitoba, Ottawa, and Toronto, where similar stations are already functioning.

NOBLE CUT

Five miles from Blackburn, James I knighted a loin of beef and thereby created the word sirloin.

("The Times Weekly Review": U.K.)

ROYAL CANADIAN AIR FORCE *Association*

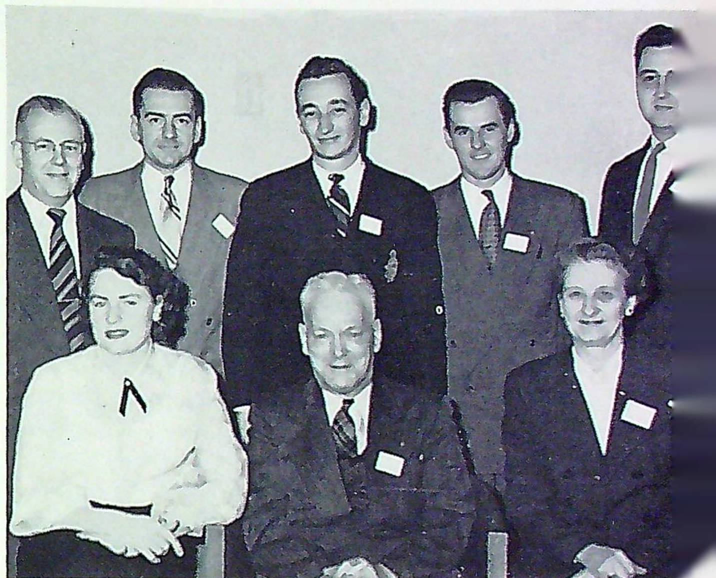
MEMBERSHIP-DRIVE WINNERS

The winner of the competition run in conjunction with the Wing membership campaign was No. 254 (Mirimichi) Wing, of Chatham, N.B. This Wing brought in 133 new members to the Association and finished with a total of 1,473 points as calculated according to the formula in the bulletin outlining the drive.

In the second place was No. 502 (Brandon) Wing with 109 new members and 1,246 points. No. 302 (City of Quebec) Wing gained 88 new members and 993 points to come in third.

Each of these Wings will receive the R.C.A.F. Association Colours, as was approved earlier for the three Wings showing the best results in the drive.

In the runner-up positions were No. 253 (Moncton) and No. 404 (Kitchener-Waterloo) Wings, with 900 and 818 points, respectively.



No. 304 Wing's new executive. Seated (l. to r.): Miss M. McInnes; R. E. C. Binns, president; Miss M. L. Pineo. Standing (l. to r.): G. B. Blair; J. Atkins, K. T. P. Allan; L. Elliott; H. A. M. Cooper.

Three of the six pictures presented to No. 424 Wing by Cpl. L. C. Carr, former R.C.A.F. officer and now a member of the Ontario Provincial Police. Left to right: C. Raymond, C. Donihee, W. G. D. MacMillan, Cpl. Carr.

These five Wings obviously put a good deal of effort into their campaigns. There were many other Wings, too, where hard work was indicated; and the whole drive had a stimulating effect which it is hoped will be carried through into future activities of the Association.

NEWSPAPERS OVERSEAS

A plan to send newspapers by air to the R.C.A.F. formations overseas was approved at the meeting of the National Executive Council, and the first shipments were sent immediately afterwards by R.C.A.F. aircraft. The papers were picked up at various cities across the country and forwarded

The annual Christmas party of No. 250 Wing. About 200 children attended. They are shown here watching the movies.

to Langar, North Luffenham, and Gros Tenquin.

The service has been temporarily discontinued but will begin again as soon as the R.C.A.F. resumes its regular trans-Atlantic flights.

P.A.F.A. JOINS ASSOCIATION

The Polish Air Force Association in Canada has amalgamated with the R.C.A.F. Association, and three new Wings of the R.C.A.F.A. have come into existence. They are No. 430 (Warszawa), Toronto; No. 431 (Krakow), Hamilton; and No. 432 (Lwow) Oshawa. Another Wing is expected to be formed shortly in Montreal.

Group Captain Stanley Olszweski, of Dunnville, Ont., president of the Polish A.F.A., attended the fall meeting of the National Executive Council as an observer, and it was decided at the meeting that the former Polish airmen would be welcome as members of the R.C.A.F.

Originally, the Polish Association was formed as a branch of the Royal Air Forces Association

Miss Yvonne Thibodeau entertains at a social evening of No. 408 Wing.

but, as intimate contact was difficult to maintain at a long distance, a separate Association was formed in Canada. All regular members of the Polish A.F.A. served at one time with the Royal Air Force, and therefore are entitled to become members of this Association.

In joining the R.C.A.F.A., the Polish-Canadians emphasized that first of all they were Canadians. Group Captain Olszweski said: "Our members came to Canada in the first place because we thought it was the best place in the world right now in which to live — and we want to be good Canadian citizens."

The amalgamation brings upwards of 500 new members into the Association, and more are expected to join other Wings throughout the country.

MARITIME SUNDAY FLIGHTS

Word from No. 250 (Saint John) Wing is that they intend to carry on with their sponsorship of Sunday afternoon flights again in the spring, after discontinuing the programme for the winter months. This project has been highly successful right from the beginning and is an outstanding example of a Wing supporting one of the principal aims of the Association, namely, the promotion of interest in all phases of flying.

A total of 1,416 passengers were carried during the period of operation of the sight-seeing flights in DC-3 aircraft of Maritime Central Airways. Approximately 75% of the passengers were making their first flights, so the Saint John Wing can take direct credit for getting well over one thousand people into the air who otherwise would not have had the opportunity to fly.

Fares were kept to a minimum in order to encourage the largest possible number, but, even at that, the Wing made a profit of $160 during the 14 weeks of operation. It is learned that other Wings in New Brunswick are planning to run similar pleasure-flight programmes next summer.

RESTORATION OF CHURCH

Members of the Association have been invited to contribute to the restoration fund of St. Giles-in-the-Field Church in London, England. This

Executive of No. 109 Wing. Seated (l. to r.): H. Stroud, R. Woodworth, M. C. Oxley. Standing (l. to r.): W. Dunstain, H. G. Munroe, President U. Benjamin, H. Naugler, W. Mitchell.

church was used frequently during the war for R.C.A.F. special services and is well known to many former members of the Air Force. The rector of the church points out that a large sum of money is required to carry out the proposed restoration work and that any assistance the Association can give will be appreciated. A portion of the money required has already been raised, but more is needed.

Those wishing to contribute to the fund are asked to send their donations to Air Vice-Marshal A. L. Morfee, National President, R.C.A.F.A. Headquarters, 424 Metcalfe Street, Ottawa.

WITH THE WINGS

Red Deer. The first issue of the "Central Alberta Air News" has come off the press and is a very worthy effort. Published by No. 703 Wing at Red Deer and edited by B. E. Crane, "Air News" is a twelve-page magazine devoted to Group, Wing, and National events of interest, along with excellent editorials and news from R.C.A.F. Station Penhold. Congratulations to Mr. Crane and all concerned for a fine publication.

Montreal. No. 306 (Maple Leaf) Wing is keeping up its good work in providing amenities for R.C.A.F. personnel overseas. A recent shipment of parcels was sent by air to the Air Division in France for distribution, and word has been received from Paris that they were well appreciated.

