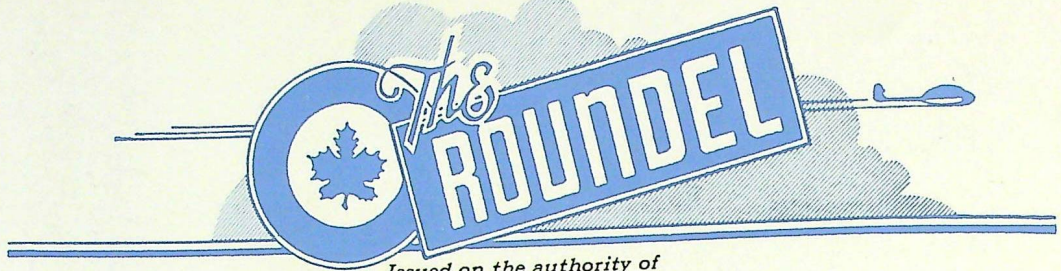


The **CROWNDDEL**

Vol. 6, No. 2
FEBRUARY 1954



ROYAL CANADIAN AIR FORCE



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THE CHIEF OF THE AIR STAFF
 Royal Canadian Air Force

Vol. 6, No. 2

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* * * **CONTENTS** * * *

EDITORIAL

	<i>page</i>
Sgt. Shatterproof Glances Back	1

ARTICLES

The Party Line: Quality Control in the R.C.A.F..	4
The Story of Leap-Frog Four	11
The Mysterious N.C.O.s	22
Who Says the Hydrogen Bomb is a Mystery?	26
Operation Santa-Claus	44

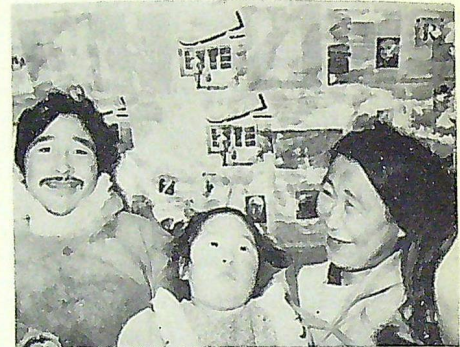
REGULAR FEATURES

Pin-Points in the Past	20
Personnel Movements	21
What's the Score?	24
R.C.A.F. Association	32
Royal Canadian Air Cadets	36
Feminine Gen	39
Letters to the Editor	47

MISCELLANY

Leadership	19
The Higher Illiteracy	31
Flattery	35
Best Troops	38
Tough Cops	40
Instructions for Young Officers	41
The Turbo-Encabulator	42
Dawn Sweep	43

THIS MONTH'S COVER



"During 'Operation Santa Claus,'" writes Flt. Lt. J. D. Harvey (see story on Page 44) "we were invited to visit a newly-established Eskimo village, about one mile south of the R.C.A.F. Base at Resolute Bay. After crawling through the entrance tunnel into the main part of the igloo that we visited, I rose to my feet and was greeted by one of the strangest sights ever seen by a member of the Air Force. There, on the curving walls and ceiling, stood Sgt. Shatterproof, calmly puffing his pipe as he gazed out from the pages of 'The Roundel'. The explanation? Eskimos line the inside of their igloos with paper (preferably glossy) in order to prevent water dripping when the temperature rises. What better paper than 'The Roundel', even if they can't read English?"

To prevent a possible uprising among the taxpayers, it might be as well to add that these were old copies of "The Roundel" obtained from the Base. The photograph, by the way, was taken by Flt. Lt. Harvey.

EDITORIAL OFFICES:
**R.C.A.F., Victoria Island,
 Ottawa, Ont.**

SGT. SHATTERPROOF GLANCES BACK

One of the R.C.A.F. Association's larger Wings has been kind enough to forward us a transcription of the address delivered to its members last month by Sgt. Shatterproof through the lips of Warrant Officer R. A. Tracy (better known to readers of "The Roundel" as "tracy"). We are publishing it here just in case the world's leading newspapers fail to comply with the request contained in the old wardog's opening sentences. After all, it would never do for us to be "scooped", right under our very noses, by "The Times", "Pravda", or even "The Moose Pelvis Intelligencer".

Mr. President, Ladies, and Gentlemen:

We Shatterproofs are not given to easy tears. None the less, as I gaze (or rather, as Warrant Officer Tracy gazes) upon the beauty and chivalry assembled here before him, I am deeply moved by the honour done to the rough old soldier who, but for W.O.1 Gallstone, would be standing here to-night. You will, I trust, pardon Warrant Officer Tracy if he conceals my emotion by a brief but manly consultation with the tankard beside him . .

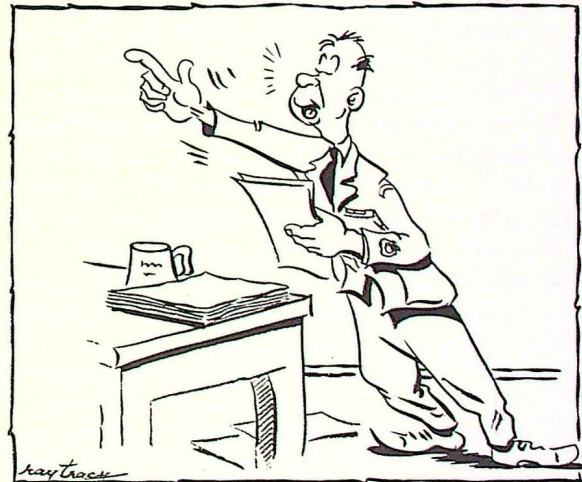
Before proceeding any further, I must make one request. The request is addressed to those many representatives of the world's leading newspapers who are doubtless lurking among you at this moment. I would ask of them a favour that will tax their generosity to the utmost. I would ask, ladies and gentlemen, that they leave my words unreported.

Profoundly flattered though I am by the cries of "No!" that have just deafened Warrant Officer Tracy's ears, I am convinced that those who uttered them will be persuaded to reconsider their stand. In times like these, we must all make sacrifices. Hard as it may be for them, our knights of the press must be prepared, if necessary, to resist even the supreme temptation of increased circulation. Let them remember Sir Galahad, who, reputedly without any increase in his circulation whatsoever, devoted his whole life to the service of distressed damsels — many of them without a rag to their names. Let them reflect upon the danger of diverting public attention from the utterances of Sir Winston Churchill, Mr.

Eisenhower, and Mr. Malenkov. I, personally, have no feelings in the matter. Every leader is called to his own separate destiny; and I begrudge the Big Three their applause no more than they, in their turn, envy me mine.

It may surprise some of you that I am unable to address you in person this evening. As a matter of fact, it surprises me too; for it is not often that W.O.1 Gallstone emerges the victor when we clash upon the interpretation of Q.R. (Air). But I will not go into the details of our debate. Suffice it to say that I shall not be in a position to address anyone outside the station for some little time to come.

Fortunately, however, Warrant Officer Tracy has kindly volunteered to act as my proxy. His





name, though well known in those questionable circles which read "The Roundel", is probably quite unfamiliar to a sophisticated audience such as that which now confronts him. That he is an artist, I cannot deny. Nor can I disguise the fact that he is attached to Air Force Headquarters. But, despite such unsoldierly considerations, I have no hesitation in recommending him to your indulgence. When I tell you that Mr. Tracy has accompanied me on two diplomatic missions overseas, you will, I think, realize that he is as well groomed in the ways of civilized society as any member of the R.C.A.F. can ever hope to be.

And now, ladies and gentlemen, to the theme of my talk — the Association and the Serviceman.

I have not, I regret to say, had the advantage of any preliminary discussion on the subject with your National President, Air Vice-Marshal Brookes. Indeed, I have only met that distinguished officer once — a few years before the last war. Your National President, who was then a Flight Lieutenant, paid me the compliment of observing that never in his Service career had he seen a finer head of hair falling over an airman's collar. Only Air Force protocol, I feel, prevented the mutual esteem thus established from ripening into a lasting personal friendship.