Brandon. Several successful social affairs have been held by the Brandon Wing in their new

Officers of the Ground Observer Corps discuss the project with members of No. 424 Wing. Seated (l. to r.): H. G. Williams, G. Ob. C. regional supervisor; Flying Officer N. G. Bishop; W. G. D. MacMillan, Wing president. Standing (l. to r.): Flying Officers Benedict, C. Sandelin, W. F. Nelson, R. E. Woods.

quarters at the airport. A good deal of work was involved in getting the building in shape for the winter season, and congratulations are in order for President Terry Penton and the Wing as a whole.

Kitchener-Waterloo. The winner of the television set raffled by No. 404 (Kitchener-Waterloo) Wing was decided at a drawing held during the Christmas stag party. The raffle brought approximately $1400 into the Wing treasury. A near-record number of members and guests attended the affair to make it a highly successful evening.

London. The annual meeting of the London Air Force Association was held at club quarters, and D. A. Wilson was elected President for the year.

Halifax. Members of Nos. 100 (Bluenose) and 101 (Atlantic) Wings of Halifax were on hand to bid "*bon voyage*" to R.C.A.F. officers and their families who sailed for England aboard the Cunard liner "Samaria." Among those sailing were Flying Officer and Mrs. R. S. McCartney. Bob, former secretary of the R.C.A.F.A. who recently rejoined the Air Force, has been posted to the Air Materiel Base at Langar in England.

Winnipeg. The Winnipeg Wing is now producing its own bulletin, and the first issue appeared recently. It contains a brief history of the Wing and of the work done by it since its inception. Incidentally, the Winnipeg Wing now has its own permanent meeting-place a down-town R.C.A.F. building, and mess facilities are available on regular monthly meeting nights.

New president of No. 302 Wing, A. Lavigueur (right), receives gavel from retiring president, W. N. LeGallais.

ENTHUSIASM

Enthusiasm is the leaping lightning, not to be measured by the horsepower of the understanding.

Ralph Waldo Emerson.

Unwilling Parasite

By Ex-LACW M. I. Horton (R.A.F.)

(In this article, reprinted by courtesy of the Editor of England's "Air Mail", Miss Horton recounts a wartime adventure with a Spitfire. One of the members of the Editorial Committee of "The Roundel", who was serving with the R.A.F. at the time the incident happened, assures us that her narrative contains not a word of exaggeration.—EDITOR.)

AT HIBALDSTOW, where I was working as a W.A.A.F. flight-mechanic in 1945, it was a flight order for one of the ground staff to sit on the tail of each Spitfire as it taxied from the dispersal to the distant runway in rough weather, to prevent the wind from tipping the machine over on its nose.

On this occasion my pilot did not receive the order "Rough Weather Procedure," which was issued from Flying Control, and, not having seen me jump up on the tail-plane while the other mechanics were removing the chocks, he took straight off instead of waiting for me to descend upon reaching the runway.

The violently increased rate at which we were taxi-ing first told me that something was wrong, and I flung myself across the fuselage and grasped the elevator in an attempt to attract the pilot's attention. I was unable to move it.

Events move fast with a Spitfire, and there seemed only a panic-stricken moment before the cessation of the rushing sensation of travelling along the runway told me that we were actually airborne.

* * *

Newbolt knew what he was writing about when he described the traveller, doomed to certain death from the brigands into whose hands he had fallen, as spending his last hours "in a dream untroubled of hope."

At that moment I was not merely in great danger. I was, to all practical purposes, already dead.

I had no hold other than that of three fingers which I had managed to get round the cutaway portion of the tailplane, there was no possibility of attracting the attention of either the pilot or anyone on the ground, and it seemed so certain that I must roll off the fuselage the first time the aircraft banked that I did not even trouble to wriggle farther across it to balance the weight of my heavy boots.

It was at this moment of realisation that fear left me.

My first coherent thought was, "I've muffed it for the last time — better me than most people, but I wish it hadn't happened!"

Nothing much stronger than that. The grimness of any sudden severance from a normal routine, a passing regret — you may laugh if you like, but it's true — that my

N.A.A.F.I. cigarette and chocolate rations would be wasted, and a deeper regret that I could not leave a message to tell my mother how easy death had been.

Strangely, although I realised that my family would feel my loss, there was no feeling that I was leaving them. Of anxiety for what was to come there was none, though I have never been any braver than the next person, and I am a funk when it comes to climbing ladders or riding bicycles.

* * *

The force of the slipstream must have been terrific, for there was nothing but that and the precarious hold of my finger-tips to prevent me rolling forward, though the fin made it impossible to slip over the tail of my mount. Before many minutes there was a sensation of blood rushing to my head, a feeling of something pressing me down, and a blackness before my eyes, and I thought with a mild sense of gratitude that death was coming in the easy form of a "black-out."

There was never any sensation of the mist clearing. My next recollection is of a perfectly clear head and an entirely fresh line of thought. The doctrine that good is the source of all power, and evil a figment of our imagination, had long appealed to my reason — now, my own voice seemed to be saying in my ear, was the chance for me to prove it.

Steadily the idea that there was nothing to harm me took possession of my mind, helped by the clear serene sky, and I knew I was safe whether the flight was to last ten minutes or a couple of hours.

Shortly afterwards I felt the machine drop — so gently that I did not realise the cause until the returning sensation of speed proclaimed that we were back on the runway.

As we slowed down I slipped off the tailplane, ran back for my beret which had remained faithfully on my head until we reached the ground, and made my way back across the grass to the dispersal, while the pilot taxied home round the perimeter road, still unaware why his controls had refused to function.

How, in the circumstances, he achieved that perfect landing I have never understood, but he must have had a harrowing ten minutes in the air. On leaving the runway he had found his elevator almost unserviceable, and after struggling round the circuit at 600 feet had radioed for permission to land.

The Flying Control Officer, who had only that moment been informed by the flight office of my predicament, judged it safest not to tell him of the presence of a passenger, so it was not until he walked indignantly into the flight office to report his aircraft u/s that he learnt that he was the victim of an unusual case of "parasite drag."

Whatever his feelings, he was off with the next detail, and I should have accompanied him — to the beginning of the runway *only* — if he had not implored me, as I prepared to scramble up: "I know you don't want to lose your nerve, but *please* don't come on my tail again!"

THE FORMULA

We peddle this strictly moral story from Ottawa. A well-known senior officer noted for his energy and his rapid promotion in the service, was asked to give a pep-talk to recruits.

He had what he was going to say in mind, but not the oratorical approach to it. As he went through the swinging door into the auditorium, he noticed the word "Push" on the door. This gave him the inspiration he lacked. The key-note of his speech was "Push."

At the end of it, he wound up with this flourish: "If you men want to know how to get ahead in the service, just read and act on that one word written on that door." He pointed dramatically to the swinging door.

The word he had seen on the outside as he entered was "Push," but the word which he pointed at on the inside was "Pull."

(*The Peterborough "Examiner": Can.*)

N.A.T.O. DEFENCE COLLEGE

(Condensed from "External Affairs": Dept. of External Affairs, Can.)

IT WAS GENERAL EISENHOWER himself who, in 1951, recommended the establishment of a N.A.T.O. "staff college." The idea was unanimously approved by the N.A.T.O. governments. It sprang partly from the then Supreme Commander's desire to bring together public officials and military officers from all 12 member countries with a view to training senior personnel for the inter-allied forces. The main purpose, however, was to make possible the working out of a common doctrine, an essential prerequisite to organized activities of any kind, and to bind together in friendship and understanding the personnel of the various agencies that were to play a part in the efficient functioning of the forces which General Eisenhower had agreed to command.

The N.A.T.O. Defence College comes directly under the North Atlantic Military Committee and is headed by Admiral Lemonnier, of France. As commanding officer of the College, Admiral Lemonnier has four principal lieutenants: an American brigadier-general, a general of the French Air Force, a British naval commodore, and an American diplomat. These, in turn, have a number of assistants who maintain liaison with nine committees, each of which has its own premises and is made up of part of the group of some fifty students sent to the College by the ten participating countries. Most of the students have the rank of colonel or embassy counsellor or the equivalent. Four of them are Canadians.

Students do not board at the College, but receive breakfast and lunch at a special mess in the College operated by the French Navy. Thus, they are able to continue at lunch, with the guest speakers and the experts accompanying them, discussions begun during the morning. They are encouraged in every way to meet after working hours; for instance, receptions and evening parties are offered at the mess, in order that students may become better acquainted with one another, which is one of the College's chief aims.

Every morning, students and instructors meet in the auditorium to hear a lecture delivered by a civilian or a military personality, who may be an ambassador, a chief of staff of one of the participating countries, a commander of inter-allied forces, a professor, or an outstanding writer. Topics discussed include N.A.T.O. organization, military, political or economic problems of general N.A.T.O. interest, and questions claiming the attention of the respective member countries. The lectures are followed by general discussions.

In the afternoon, a specific problem, set by the College authorities, is discussed by the committees, a new one being studied every third or fourth week. In the course of these meetings, students become better acquainted with one another and learn to work out recommendations expressing a common appraisal of the facts. The solutions suggested by each committee are examined by the College authorities, and the best, or most challenging, is selected for general discussion.

When a new problem is brought up for discussion, membership changes in the various committees, so that every student has an opportunity to work with each of his colleagues. Students are called in rotation to act as chairmen or secretaries of the committees.

The curriculum requires that the courses given, together with the proceedings of committees, be supplemented towards the close of the term by visits to various countries or to the N.A.T.O. forces.

The languages used for instruction are French and English, and lectures in one are translated concurrently into the other.

In a speech delivered at the opening ceremony of the College, Admiral Lemonnier described its value thus: "We shall become used to thinking and working together as a team, so that in future each of us, confident of reconciling his own nation's interests with the general interest, will contribute in his particular sphere, with all his strength and spirit, to increasing the efficiency and strength of this N.A.T.O. organization, which is a stage on the road travelled by the United Nations."

Germanium . . . Unlimited?

(Condensed from a Canadian General Electric news release.)

WE CALL IT the unknown element because the engineers and scientists who work with it say that the surface of its potentialities has hardly been scratched. Those who know it say that it may very likely have a future significance comparable to that of the electronic tube.

Germanium is an element, number 32 in the list of 96 chemical elements. It is metallic, and a little lighter than zinc or iron. In a pure state it has the grey sheen of silver. It costs about the same, by weight, as gold, but because such a little bit will do such a big job, it is, in fact, fairly inexpensive to use. In many cases, a tiny piece, worth only a fraction of a penny and no larger than a match-head, will serve the required purpose.

In electronics, the handling of electrons is the most important factor. Germanium has certain properties which enable it to handle electrons efficiently and cheaply. Because it is useful in such small quantities, it promises extraordinary savings in the size and weight of the equipment in which it is used. Because it is an element in itself, with no little parts to go haywire inside it, it promises to be practically indestructible, if properly sealed against contamination. Because of all these factors — its cheapness, its efficiency, its usefulness in small sizes, and its dependability — it promises not only to make possible major improvements in existing electronic equipment, but to lead to the development of new equipment as yet undreamed of.

The weight and the physical and chemical characteristics of germanium were deduced in 1871 by a Russian chemist named Dmitri Mendeleyev, the formulator of the famous periodic table of elements. He called it "ekasilicon." Fifteen years later, one Clemens Winkler, of Germany, discovered it, and named it after his native land.

For many years germanium had little or no value, while scientists and engineers were dazzled by the properties and possibilities of more glamorous metals, like copper, which could carry a great load of electricity with fabulous rapidity. The search for smaller, more efficient electronic components, however, led to the rediscovery of germanium and to investigations into its properties during the Second World War.

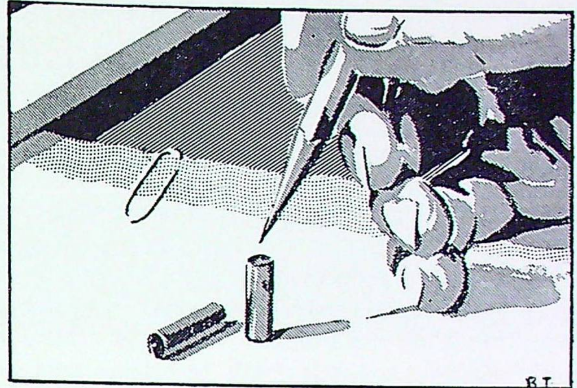
Most germanium is found in chimneys. It is deposited on smelter chimney flues as a waste, in the refining of lead, titanium, and zinc. An unusually large amount is found in industrial chimneys in England, because English coal has a large proportion of germanium. Very little germanium is mined because it is more easily obtained as the by-product of industrial operations. However, substantial deposits of germanium ore have been found in Africa.

The dust is collected from chimneys, refined to germanium dioxide, and delivered as a fine white powder to a plant which reduces the germanium dioxide to almost pure germanium ingots weighing about two ounces. The ingots then pass through several further complicated refinement processes, the end product of which are small germanium crystals.

Germanium is used in three different types of electronic parts. They are, the germanium or "whisker" diode, a throwback to the old "cat's whisker" crystal radio sets; the germanium recti-

fier, the newest commercial application of germanium; and the transistor, an unimpressive-looking little gadget which holds many of the germanium potentialities in its tiny bulk.

The transistor is a bit of wire and plastic, usually about half the size of a paper clip. It can, however, be made as small as a match-head, or smaller. Mounted in this bit of wire and plastic is a tiny speck of almost pure germanium, which harnesses electrons to do work which they normally do in the vacuum of an electron tube. The transistor saves space, is impervious to shock or vibration, and is eventually expected to be cheaper than the corresponding vacuum tube. Several thousand transistors can be operated on the same amount of power needed to operate a single vacuum tube used in radio or television sets.



. . . half the size of a paper-clip.

Spectacular developments are foreseen by the engineers who have been close to the transistor situation. For example, the fictional wrist watch two-way radio with which Dick Tracy, in the well-known comic strip, has been sleuthing for years, may become a reality. Using transistors, engineers have already developed a tiny experimental transmitter small enough to fit into the vest pocket. A personalized radio, comparable in size to a wrist watch and running indefinitely on one set of batteries, is, therefore, in sight. On the industrial front, the giant computers which use thousands of electronic tubes in the solutions of complex mathematical problems may, with the use of transistors and diodes, be miniaturized from the size of a room to the size of a desk.

In the military field there is keen interest in the development of transistors. Nowhere else are size and reliability so vital as in military electronic equipment — in the radar, communications, and control systems of military aircraft; in the walkie-talkie; in the radio sets which take such a beating in giant tanks. Besides saving space, transistors, having no internal parts to shatter or jar loose, can stand up to the rigorous demands of combat duty without danger of failing.

But the transistor has its drawbacks. Its use at high frequencies is limited at present, although engineers are constantly advancing the upper limits. Its resistance to heat is none too good. It has not yet been adapted to assembly-line production. Nevertheless, the electronics industry regards it as the glamour baby of the germanium field.