Be that as it may, some compensation for the inadequacy of my briefing may perhaps be discovered in the parallels afforded by history. It has long been my contention that we of the twentieth century could profit by glancing back more frequently at the first. It seems to me, for example, that Rome did fairly well by formulating her policies largely upon what the soothsayers found in the entrails of sheep. But have those who shape the destinies of today's armed services ever thought to employ such tried and proven techniques? Has our own Chief of Plans ever dissected so much as a frog in his office? No, ladies and gentlemen, he has not. And what has been the result of these omissions? I cannot bring Warrant Officer Tracy's loyal tongue to tell you.

You of the Association are in a different situation. Hampered neither by prejudice nor precedent, you are free to learn what you can from the lessons of the past. For that reason I have decided

not to waste your time with the congratulatory platitudes customary on such occasions as this, but to introduce to you one of my more outstanding ancestors, Maximus Biceps Shatterproof the Centurion. It is possible (though not probable) that a brief account of his career may contain some sort of message for the veteran of today.

We need not expatiate upon the Service life of Maximus Biceps. It was not unusual. He enlisted in the 148th (City of Naples) Legion in the spring of 85 A.D., was commissioned as chariot-crew in the fall of 87, and released without pension in the summer of 93. While on operations in Spain, he received both the regular decoration for distinguished driving and also his nickname of "Biceps"—which, as I need hardly tell an audience of this calibre, literally means "two-headed". The name appears to have been given him, not on account of his physique, but because of his invariable good fortune when tossing for preprandials with his own coin. After his release he squandered his gratuities in getting married and in building a villa. Then, using his veteran's preference, he obtained a job as tax-collector under the Emperor Domitian and settled down to the useful but rather humdrum life of the average civil servant of that era.

But, ladies and gentlemen, my ancestor Biceps was not a humdrum man. He was a Shatterproof—albeit an early model. Though his bosom throbbed with loyalty to his Emperor, he soon found that the application of thumbscrews to reluctant peasants somehow failed to satisfy the cravings of his spirit. The smell of axle-grease was in his blood; the roar of chariots being warmed up echoed through his dreams. He began to brood. More than once, while engaged in the delicate task of removing a taxpayer's tongue, he actually caught himself absent-mindedly humming one of the dubious ditties he had picked up while campaigning in Gaul. In a word, his mind was no longer on his work. He was a prey to nostalgia. He needed an outlet.

Records agree that it was at this critical period in his life that Maximus Biceps conceived the idea of forming an Association of all those who had served with the 148th. Its primary aim was the

development of chariot-power; its secondary, the provision of Ave atque Vale Parties for serving personnel who were being sent abroad. The *veteres sudores* — or, as we would now call them, “old sweats” — flocked to the organizational meeting and unanimously elected my ancestor to the office of President.

A Shatterproof is, above all, a man of action. Thus, it is not surprising that before long all Rome witnessed the results of his energetic leadership. The *veteres sudores*, bored with their government jobs and fired with a new purpose in life, tied scythes to the wheels of their jalopies, and drove at top speed through the streets of the city. Since the streets were not only narrow but also extremely congested, the validity of the Association’s prime purpose was quickly demonstrated beyond all argument. In those virile days the liquidation of a few thousand citizens was not to be taken too seriously — and Domitian was a far-sighted Emperor. He immediately doubled his establishment of chariots, Mark II, and at the same time added a couple of the more lucrative suburbs to my ancestor’s territory.

But, successful though his first venture had been, Fate had already put the finger upon Maximus Biceps. Historians incline to the belief that, had he sacrificed a heifer or two to Venus, things might have been different. Whether or not we accept their theory, the fact remains that he didn’t. He rushed blindly on with the arrangements for the first Ave atque Vale Party.

Those, as you all know, were uncouth times, when few people would have appreciated a printed page for anything except its purely utilitarian possibilities. Maximus Biceps, therefore, did not even toy with the idea of presenting his guests with books. Instead, he rented the Colosseum for a rousing debauch.

And now, ladies and gentlemen, we must again pardon Warrant Officer Tracy if he once more seeks strength from his tankard. Only a man utterly devoid of feeling could relate what follows without a tear . . .

On the appointed evening, the members of the Association, arrayed in their Association helmets,

assembled in the Forum together with the two hundred or so Legionaries and their families who were about to leave for the North African front. Then, solemnly chanting the war-song of the 148th, the “Rota Ingens” — or, in English, “The Great Wheel” — they set off in column of route. Shortly after dusk they entered the Colosseum and took their places at the torch-lit tables set out in the arena. The gate creaked to behind them. Loosening their togas and smacking their lips, they readied themselves for the gastronomic bout.

But treachery was afoot that night. Even as my ancestor stood to his feet to pour the preliminary libation to Bacchus, there came a mighty chorus of roars from the lions’ dens that ringed the amphitheatre. Startled, the banqueters looked up — only to see the light of the festal torches reflected from the eyes of the great cats that were already belling towards them through the sand.

I decline, ladies and gentlemen, to describe the undignified scene which followed. A hundred paid-up members and some two hundred serving personnel and their dependents, all scuttling about as fast as their legs can carry them, do not present an attractive picture to the imagination — even without a couple of dozen famished lions at their heels. It is enough to say that No. 1 (Rome) Wing of the Association, together with all the recipients of its hospitality, was wiped out to the last thigh-bone.

At the enquiry which followed, I regret to say that the manager of the Colosseum — who, by the way, was a die-hard ex-infantry officer and had no use for chariots of any Mark — was completely exonerated when he claimed that he had mistaken the victims for an overdue consignment of Christians.

And now, ladies and gentlemen, Warrant Officer Tracy has said my say, and we must return to the present. Back here on the station, I raise my post-prandial to the prosperity both of your Wing and of the Association as a whole. May future historians find nothing but success to record of your doings.

Good-night and — if I may steal your own thunder — *bon voyage!*



QUALITY CONTROL IN THE R.C.A.F.

By Flight Lieutenant G. G. Daw

(One of the most frequent cries raised in Unsatisfactory Condition Reports is for more and better inspection. "More inspection" does not mean very much, for it has been wisely said that quality cannot be inspected into a product: it must be built into it. "Better inspection," however, with its resultant saving of lives and money, is the chief aim of the R.C.A.F.'s Quality Control organization. Flt. Lt. Daw, who here tells us briefly how this aim is achieved, began his Air Force career in 1939, when he enlisted as an aircraft apprentice in the R.A.F. Having won a Service Scholarship to London University, he obtained a degree in mechanical engineering and was commissioned in 1943. Resigning later from the R.A.F., he eventually came to Canada, where he enrolled in the R.C.A.F. as a Technical Officer.—EDITOR.)

IN THE JUNGLE of private enterprise where (we are told) life is strictly a matter of the survival of the fittest, the need for quality control is self-evident. The commercial producer must meet his competitors on equal terms, satisfy his customers, improve the quality of his product, and reduce its cost. All this can be done only if his operations are conducted efficiently and economically. The key to such efficient and economical operation is, of course, quality control.

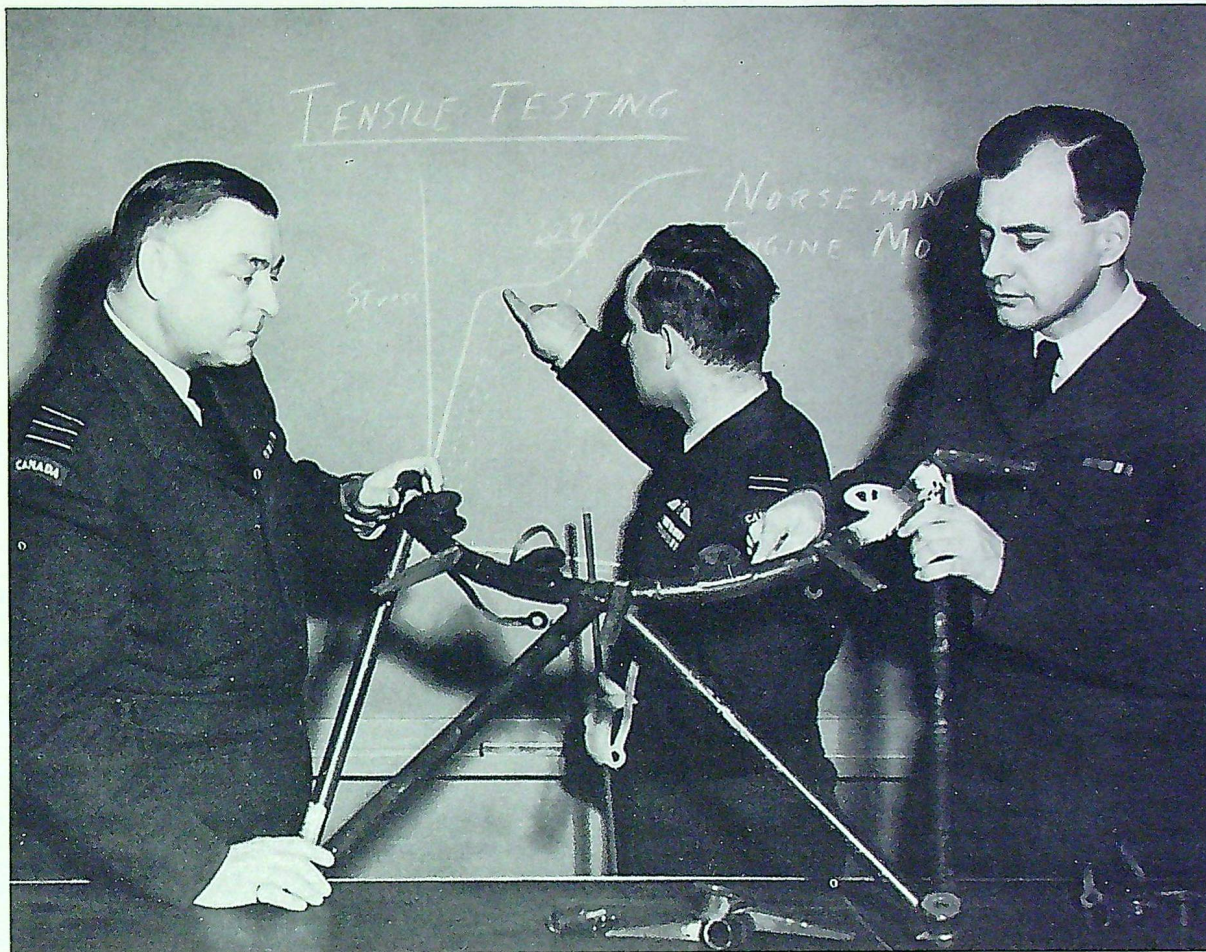
According to one eminent authority, there are three distinct phases of quality control:

- Inspection — The short-term problem of acceptance of the product and elimination of defects.
- Quality Control — The long-term problem of quality improvement by changes to specifications and methods based on user reports.

- Quality Assurance — The quality audit, or inspection of inspection.

The newer concept of quality control, as distinct from inspection, has gained wide acceptance in recent years. This has involved a fairly radical change in both industrial and Service methods, and for that reason the old name of A.I.D. (Aeronautical Inspection Directorate) was replaced by R.C.A.F. Quality Control, indicating the change from the purely "police" methods of simple inspection to the all-embracing activities implied in the phrase "quality control."

It is the responsibility of the R.C.A.F. Quality Control to ensure that the products we buy meet the requirements of the specifications. This assurance could be obtained by careful reinspection



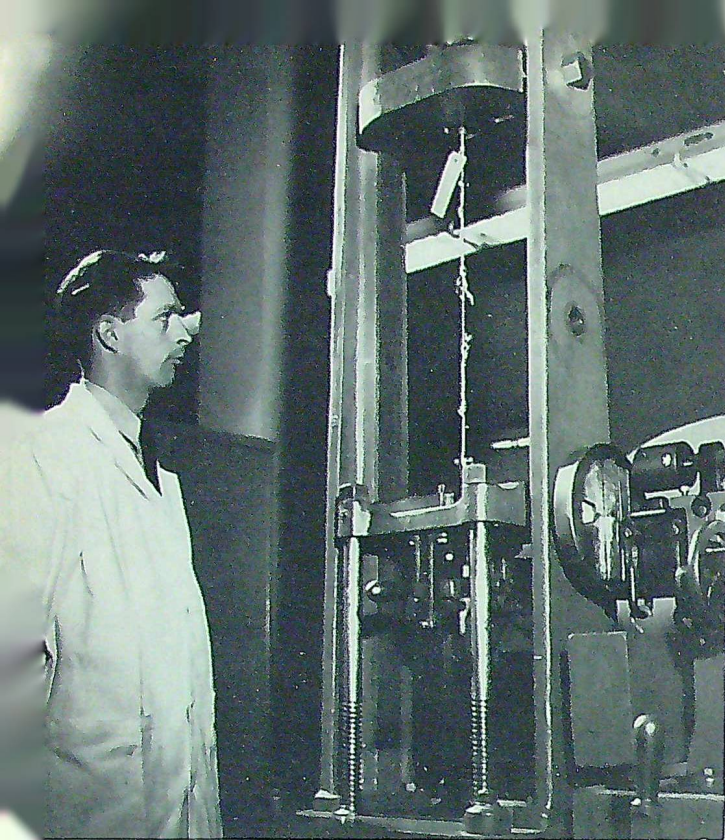
of everything the contractor does, a procedure that would be wasteful of both time and effort. Instead, it is obtained by placing faith in the integrity and ability of the contractor, and by bolstering that faith with frequent long and hard looks at how the contractor is doing his job. In other words, it is the third of the above-mentioned three phases, namely Quality Assurance, that is the most important function of R.C.A.F. Quality Control. To quote from the organization's terms of reference:

"It shall be the policy of the R.C.A.F. to maintain quality control of aircraft and associated equipment by surveillance of 'Approved Contractors' Inspection or Quality Control Organizations'."

Wing Cdr. K. J. Regan, Chief of Quality Control, examines faulty engine mount with Flt. Lt. A. M. Conley and Sqn. Ldr. W. G. Chandler in the Quality Control Laboratory.

HISTORICAL DEVELOPMENT

The history of military inspection in general is not particularly long. Perhaps the first recorded examples of it were (in England) at the time of the Napoleonic Wars and (in the U.S.A.) the Civil War. In the aircraft business, fairly well-developed military inspection agencies have existed since the First World War. However, military inspection has long been regarded by many as a necessary evil in war and as an unnecessary evil in peace. This has made inspection organizations rather



L.A.C. J. C. O'Donnell testing swaged cable assemblies for proof loads and ultimate breaking-strength.

susceptible to "economy drives," and their history is therefore marked by the ups and downs of war and peace.

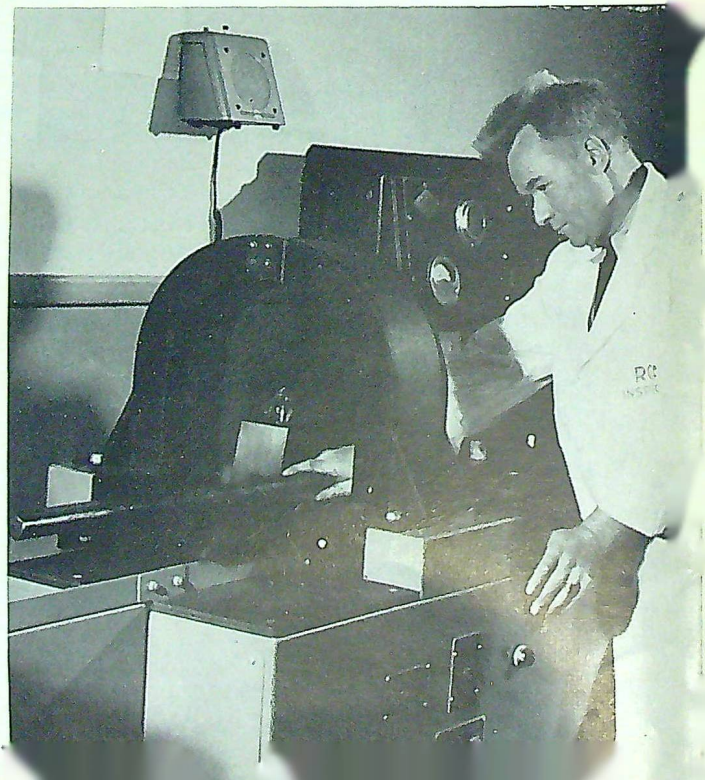
In the R.C.A.F., inspection first began with the establishment, in 1938, of a small band of pioneers at the De Havilland aircraft plant in Toronto. By 1940 the few had grown into many, a director had been appointed at A.F.H.Q. (responsible to the C.A.S.), and the country had been divided into some thirteen geographical districts, with a district headquarters in each. The total force employed was quite large, and, since a system of "stage" inspection (duplication of the contractors' inspection at important stages of construction) was in vogue, a fairly heavy training programme had to be undertaken. The organization was patterned on the R.A.F.'s A.I.D. (now M.O.S./A.I.D.) and was called simply the "A.I.D."