One captain of industry said recently: "Now, when we are standing on the brink of what may well be the next phase of electronics' growth — the era of germanium — it is difficult to predict all the effects it may have, to foresee the magnitude of growth it portends, to conjure up all the new products and techniques that may emerge, or to predict their effects on marketing and industry. Overstatements may now prove to be pale shadows of the realities to come!"

SPIRIT OF LEADERSHIP

The spirit of leadership appears in all walks of life, but most of all in the career of arms, because there the strain, the risk and the responsibility are higher than anywhere else.

Cyril Falls, Chichele Professor of the History of War, Oxford University

Seniority, Sex and Salary

By Captain Dave Kahn

(Reprinted from "The Air Line Pilot", the journal of the U.S. Air Line Pilots' Association, this article offers a humorous analysis of the three major factors in an airline pilot's career. —EDITOR.)

TO AN AIRLINE PILOT there are but three factors in life worth consideration. When a group of airmen are gathered for "comprehensive discussion," this triumvirate is the basis of their combined thought. Seniority, sex and salary. Each rational moment demands reflection on the three S's.

To understand better the thinking of a pilot, let us explore his physical make-up. He wears number twelve shoes, has a waistline of 40 inches, and a cap of six and seven-eighths to match. He has thick wrists and a low hair-line (if not bald). He is wide between the shoulders and narrow between the eyes. Since flying tolerates no error, he is an egotistical perfectionist. His uniform varies, depending upon the whims of his chief pilot. (The one currently at the helm). If the chief happens to be obese, all of his pilots wear double-breasted uniforms to cover up his (the chief pilot's) executive paunch. If the chief is a thin individual, all of the boys under his command wear padded uniforms draped with patch pockets which bulge with a conviction of robustness.

The uniform is unimportant, since it changes with each chief pilot. The victim is the individual line pilot who has to foot the bill for his chief's uniform tastes. What is important is the effort the average line pilot goes to in order to create an illusion. For example — a pilot who is low on the seniority list will take a new cap and stomp on it until there is no mistaking (in the public's eye) that he is a veteran. He refuses to sign his name unless his pinkies are covered by a pair of expensive pigskin gloves. His white scarf, of the finest parachute silk, screams that he is "an ol' air-mail pilot of open-cockpit days." When closed cockpits became the order (20 years ago) it broke many hearts. No longer can the fly-boys sit around hotel lobbies with goggles dangling from their necks (Lindbergh style). As a substitute, they now wear oversize sunglasses, day and night, with the case conspicuously displayed on their belts. Some have felt the Roscoe Turner influence, as evidenced by the waxed moustache. These aren't hard to spot — some wear Russian type mosquito boots. They smoke pipes. You may have heard that they are "over the weather pilots"— when the weather is over, they fly.

It's Tough

Pilots do their job well. They have to in order to survive. More than in any other field of endeavour, it's the survival of the fittest. He must be cagey enough to overcome the built-in hazards of the 'plane manufacturers. He must outwit airways traffic control to avoid icing, thunderstorms, and mid-air collisions. He must declare his use of emergency authority when any action of his is contrary to regulation. He must have the ability to sustain flight with two engines out, when it is a known fact that 'planes crash with lesser troubles (strong arms usable for flapping are helpful). He must stand trial because of the noise his airplane makes while the airline installs jet stacks. He must be able to fly better than either his check pilot or CAA inspector if he is to keep his ticket and job. He must endure the reaming of a physical exam

every six months. His very code of life is fashioned by his Management's Policy and Procedure Manuals. His lot is not easy or simple. When or if he shows signs of weakening under this onslaught he is given the choice of being fired or resigning. Big choice. If pilots are scarce, the Company may try to save him with mental gymnastics as prescribed by the Company psychiatrist. Small wonder his thoughts recede to the fundamentals of his life — seniority, sex and salary. As has been stated, pilots usually discuss the three S's in hotel lobbies where the public may well benefit from their observations.

Brotherhood?

Seniority may not be important to the layman, but when a fellow pilot goes west a pilot will check the seniority list to see how many files he has moved up. To a pilot, it means choice of domicile, choice of runs (notwithstanding schedule clerks to the contrary), and choice of equipment flown. Seniority is jealously guarded. Friends have become bitter enemies over seniority rights. In checking into a hotel, seniority usually governs the choice of beds, bathroom utilization, and affairs of the heart. There have been cases in airline history where a flying executive (senior) and pilot (junior) were squiring the same dame.

With sex, it's the end result that counts. Most pilots fancy themselves as great lovers. The facts reveal many discrepancies in that line of thought. Any hostess will tell you that the most useless thing on a date is a pilot with a twenty-year pin.

Pilots approach sex in much the same manner as they execute an ILS procedure — fast and by the book. Being victims of habit, they are trying to conform to schedule.

It may appear as a contradiction, but pilots' wives do have children. Lots of them. It is a mystery how, since most pilots are home very little. The time they do spend at home is divided between golf and looking in the mirror.

Salary?

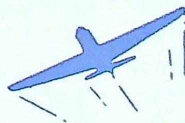
Probably the most abused of the three S's is salary. From the time a pilot first gets on the seniority list until he dies his salary is never quite adequate to keep him in the manner to which he would like to become accustomed. His pay check never reflects what he believes the industry is getting out of him. He blasphemes the "rock-headed" negotiation committee that signed his working agreement. Having never read his contract, it is difficult to explain his raises to him. Because his representatives spent more than two years wresting a few additional dollars for him is more proof that he was sold down the river.

He will logically point out that he can't lay away for his old age. The Company pension plan, which retires him at age sixty, leaves him only three years to live by any insurance company's records.

These tales of woe could go on indefinitely. Perhaps this description of the men who man our aircraft will give you readers a working knowledge of what makes them tick, if they do. I trust it will cause some tolerance when they may appear eccentric. He may be classed as a frustrated egotist. Nothing ever seems perfect. His job requires precision and perfection and yet his operations are cluttered with uncertainties, weather irregularities, equipment failures, and strict censorship. Hence: This breed of pilot.

A Parting Thought

It has been asked to which of the three S's the pilot attaches the greater importance. The answer seems to depend upon the individual pilot. I have yet to see the twenty-year man who wouldn't grudgingly, but willingly, trade a few numbers on the seniority list to recapture the urges of yesteryear.



OPERATION "BULL MOOSE"

By LAC K. V. Hoy, R.C.A.F. Detachment, Watson Lake, Y.T.

THERE WAS A TIME, I am told, when moose were both plentiful and easy to find in the land of the midnight sun. In these days, however, the hunter must be an amateur detective, a scientist, a navigator, a gunsmith, and a survival expert. Last fall I made my first and last moose-hunting expedition. On October 11th we left our happy little home at Watson Lake with cries of "Moose ho!" echoing from our lips. Our purpose was to return with a moose or to exhaust ourselves trying. We exhausted ourselves trying.

Word had been received that moose had been sighted at the "bomb range"— a group of dilapidated buildings that had been used in previous years as a practice spot for bombing. The road to the range is a corduroy affair that was made for amphibious tanks only, not for a mere weapon-carrier such as ours. For two hours we ploughed along it without seeing a sign of any animal life whatsoever. However, just before we reached our destination, we saw fresh moose tracks, and once again the welkin rang with the cry of "Moose ho!"

We chose one of the least ruined of the buildings and set about making it temporarily habitable. It was no easy task. By the time we had arranged all our provisions and sleeping bags, night had fallen, and we were all tumbling over each other in the dark. The master-mind of the expedition, Cpl. Grieves, remedied the situation by making a fire in an empty gasoline can. Then we began to prepare the evening meal.