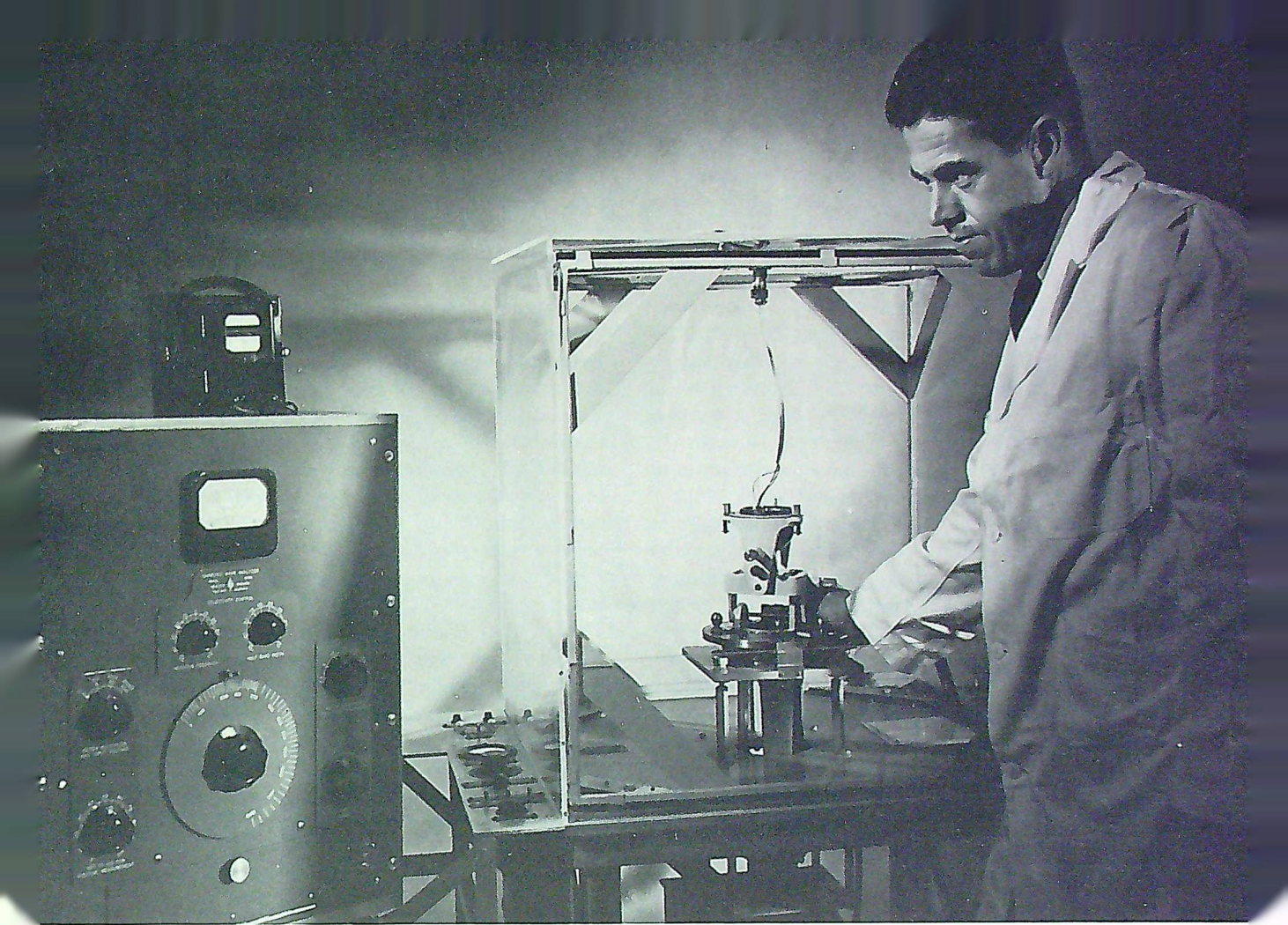
After the Second World War, during the brief days of real peace, the old A.I.D. leaned back and reflected on a job well done. But it never had time to get comfortable. The axe fell. Inspection units were disbanded (with only one exception) and the trade of Aeronautical Inspector was eliminated.

The wind seemed set fair for a long period of peace and prosperity, and, if changes were to be made, that was the time to do it. That was the time at which a single inspection agency, known as Inspection Services, was to take over inspection for all three armed services. Fate intervened, however, and, before the total demise of A.I.D., along came another crisis to pump new blood into the old body.

This time it was the cold war — with the hot flushes in Korea, Indo-China, and elsewhere. Once again aircraft had to move on production lines, and someone had to make sure they were what they should be. Inspection Services hadn't had a chance to gather in even a nucleus of skilled aircraft men, and the job was thrown back to the R.C.A.F. It amounted almost to another start from scratch. Most of the "old types" had been absorbed back into civilian life or into other branches of the Services, and it was certain that no pool of manpower would be forthcoming comparable to that which had been available during the war. (And, anyway, it had already been

W.O.2 W. J. Brown operating a "Magnaflex" demagnetizing machine, used for demagnetizing parts which have been magnetized in the magnetic particle inspection process.





recognized that "stage" inspection, effective though it might be, was wasteful of manpower.)

After a peek across the border and a summing-up of past experience, it was decided to adapt the "surveillance" method of quality control to the tried and true system of Approved Firms. Progress has been slow, sometimes even halting, and re-education of old A.I.D. inspectors as well as the contractors has been necessary. New recruits have had to be educated; new orders, instructions, and other data have had to be produced. Even now the process of change is by no means complete. Staff limitations too often preclude the possibility of bringing into immediate effect many much-to-be-desired developments of procedure, etc.; but, none the less, the ultimate goal is now well within sight.

Qualification testing of aircraft instruments at the National Aeronautical Establishment.

METHODS

The R.C.A.F. is responsible, specifically, for the quality control of aircraft and associated equipment (which includes everything but electronic and armament equipment) during manufacture, repair, or overhaul. The value of goods and services supplied under contract each month is measured in terms of tens-of-millions of dollars, which gives some idea of the extent of R.C.A.F. responsibility. Methods used in surveillance vary somewhat with the type of contract, but basic principles remain the same. To show how it works, let us consider a contract for a number of new air-

craft from the time the requirement is first established — and, to keep it simple, let us assume that development, prototyping, and tooling have all been completed.

First of all a Contract Demand (C.D.) is raised, describing the requirement and including details of quality control. These details are covered by a specification known as Procurement 101-1 Quality Control of Aircraft and Associated Equipment. The C.D. is then passed to the Department of Defence Production, which, in the case of a whole aircraft, will negotiate the contract. The contract, in addition to the usual financial arrangements, will include all the requirements of the C.D.

It is at this point that Quality Control gets in with both feet. Before the contractor gets under way, he must be approved. Approval is straightforward enough: all that is required is that he has a system of quality control capable of meeting the standards defined in Proc. 101-1. It is NOT SUFFICIENT that he have merely an adequate inspection system. Quality control goes deeper than that, and includes such functions as drawing control, engineering control, purchase control, process control, and, in fact, any function which contributes to quality. For initial approval the contractor's quality control system is carefully checked, function by function, detail by detail. The results of this survey are assessed, and the contractor advised of any deficiency. When it is established that the system is adequate, the contractor, together with his key quality control personnel, are approved for the manufacture of the aircraft.

In building complicated structures like aircraft, there are literally hundreds of contractors contributing anything from raw materials to complete wing undercarriage assemblies. The Government too, kicks in its share in the form of engines, instruments, guns, and so on. Obviously, if these materials or assemblies are poor in quality, the finished aircraft cannot be very good. Our quality control, then must include sub-contractors. To approve all sub-contractors on the same basis as prime contractors would be a task of enormous magnitude, and, if not beyond our capabilities, would certainly strain them to the utmost.