LAC Bonnier, who was elected as cook, produced a frying pan that was big enough to cook three-quarters of a moose in. As no name has ever been assigned to the dish he prepared, let's call it a goulash. The recipe was, as far as I remember, approximately as follows: two tins of corned beef, 1 tin of corn, ½ lb. of butter, and lots of patience. Helped out by smoke, burnt toast, and coffee strong enough to melt a spoon, the resultant meal would have made even a starving wolf think twice. None the less, we devoured it; and, after a final cigarette, we sought our sleeping bags.

Here, another problem confronted us. Cpl. Grieves, while he had omitted nothing in the way of food and first aid kits, had forgotten one sleeping bag. But again his ingenuity triumphed. By opening two sleeping bags fully and placing one on top of the other, he constructed a single vast bag capable of containing three men. Eventually, leaving our cook to enjoy the luxury of the single bag, the other three of us climbed into the communal sack. Our fire died out and we settled down to sleep.

But sleep did not come quickly. The local fauna seemed determined to deprive us of our well-earned rest. At about eleven o'clock an owl came and perched on top of the lookout tower, whence he began to issue an endless series of melancholy calls to his mate. We stood it as long as we could, until finally we were forced to intrude on his love-life with a well-aimed oil-can. After this disturb-

ance, we had not been asleep for more than half an hour when the lonesome howling of a coyote roused us once more, and we had to listen to his weird serenade until sheer exhaustion claimed us.

After a restless and uncomfortable night I awoke to find myself confronted by what will always remain one of the great mysteries of my life. Some time during the night, without any subsequent recollection on the part of either of us of having done so, LAC Bonnier, who was originally occupying the single bag, had changed places with me.

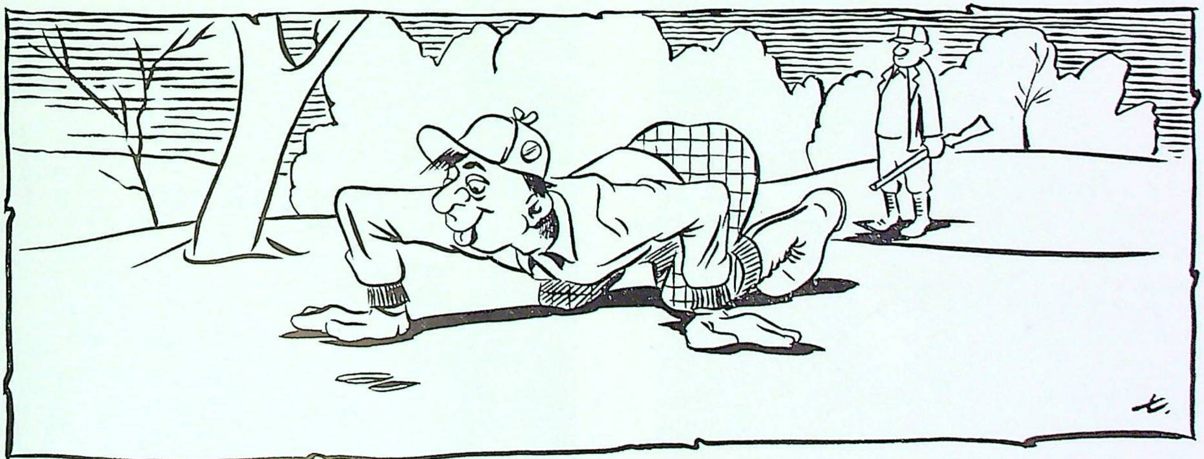
After a nauseating breakfast (cooked by myself) of chicken soup and toast and honey, we left our base at 0600 hours and split into two groups. LAC Bonnier and I followed the creek, while Cpl. Grieves and LAC Cleveland skirted the lake. We were to meet at the creek mouth at the south end of the lake at mid-day, to have lunch and compare notes. I have not even yet heard all the gruesome details of Grieves' and Cleveland's adventures that morning. All I know is what happened to Bonnier and myself.

* * *

Travelling on opposite sides of the creek, we found fresh moose tracks within a quarter of a mile of our starting-point. Following them eagerly, I threaded my way further into the bush to try to avoid the brush which grew close to the creek, only to find even more brush and jackpot after jackpot. Pushing even deeper into the bush, I encountered snow to the depth of five inches. Deciding that dense brush was better than ice-cold feet, I retraced my steps to the creek, where I picked up another fresh moose track and began blundering on with renewed anticipation.

About four miles from our starting-point, I saw Bonnier waving at me from across the creek. He obviously wanted me to come over and join him. I searched until I found a spot where the current was not so strong and prepared to wade across. It was a cold and dismal business. Losing one sock, and narrowly escaping being swept down stream by the current, I managed eventually to reach the other side, soaked up to the chest. There we managed to get a fire going, and after two hours I was dried out. We then resumed our journey together.

A mile further on, Bonnier slipped on a log and fell into a muskeg hole, spraining an ankle. It was then that we decided that the mouth of the creek was too far off to reach before dark. We about-turned and headed back to our point of departure. The going was even rougher than before: we had not eaten since six that morning, and Bonnier's ankle was beginning to swell. In about two hours we were back on the spot where we had built the fire; after another hour we were getting very tired and began to doubt if we could get back before dark. Nevertheless, we kept on,



resting every half-hour. An hour or so before nightfall we heard the engine of the weapon-carrier . . . and before too long the daring moose-hunters were enjoying a peculiar meal of bologna, honey, and pears. Grieves and Cleveland, we found, had had no better luck than we. Weary and disappointed we started for home.

We had gone a mile or thereabouts, when we got stuck in a mud-hole and were unable to move either backwards or forwards. Since no purpose would have been served by the four of us remaining there, Grieves and I prepared for the twenty-mile walk home, leaving Cleveland and the crippled Bonnier to be picked up later.

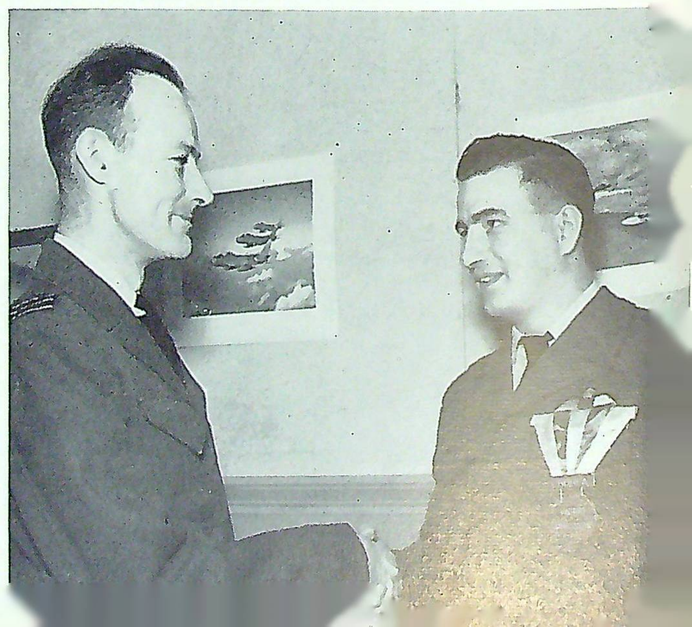
We left the truck at 1800 hours. I shall not attempt to describe in detail the misery of that forced march — hour after hour along a muddy road, with thousands of washouts to sidestep, and no moon to light our way. Suffice it to say that by the time we had reached the D.O.T. transmitter site, a full fifteen miles from where we had left the weapon-carrier, we were pretty well disgusted by the thought of anything even remotely resembling a moose. At the transmitter site we rested — perhaps I should say "collapsed" — before continuing our trek. But the Fates had already relented. The reader can imagine our joy when LAC Kelly came driving up with a truck. We had told the boys at base that we would be back by 1600 hours that afternoon; and when we weren't, they had come to look for us. There was nothing that we could do that night about rescuing the rest of our unlucky safari; so we returned with Kelly and made arrangements for the "cat" to go and haul it out the next day.