Approval of sub-contractors is therefore limited to cases where it is of special value or serves as a protection to the R.C.A.F. All other sub-contractors are the responsibility of the prime contractor, who must ensure that inspection evidence is provided.

Figure 1 illustrates in simple fashion the Approved Firms system. All shipments of materials between approved contractors and the R.C.A.F. are accompanied by duly certified Release Notes. The Release Note is both a certificate of conformance and a link in the identity of the material. By the use of Release Notes it is possible to trace back the material from the finished state to the raw material from which it was made. For unapproved sub-contractors, the prime contractor is required to set up a system which will ensure that material supplied conforms to the specification. This he may do by inspecting it himself, or, with R.C.A.F. concurrence, he may set up a system of certification similar to our own approval system.

R.C.A.F. interest, of course, does not cease with the granting of initial approval. As long as that approval remains in force, R.C.A.F. inspectors are constantly on the job checking and re-checking both on methods of quality control and on the product itself, in order to ensure that our confidence is not misplaced. Nor does it end there. An inspector has a multitude of other jobs to do — and, though this is not the place for a detailed list, one of them deserves mention.

The aircraft has not yet been built that meets exactly every single detailed requirement of drawings and specifications (and there are thousands of drawings and hundreds of specifications for a complete aircraft), but every deviation, except perhaps the most insignificant, must have the blessing of the R.C.A.F. inspector. (This is not to suggest that every deviation is acceptable. A line must be drawn somewhere, but that is another problem.) Again, it is not unusual for an aircraft, in the early stages of production, to arrive at final inspection with upward of three or four hundred "snags" in it even after careful inspection at every stage of production. The elimination of such "snags" or deviations, at any stage of production, is the first problem; a second and more important

APPROVED FIRM SYSTEM

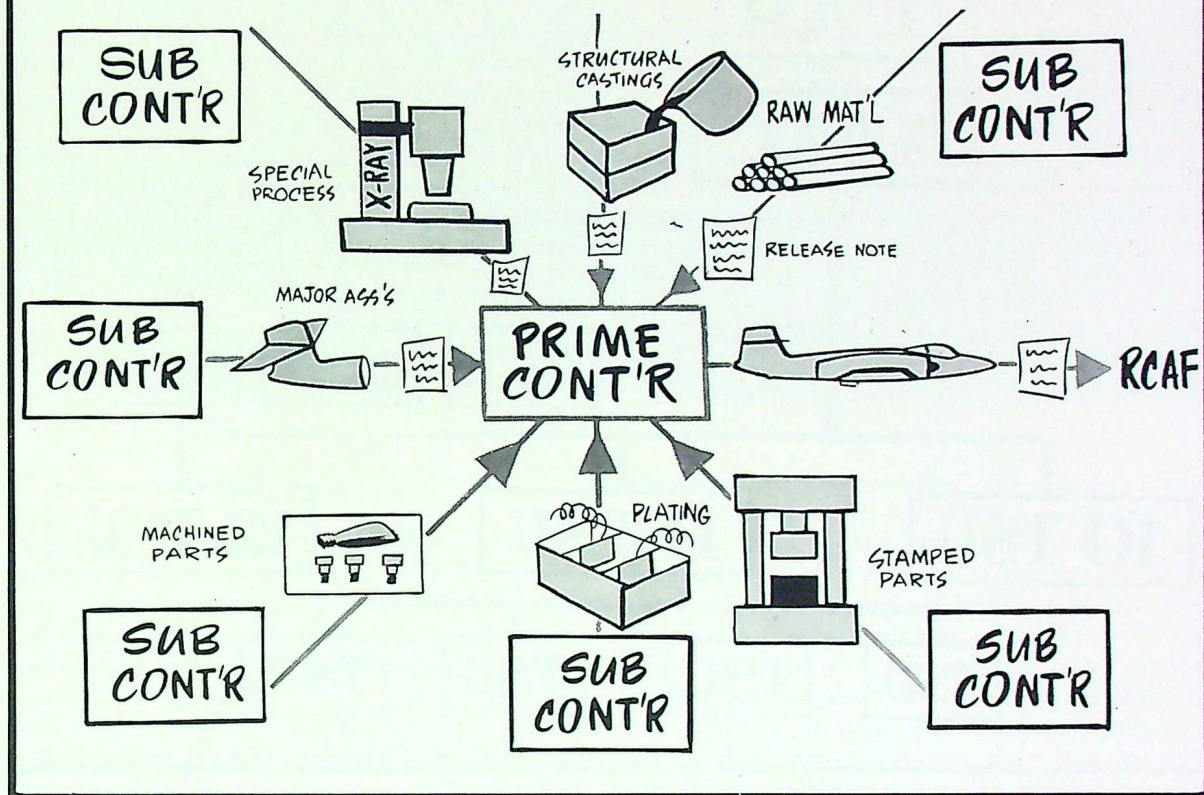


FIG. 1

problem is to ensure that these deviations do not recur. Quality Control must track down the source of each deviation and, where possible, ensure that the condition causing it is corrected.

The foregoing are some of the things an inspector must do, and, to do them effectively, he must be a man of some virtue and no little talent. Technically, he must be highly competent; he must be a diplomat; and above all, he must be able to express himself clearly and concisely. This latter quality is of great importance, since he is constantly dealing with company personnel at a fairly high level.

ORGANIZATION FOR QUALITY

Figure 2 shows in outline where Quality Control fits into the Air Force picture. At the top is A.F.H.Q., which determines the broad policy. There is no Quality Control staff at A.F.H.Q. since, in practice, Quality Control policy is fairly well established. A.F.H.Q.'s functions include such matters as arranging reciprocal inspection agreements with foreign military agencies, etc., etc.

Next comes Air Materiel Command, which consists of several staffs, one of which is C.Q.C. (Chief of Quality Control). This staff, speaking with the A.O.C.'s authority, develops the plans and