On getting home, the first thing I did was take a shower. While doing so, I discovered to my consternation that my feet had a peculiar brown tinge to them. This I tried — but failed — to remove with a scrubbing-brush. I later learned that I was the victim of friction burns caused by excessive walking. From the shower I hustled to the mess hall, where I downed six eggs and two fish in less time than it takes to tell.

The "cat" left early next morning on its mission of mercy, to return in the afternoon with two more tired, cold, hungry, and utterly disillusioned hunters. I speak for all of us when I say that, henceforth, we are sticking to rabbits and grouse.

KOREAN DECORATION

Flt. Lt. J. W. Santarelli, pilot of the first R.C.A.F. North Star to land in Korea, is congratulated by Wing Cdr. D. A. Willis, D.F.C., on receiving the much-coveted copper gong at A.F.H.Q.



RED BLANKETS

By Mary Mark

(Miss Mary Mark, whose article in our issue of September 1951 stirred up so many memories in ex-W.D.'s, recently paid a visit to Camp Borden. She here records for us her impressions of the hard lot of today's airwoman on that storied Station.—EDITOR.)

NOT TO EVERY VETERAN languishing on civvy street comes the opportunity to step back into the dear old Service for a day — with no oath of allegiance attached. Out of the bright October's blue, however, I found myself looking in on the Technical Training School at Camp Borden to see what the 1952 airwoman was up to. After an exile of more than five years, I have to admit to a slight apprehension as to what might have happened to the Air Force in my absence. Apparently I need have had no misgivings. Everything took on the old familiar pattern at once, and the years melted away as we fell in with Station routine. In fact, I could easily have persuaded myself that I was back again in the fold, save for the vexing evidence on all sides that this battledress-slacks outfit the women are now wearing as a work ensemble is a smarter line than the pre-peace issue.

It was gratifying to come upon Camp Borden at last. Somehow all my postings in the old days managed to bypass "the birthplace of the R.C.A.F." With two great wars and the peacetime interval behind it, the unit reverted in 1946 to its former status as No. 2 T.T.S., and today it is the Service's major centre for producing the skilled tradesmen who keep the Air Force flying. In December 1951, the first airwomen were enrolled here at the only training school in Canada for instrument, electrical, and photography students. The first airwoman graduated in March 1952.

With the kind permission of the Commanding Officer, Group Captain J. D. Syme, M.B.E., we were given access to hangars, class-rooms, and all corners where the airwomen trainees were at work.

At the Photographic Training Unit we found them in the various stages of their course of Photography (Ground). Women are not included in training for aerial photography as yet, the chief reason given being that most of the equipment is too heavy for them to handle. The Photography (Ground) course is of nineteen weeks' duration, and when it is completed the students qualify in all the routine duties that may be expected of Air Force photographers, from taking shots in any

LAW Margaret Stewart, who accompanied the writer during her visit.

(L. to r.) Airwomen "Jiggs" Calford, D. Munro, and V. Orchard — off duty.

A.W.1 Yvonne Gannon types examinations for the trainees' finals.

given situation, to developing and printing same, and of course they must have all the necessary background knowledge of laboratory work.

As a convincing touch, the Station photographer who accompanied us on our tour was LAW Margaret Stewart, who handled her Speed Graphic with a confidence that bespoke considerable efficiency. LAW Stewart, one of the first group of airwomen to enlist in July 1951, admits to having signed up as P.&R.T.I., but her inherent interest in photography led her to remuster. She is one of the very few women to date employed as full-time photographer.

Along Hangar Road we looked in at this hangar and that, to discover just what went on by way of instruction in the instrument and electrical field. We found that the largest number of airwomen trainees belong to these two groups. Working side by side with student airmen, they take exactly the same instruction, and show a real aptitude and enthusiasm for the trades. The electrical courses average fifteen weeks, the instrument courses thirteen weeks. On posting from Manning Depot, the airwomen put in three weeks of basic training during which they are familiarized with equip-

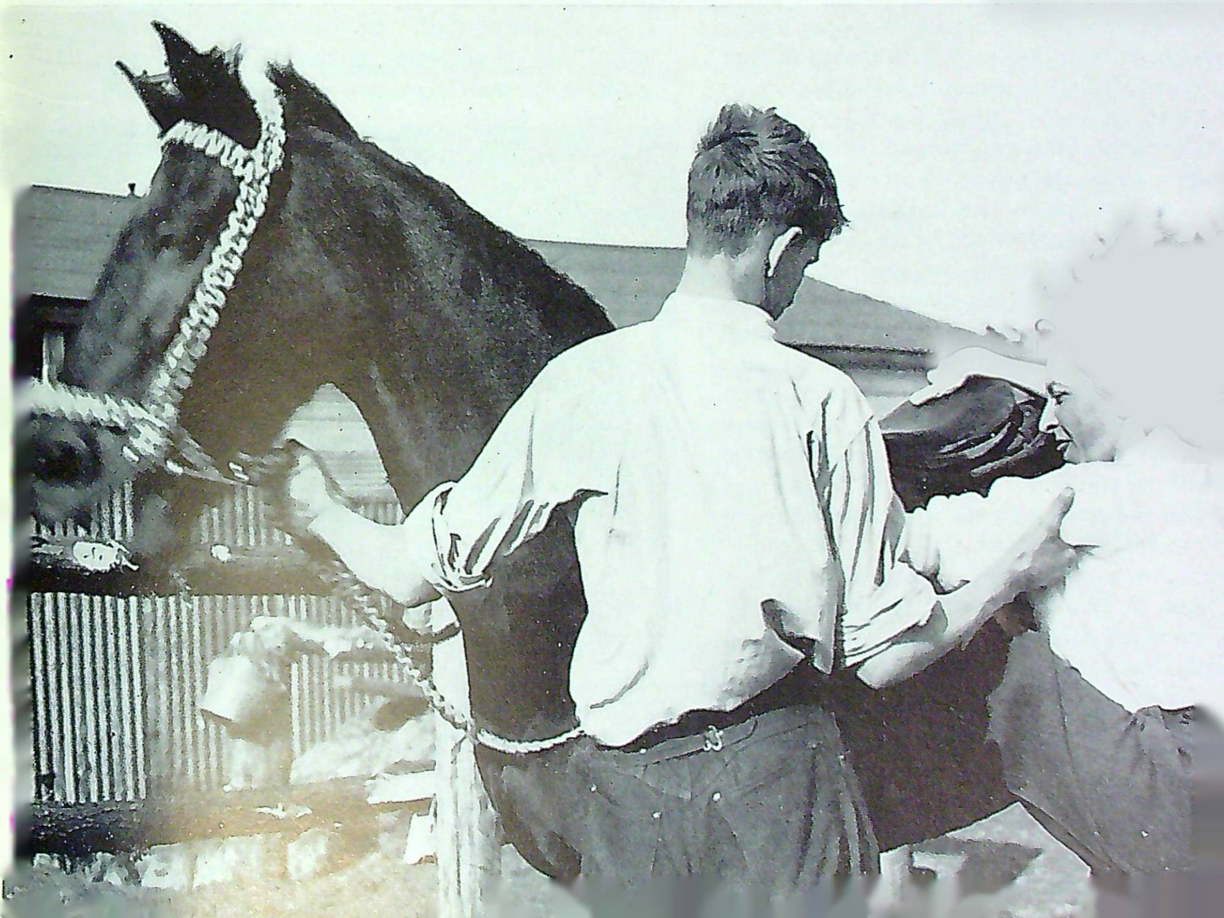
Airwoman S. Dodsworth, photo trainee, weighs chemicals.

ment, hand tools, and shop practices. The remainder of the course is spent in more intensive business, hours of lectures in the hangar class-rooms, and practical work which demands the donning of coveralls. Added to this are the evening hours in quarters spent poring over text and *précis* in preparation for the regular Friday tests. Progressively through the weeks, groups of instrument and electrical technicians finish their allotted courses, and the graduates are ready for trade employment on Air Force Stations across the country.