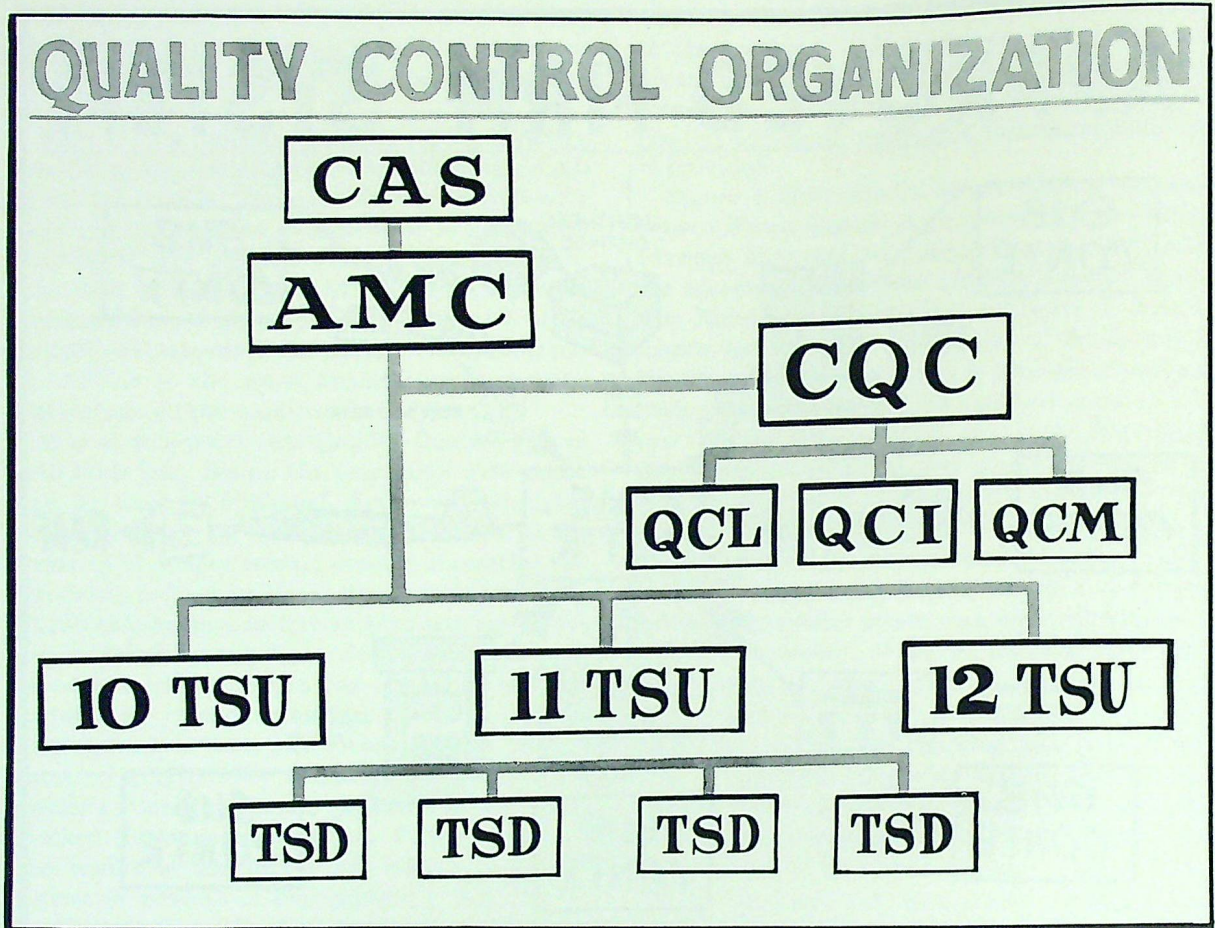


FIG. 2

methods of quality control, officially approves satisfactory contractors, and so on. In addition, it has a laboratory where inspectors are trained and where processes such as X-Ray, magnetic particle inspection, and welding, are investigated and approved. The laboratory maintains close contact with other Government laboratories where some of our work, such as qualification testing of equipment, is carried out.

In the field are three units, each of which is concerned with (among other duties) quality control. They are located in Calgary, Toronto, and Montreal. Each of the units has a number of detachments, located usually with prime con-

tractors and responsible for the supervision of approved contractors. The work of these detachments has already been discussed earlier in this article.

* * *

There is more, much more, that could be said about how Quality Control operates. All we have attempted to do here, however, is to show that R.C.A.F. Quality Control fulfills an important rôle in the general Service scheme of things. It has a record of achievement which can never be put on paper, because only the mistakes ever show — but, mistakes notwithstanding, it is a good record.

The Story of LEAP-FROG FOUR

By Squadron Leader G. B. Waterman.

(In this narrative, Squadron Leader Waterman has given us one of the most readable general accounts of a peace-time operation that has yet come our way. Now serving as Chief Technical Officer at the Central Experimental and Proving Establishment, Rockcliffe, he left the R.C.A.F. in 1946 as a navigator, to rejoin it in 1948 shortly before receiving his Master's degree in Aeronautical Engineering at the University of Toronto. His first "engineering" duties were with the Directorate of Inter-Service Development, where he was intimately concerned with — among other things — the designing of attractive functional uniforms for post-war airwomen. From such delicate tasks he was transferred to R.C.A.F. Station Uplands, as Chief Technical Officer, in the spring of 1952.— EDITOR.)

PROLOGUE

AT FOUR o'clock in the afternoon of Friday, September 4th, the screaming of Sabre engines over Canada's new Fighter Wing base at Baden-Soellingen, Germany, heralded the fact that this country had fulfilled another part of her pledge to N.A.T.O. Farmers all over the quiet countryside shaded their eyes to see the last three of the twelve fighter squadrons, promised by Canada for European defence, arrive to take up their operational rôle. And, as the sleek fighters rolled to a halt on the new concrete runway, the fourth and last "Leap-Frog" operation reached its conclusion in the record time of 8 days, 4 hours, and 40 minutes.

THE PLANNING

The intent of Operation Leap-Frog Four was, in the words of Air Defence Command Operation Order 27/53, "to relocate 414 (F) Squadron, Bagotville, 422 (F) Squadron, Uplands, and 444 (F) Squadron, St. Hubert, at Baden-Soellingen, Germany, as No. 4 Fighter Wing of the Royal Canadian Air Force First Division."

Like the three similar operations which preceded it, the move required the flight of the rapid but

comparatively short-ranged jet fighters from different bases in this country to a new location in Europe. Because the range limitations of the Sabres meant that they could not fly the ocean direct, but must hop from island to island along the route, "Leap-Frog" was a logical title for the operation. The fact that ground crew support parties were required to keep one jump ahead of the aircraft at all times lent additional significance to the name chosen (although the pilots who took part in the fourth operation unofficially renamed it "Leap-Creek").

Obviously, an operation of the importance and magnitude of "Leap-Frog Four" required a good leader. The man picked to plan and carry out the operation was Wing Cdr. D. G. Malloy, D.F.C., Soellingen's Wing Commander Operations, who had been in Germany since April making the newly-built airfield ready for the three squadrons. As an ex-fighter pilot with an intimate knowledge of fighter operations, a jet pilot who can fly the Sabre as well as "the young fellows," and a former commanding officer of a station which trained four F-86 squadrons for overseas duty, Wing Cdr. Malloy was a logical choice for Task Force Commander, "Leap-Frog Four." I was very happy to be appointed as his technical adviser for



No. 4 Fighter Wing takes off for Goose Bay.

the planning of the operations, and also Chief Technical Officer of the actual flight. Like Wing Cdr. Malloy, I had seen three squadrons leave Uplands, and my experience with the first three "Leap-Frogs" made the opportunity of actively participating in the last one all the more appealing.

My first connection with the operation came on Tuesday, July 19th, when my leave was rudely shattered by a telephone request from A.D.C.H.Q. that I return to St. Hubert immediately for inoculation and in order to be briefed for a familiarization tour over the "Leap-Frog" route. After the normal amount of confusion and a little blind panic, two days and two needles later found me, along with several section commanders from Nos. 444 and 414 Squadrons, making my first overseas jaunt since the end of the Second World War. Air Transport Command's O.T.U. was running a training trip to Europe for several new air crew, and had agreed to carry us in lieu of normal freight so that we could visit the airports where the Sabres would have to land. Incidentally, one of the trainees on that flight, Flying Officer D. F. Clifton, later served as a North Star captain on "Leap-Frog Four."

Because of the rapid pace set for us by the O.T.U. schedule during the next seven days, my recollections of this trip are somewhat confused. I do remember that the customs officer in the U.K. was surprised to hear that we carried 17 crew members for the benefit of six passengers; and also that, for my first trans-oceanic flight, the presence of several pilots and a half dozen navigators was extremely reassuring. I remember, too, that I mentally composed a memorandum to the Staff Officer Accounts and Finance at A.D.C., pointing out five excellent reasons why the temporary duty rates for London should be increased considerably. I recollect that the snow-clad mountains of Greenland were, to understate the matter, awe-inspiring; and that at midnight, in Iceland, I could not sleep because it was still light outside my window. Finally, I remember that at North Luffenham, Keflavik, Narsarsuak (Greenland), and Goose Bay, I talked to various people who knew something of the technical and logistics problems which "Leap-Frog Four" could expect to encounter.

Back at St. Hubert again, I found Wing Cdr. Malloy ensconced in the office of Sqn. Ldr. R. C. Bayliss, Chief Navigation Officer at A.D.C.H.Q. and Navigation Officer for the operation. There,

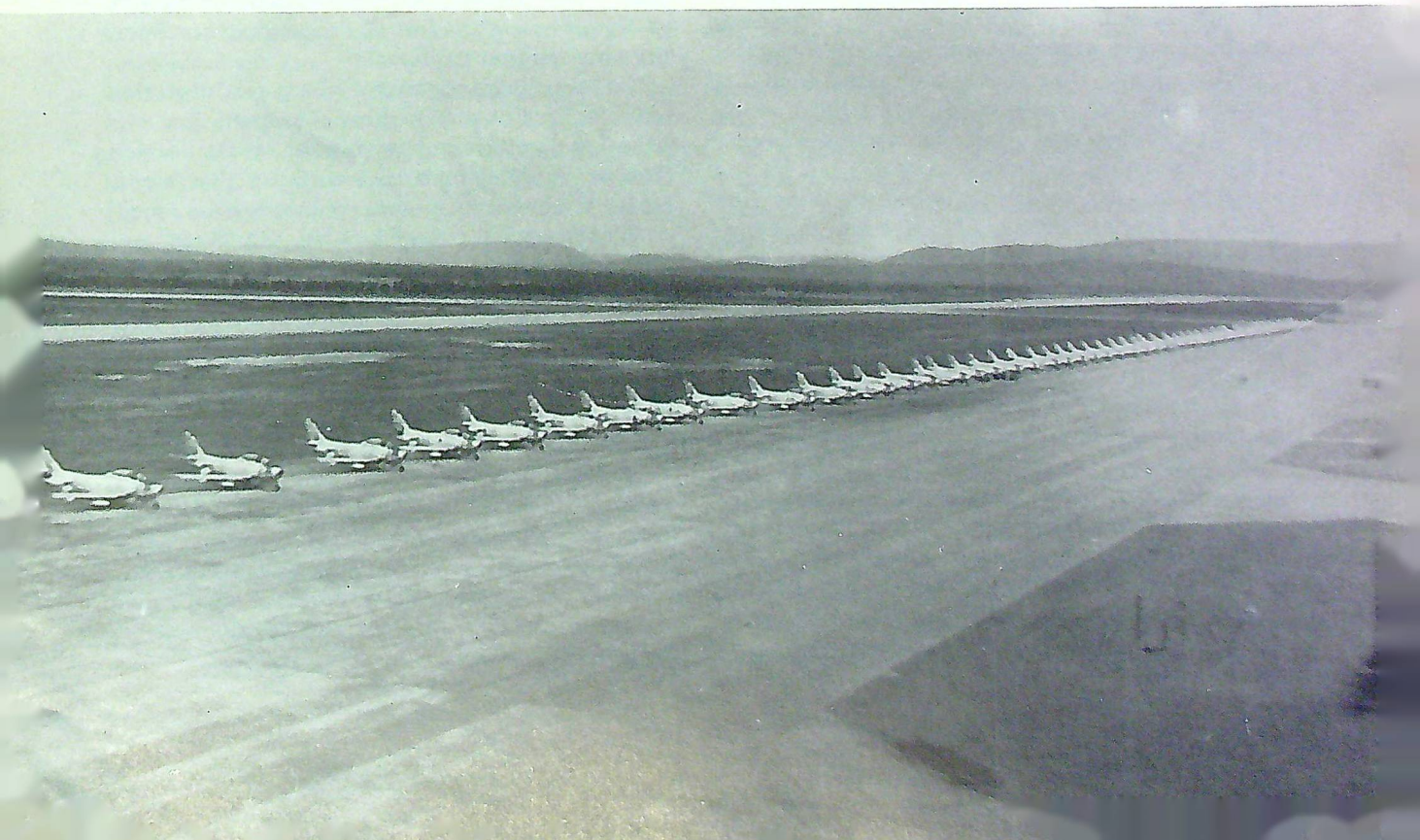
during the next month, the Task Force Commander worried about such things as search and rescue; Sqn. Ldr. Bayliss, about the cruise control flight logs; and I, about the number of serviceable starter energizers at Bluie West One (Narsarsssuak). Through the office at various times passed other members of the "Leap-Frog" team — Flt. Lt. R. H. Anderson, the telecommunications officer; George Pincock, the meteorological officer; and Wing Cdr. J. F. Allan, the officer commanding No. 414 Squadron and wing leader for the flight.

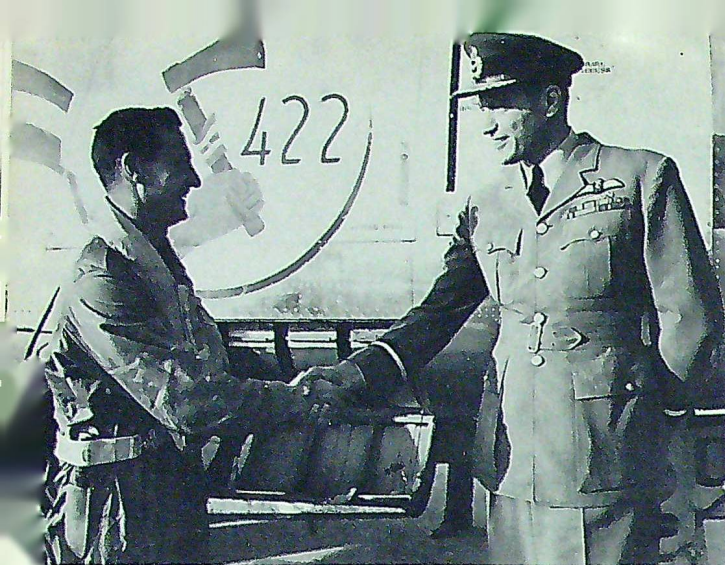
One thing that surprised me was the large number of agencies which were vitally concerned with the success of each "Leap-Frog" operation, not only in Canada, but in both the United Kingdom and the United States. The actual supervision of the "Leap-Frog" route is the responsibility of the U.S.A.F. Military Air Transport Service, which co-ordinates all American, British, and Canadian jet moves across the Atlantic itself. The R.A.F. has established liaison staffs at the various bases between Canada and Scotland, and they give a great deal of support to the R.C.A.F. In Canada, not only A.D.C. and

A.F.H.Q., but also A.M.C., A.T.C., T.C., and Maritime Command co-operate to supply logistical, operational, and rescue facilities to "Leap-Frog" operations. Without the whole-hearted support of the air forces of three countries, Operation "Leap-Frog Four" could not have been successfully carried out.

As the commencement date (27 August) for the operations approached, all three squadrons were busy finishing their flying programmes, preparing their aircraft for the long flight, and sending their men on embarkation leave. Two weeks before kick-off time, the squadron commanders, flight leaders, and engineering officers, visited St. Hubert for briefings on the operational and technical aspects of the exercise. During the last week, the T.F.C. visited the various squadrons on their home fields to speak to all personnel about the country to which they were going, reminding them that they would be acting as ambassadors for Canada throughout their overseas tours.

Sabres lined up at Goose Bay. (Photograph by Flt. Lt. R. H. Anderson).





Air Cdr. K. Hodson welcomes Sq. Ldr. W. J. Buzza.

By Monday, August 24th, departure preparations were completed, and Nos. 414 and 444 Squadrons flew to Uplands to join with No. 422 in a departure ceremony at which the C.A.S. wished the wing "Godspeed." Two days later, Wing Cdr. Malloy and his staff flew to Goose Bay, to await the arrival of the three Squadrons at the marshalling-point.

THE OPERATION

First day

August 27th dawned clear and warm at R.C.A.F. Station Goose Bay, and preparations for the arrival of the three squadrons were early afoot. A weather check revealed that flying conditions would be satisfactory, but, because of strong head winds, the St. Hubert and Uplands squadrons would have to refuel at Bagotville en route.

At 10.28 a.m., exactly on schedule, Wing Cdr. Allan led the first section of No. 414 into the Goose Bay circuit. As he taxied up to the parking strip, his confident "thumbs up" indicated that at last the operation was really under way. Then, at five-minute intervals, the remaining four sections of the Bagotville squadron joined the circuit, so that by eleven o'clock all nineteen Sabres had landed and were ready for refuelling. To many pilots, the most arduous part of their first "Leap-Frog" leg had been burning off their excess JP4 fuel after landing, so that all fuel tanks could be crammed to capacity with heavier, longer-range JP1.

Because poor visibility at St. Hubert had delayed No. 444 Squadron's departure, No. 422, under Sq. Ldr. W. J. Buzza, was the next to

arrive. An hour after the last of these 21 aircraft were on the ground, Sq. Ldr. J. MacKay, D.F.C., led the first section of No. 444 Squadron over the aerodrome. By 4.30 p.m., the 63 Sabres which made up the Wing were safely on the ground, and preparations for the first over-water leg were rapidly going forward.

Most of the ground crew of No. 4 Fighter Wing had already left for Germany, but 24 men from each of the squadrons had been assigned the task of leap-frogging across the Atlantic with the Wing. The 414 Squadron support party, under W.O.2 F. S. Chorney, was the first to arrive on the afternoon on the 27th. These men were to take off at midnight for Greenland, there to await the arrival of the Sabres, but none the less they spent the whole afternoon helping to park aircraft and repair minor snags.