The girls are posted, as far as is possible, to units accessible to their homes. I was interested and rather surprised to learn that, in peacetime, an effort is made to do this for all personnel. Truly these trainees at Borden are a representative lot of Canadians — some of them new Canadians. Vancouver rubs shoulders with Glace Bay in the cockpit of an instructional aircraft; Calgary and Montreal share a room in quarters; Winnipeg and Digby may be tennis partners; Toro[illegible] Saskatoon home for a week-end.

Our guide for the afternoon was Pilo[illegible] Jackie J. Rice, whose service ribbons [illegible] her at once as one of the old stalwarts. In [illegible] was on the first W.E.T.P. stenographers' [illegible] 1942, and served at flying Stations in Alb[illegible] at Washington, and later at Overseas H[illegible] ters, London. Between "wars" Jackie [illegible] time at the University of B.C., spec[illegible] English, history, and languages, and [illegible] as a Bachelor of Arts in 1951. She joined [illegible] Squadron (Auxiliary) in Vancouver, but [illegible] resist the call to arms in 1952. This is qui[illegible] standable when one realizes that the [illegible] in her blood and that she has family [illegible] live up to. Her mother served before h[illegible] W.R.A.F. in the First World War, and he[illegible] was an R.C.A.F. pilot in the last do and [illegible] Air Cadet Officer in Vancouver.

Airwoman Dorothy Plester mounts one of the horses at the Riding Academy.



Cpl. A. Gordon explains Canso wiring to A.W.2 O. A. Derzak and A.C.2. D. Best

There are, of course, a number of airwomen on the staff of the Station as well as those under training. They represent the usual indispensable trades — medical assistants, clerks administrative, accountants, and supply technicians ("equipment assistants" to us old-timers).

A quick peek into the modern two-storey building that is the women's quarters reveals the fact that the current W.D. has gone a bit plush on us — at least to the extent of small attractive rooms shared by several women, instead of the long barrack-room with its rows of double-deckers. There are forty rooms in the building, with one single bed and one double-deck bunk in each, and a basin with running water — no less! As I gazed awestricken at the wardrobe space and chests of drawers, bitter memories assailed me of crowded lockers spilling forth their overflow upon the place beneath. Bright curtains, lamps, pictures, and rugs, add to the homey atmosphere, but I was utterly fascinated by the sight of the colourful *red blanket* on the bed. What, may I ask, has become of the old grey number that was formerly the very fibre of the Air Force?

The usual laundry facilities are available, but there is now a laundry room (with washing-machine) on each floor. The building is steam-heated, with radiators in every room and in the halls, and there is always plenty of heat and hot water.

The airwomen's lounge is a separate building, centrally located, where the girls may entertain themselves and their friends after work. This is a spacious room with rubber-tiled floor, handsome leather furniture, and cheerful pictorial drapes. Complete with snack bar, juke box, and cigarette dispenser, it is an ideal spot for relaxation and fun.

I learned that there is an eleven-o'clock curfew for all trainees, but that airwomen on the staff are possessors of reveilles. (At this point the thought intruded that once upon a time it took three hooks to warrant a reveille.) As for forty-eights, although Toronto is a handy Mecca for week-end jaunts, many airwomen choose to spend them on the Station; and for those who do, there is plenty in the way of recreation and entertainment. The Station has a golf course, tennis courts, a bowling alley, and a swimming pool, and a unique feature of the recreational picture at Borden is the riding academy right in the midst of the camp — the only one in the R.C.A.F. Less active entertainment is taken care of by the library, nightly movie show, camera club, and hobby shop.

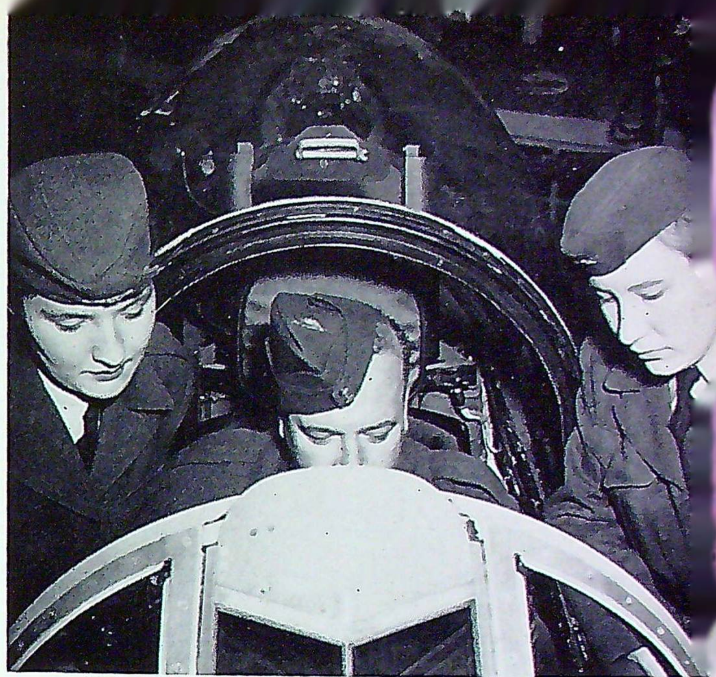
(L. to r.) Airwomen K. H. Johnson, M. Tibert, and O. A. Derzak, study an aircraft's electrical system.

Group Captain Syme is an enthusiastic promoter of sports, and his attitude is reflected throughout Station life, with organized field days and inter-Station matches of seasonal games.

The Protestant and Roman Catholic chapels are situated side by side and give a very real impression of being permanent churches — as, indeed, they are. With their beautiful appointments, electric organs, and darkly polished pews, they are a far cry from the plain and sometimes makeshift chapels of the wartime Units. But then, these are different times, and the chapels are used by civilians as well as by Service men and women. The families of married personnel who live in the nearby housing unit are regular church members.

If the old-timers could but look over this Camp Borden of today they would be amazed to observe what reforestation has done in subjecting the sandy waste they used to know. Even from the air it is apparent that the former barren areas are blurred with trees, and the housing unit of Anderson Park is a pleasantly wooded town. Lined with fine modern homes, Maple Drive sweeps around the Park, having as cross-streets Cedar and Hemlock Crescents, Oak Avenue, Pine Court, and Poplar Place. Under Air Force authority, yet with its own mayor and town council, Anderson Park is a model townsite and has its own Barker Public School within Station limits.

Such sights as these evidence the most striking changes in the set-up of the peacetime Air Force. Other changes sneak up on one's awareness more insidiously. For one thing, a refresher on nomenclature would be a must for those re-enlisting today. Everyday Air Force jargon has, shall we say, advanced. Heaven only knows what new combinations of the alphabet one would have to digest before being able to participate in, or listen to, a technical discussion!



Flt. Sgt. W. F. Scollard (instructor i/c electrical training) explains Sabre's instrument panel to Airwomen J. Lundstrom (left) and M. Kosick.

It saddened me to hear that Works and Bricks has been elevated to the high-sounding status of Construction Engineering, and I was really shaken to discover that the station wagon we rode in was no longer Motor Transport: it was Mobile Equipment. Of course, to offset these blows, there was the reassuring presence of the dear old garbage cans at strategic doorways. These restored faith to a degree. It is comfortable to reflect that nothing short of world revolution can change that traditional arrangement.

The Air Force flies on. There will continue to be superficial "amendments," but the old spirit seems to be holding its own. When Pilot Officer Jackie Rice summed up her own reactions to the new régime, she probably voiced the sentiments of all those original W.D.'s who are back in the Service:

"It's not the same Air Force — *but I'm glad to be back.*"

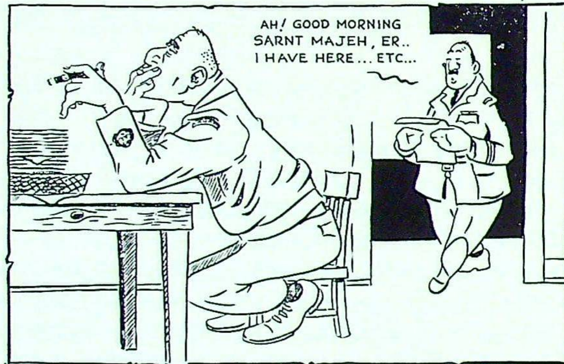
Letters to the Editor

"SERGEANT-MAJOR"

Dear Sir:

It is distressing to note the careless and incorrect manner in which warrant officers are commonly addressed. To the best of my knowledge, the rank of Sergeant-Major was declared obsolete in the R.C.A.F. more than twenty years ago, and remains a strictly military rank. The list of abbreviations in use in the R.C.A.F. and C.A.P. 90 refers to warrant officers, but no mention is made of sergeant-majors.

To make matters worse, many officers as well as airmen use the inexcusable term "Major", when addressing warrant officers. This is particularly offensive when used in the



presence of Dental Officers attached to the R.C.A.F., as the rank of major is, of course, equivalent to that of squadron leader. Many warrant officers dislike being called "Major" and would appreciate instructions from A.F.H.Q. on this matter. Only yesterday I dealt with a file which contained a minute from a sergeant referring to instructions received by him from "Major . . . ", when he actually meant "Warrant Officer . . . ".

Enclosed is a copy of a memo. circulated in 1941, which may be of interest to you.

W.O.1 (name withheld).

Misuse of the Term "Sergeant-Major"

1. The use of the remark "sergeant-major" in the conversations of officers, warrant officers, N.C.O.'s and airmen, when referring to warrant officers, is difficult to understand, as there is no such rank in the R.C.A.F.

2. This practice must cease, and when reference to or about them is made, they are to be addressed or spoken of as "Warrant Officer . . . ", or "Mr. . . . "

3. It is felt that if officers and senior N.C.O.'s were to accustom themselves to using the term "warrant officer" and correct airmen when they are heard using the term "sergeant-major", it would be very easy to stamp this irregularity out of the R.C.A.F.

4. With the co-operation of all Section Commanders and senior N.C.O.'s I think that this corrective method will bring about the desired effect.

A. H. Simmonds, Wing Commander,
Commanding Officer,
No. 6 Repair Depot,
Trenton, Ontario.

BABEL

Dear Sir:

Please convey the Season's greetings and our sympathy to Sgt. Shatterproof. Despite his watchfulness, the Brass has struck again.

The official Air Force calendar has been published with the bold letters "C.A.R.C." thereon. That the calendar is in the French language does not, in our opinion, alter the fact that "R.C.A.F." is the designation by which the Service is universally known — a fact which would appear to be borne out by the caption to the picture of our hockey team, "Les R.C.A.F. Flyers".

If inconsistency is to be the order of the day, we suggest that the general confusion might be pleasantly enhanced by referring to the team as "The C.A.R.C. Flyers" or "Les R.C.A.F. Aviateurs".

Flt. Sgt. B. E. Kemp.
Sgt. C. J. Strong.
(R.C.A.F. Station Aylmer)

NO. 12 (COMM.) SQUADRON

Dear Sir:

I would like to hear from any old buddies who served in No. 12 (Communication) Squadron at Rockcliffe with me back in 1941.

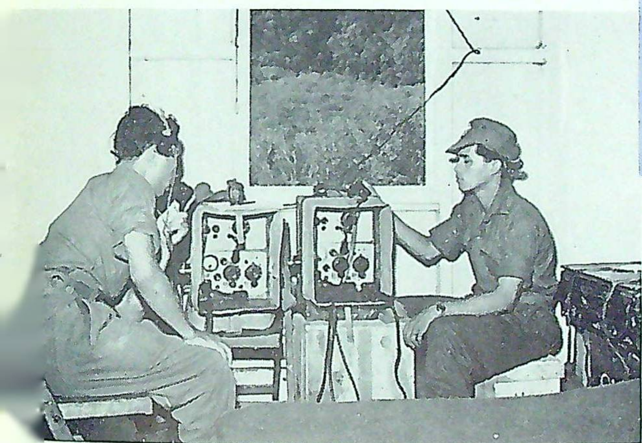
By the way, are you certain that Sgt. Shatterproof has not joined the U.S.A.F.? If he hasn't, it must be his twin brother whom I see on the Long Island Railroad train each evening! I'm going to try and get a photo to prove this.

John L. Scherer,
Associate Editor,
"Mechanix Illustrated".

(Replies should be sent to Mr. Scherer at his home address: P. O. Box 471, Bay Shore, Long Island, N.Y., — Sgt. Shatterproof, we understand, is much interested by the news that he has a double in the U.S.A. He advises us, however, that the only American members of his family are long since dead. The first, Warlock Shatterproof, who was a kind of chemist in Salem, Mass., died at the age of seventy-eight from overstimulation by his own love-philtres; and the second, Elija Shatterproof, was last seen over Kansas in 1891, ascending into Heaven via the funnel of a cyclone.— EDITOR.)

Answers to "What's the Score?"

1: (a)	2: (c)	3: (b)	4: (c)
5: (b)	6: (a)	7: (d)	8: (c)
9: (a)	10: (c)	11: (d)	12: (b)
13: (b)	14: (a)	15: (a)	16: (d)
17: (b)	18: (d)	19: (a)	20: (b)



The R.A.F. Regiment (Malaya)

The photographs on this page show personnel of No. 91 Rifle Squadron of the Royal Air Force Regiment (Malaya) in action against Communist terrorists in the jungle areas. The R.A.F. Regiment has been in operations against the terrorists since 1948, during which time it has located and destroyed more than 100 major Communist camps. Each day more and more people in the Federation of Malaya are volunteering to join the defence forces. Recruits are of many races and creeds, and include Chinese and Indians.

Mortar Support Section shelling jungle targets from outside H.Q. of "A" Flight (formerly an estate-manager's house).

Airmen moving along a jungle track.

Gunner Signallers in "A" Flight H.Q.

Airmen at a stand-to post with a scout car.

Searching an oil palm grove in Selangor for a wounded bandit.

The
ROUNDEL