Landing shortly after their Sabres, the tradesmen of No. 422 Squadron stopped only to eat before proceeding to work under the direction of their engineering officer, Flying Officer J. B. Fortin. Because they had landed at Bagotville to help refuel their own and No. 422 Squadron's aircraft, Flying Officer J. H. Kerr and the technicians of No. 444 were the last to arrive. An hour later, they too were on the line.

Darkness found us still refuelling and inspecting aircraft; but, since weather prospects for the following day were not favourable, it was decided that we would not attempt to finish that night. Most of the airmen were released from duty, except for several crews from No. 444 Squadron, who worked until the small hours of the next morning refuelling the last few aircraft and rectifying snags on two aircraft which had been pulled into the hangar. On this first day of the exercise, I was tremendously impressed by the eagerness of all the technicians. Right from the start it was evident that a real team spirit had arisen to replace the friendly rivalry which had existed between the squadrons while training in Canada. This was extremely gratifying, because Wing Cdr. Malloy had indicated that one of my main responsibilities was to see that such a team spirit existed. I had no need to preach this theme throughout the operation.



Graves of German soldiers beside road outside the station. (Photograph by Flt. Lt. R. H. Anderson).

Second day

Bagotville's ground support party having departed for Narsarsuak at 7.30 a.m., the ground crews from the other two squadrons carried out the daily inspection on the 63 aircraft. By nine-thirty all were serviceable and ready for take-off, but, because of extremely strong head-winds between Goose Bay and Greenland, the T.F.C. decided that there could be no departure that day.

During the early evening, Goose Bay stopped trying to imitate a summer resort and produced the sort of weather which I had been dreading — a steady, penetrating rain which was to last for almost 24 hours. The rain was as wet as any I've seen, and, fearing that the Sabres, with their complicated electrical mechanisms, might not enjoy the storm, I did a last tour of the line at 10.30 p.m. Have you ever heard the song of a lonely fog-horn sounding from some distant, invisible rock? I heard the same song that night from a Sabre whose emergency hydraulic pump had been brought to life by a short-circuited microswitch. I was very damp and dismal when I retired to bed, after ensuring that enough circuit breakers had been pulled along the line to keep all aircraft quiet for the remainder of the night.

Third day

For a little while in the morning the rain stopped, and immediately electricians and communications technicians swarmed over the Sabres to check for possible rain damage. Weather necessitated another cease-fire by nine o'clock, but by late after-

noon the clouds had retreated far enough for aircraft covers to be removed and serviceability inspections to be started in earnest. From an unserviceability standpoint, this proved to be our worst day. Six of the jets had to be towed into the hangar for repair work, and No. 422 Squadron's airmen were the unlucky ones who worked far into the night.

During the evening, I felt that an hour off was indicated, and after shaving and changing into formal attire (i.e. a clean shirt), I entered into a "Monte Carlo Night" at the officers' mess. I soon realized that it must have been especially laid on for the benefit of suckers like myself. I lasted ten minutes each at roulette, crown and anchor, and *vingt-et-un*, before retiring hurriedly to the hangar. If Goose Bay owns a new piano the next time I visit there, I shall ask to have a "donated by" plaque suitably engraved and mounted on its front. Anyway, I did not leave the hangar again until early the next morning when all aircraft were serviceable.

The Fourth day

Weather was doubtful in the morning, but preparations for an afternoon take-off were pushed forward. To save precious fuel, the Bagotville squadron was towed to the starting-button. Seven hundred nautical miles can be a long and lonely journey with only the ocean below and headwinds eating up the fuel reserves. By twelve o'clock, weather and winds were "good enough," the weather ships and rescue aircraft were assuming positions on track, and the T.F.C. said "Go."

Between 1.00 and 3.00 p.m., sixty Sabres and a North Star took off for Bluie and vanished rapidly into the overcast. Because of last-minute minor troubles, two jets were unable to take off on schedule, which meant work for Flt. Lt. E. A. Glover, D.F.C., the Wing's "clean-up man." Quick action by the group crew repaired the snags, but the three Sabres were unable to take off, as Narsarsuak is closed to aircraft at dusk.

By early evening, word was received from Wing Cdr. Allan that all 60 aircraft had arrived in Greenland, and that serviceability was so good that a morning take-off for Iceland was planned.



One of Baden-Soellingen's new hangars stands close beside remains of the Siegfried Line. (Photograph by Flt. Lt. R. H. Anderson).

At Bluie, the only accident of the whole operation occurred when one Sabre found the strange American runway too short, and was damaged extensively after running off the end of the concrete.

The Fifth day

Hopes for bringing the whole wing together again were dashed early this morning when it became apparent that Goose Bay had temporarily run out of good Sabre weather. As Flt. Lt. Glover would not be able to take off for at least 24 hours, the T.F.C. decided to leap-frog to Keflavik and to re-form the wing there. We were off before noon in our trusty North Star.

As we flew eastward, word was received via radio from Greenland that the wing leader, with 59 Sabres, was pressing on for Keflavik. We landed at Bluie West to examine the crashed Sabre and start salvage proceedings, and to make arrangements for the servicing of the three aircraft which were still at Goose Bay. Five men were left behind at Bluie to look after the laggards, with instructions to proceed thence directly to Lossiemouth, Scotland, to meet the wing there.

Perhaps I should include a short word here on the Narsarssuak aerodrome. It is obvious that the necessity of a Greenland field must have been very great to make such a forbidding location acceptable. Situated at the top of one of Greenland's many fiords, at the foot of towering snow-capped mountains, it can be approached by one route only,

up the fiord itself. Twice this summer I made the one-way approach into Bluie West One, both times extremely conscious of a vertical wall of rock where there would normally be a large flat overshoot area. They tell me that when Narsarssuak is "socked in," aircraft can still reach the aerodrome by finding the mouth of the fiord and flying up it at sea level, below the clouds and mountains, until the end of the one long runway comes into view. In fact, the three remaining Sabres used this approach coming in from Goose Bay on Tuesday, September 1st. I do not want to do it, ever!

Midnight, and we had reached Iceland. Unlike my previous visit, on this occasion it was pitch dark when I landed at the entry port of Keflavik. The light was right for sleeping, and I would have been happy to do so if we hadn't sat up half the night yarning with Colonel Schilling of the U.S.A.F., who was homeward bound with a wing of F-84s. Colonel Schilling was, if not the first, one of the first to fly the Atlantic via jet fighter.

Sixth day

Tuesday, September 1st, was the sixth day of our trip, but to most of us it seemed like the sixteenth. Because we would not go on without our three stragglers, we loafed through the day, not reporting for work until 9.30 a.m. and quitting at eight in the evening. Unfortunately, even with no flying, there could be no day off for the airmen of Nos. 444 and 422 Squadrons. We had unserviceable aircraft to repair and radio crystals to change,

At the Kurhaus, Baden-Baden: Clockwise from left: Sqn. Ldrs. Waterman, Bayliss, Wing Cdrs. Allan, Malloy, Mr. Pincock. (Photograph by Flt. Lt. Anderson).





but we did find time to visit the Post Exchange and admire the many attractive items which were stocked for the benefit of the American airmen doing their lonely tour of duty in Iceland. Come to think of it, we may even have found time to appreciate a few of the handsome blonde Icelandic women who work at Keflavik airport.

To me, Keflavik is, first and always, a place at which to land on your way to someplace else. I have had no opportunity to see the rest of Iceland, but I am sure that it cannot be nearly as forbidding as the airport and country which lies around it. Trees are non-existent, and scenery consists of a jumble of sand, shaggy grass, and quonset huts. It is definitely not a spot for tourists. Our aircraft were parked on an unused runway on the side of the field opposite the Icelandic and U.S.A.F. Headquarters, a wind-swept three miles by road around the airport perimeter. Quite apart from the lack of scenic splendor, the difficulties faced by "Leap-Frog" crews in maintaining aircraft at Keflavik are tremendous, and I cannot help but pity the officers and men in "Leap-Frog One" and "Leap-Frog Three": their operations took place in the middle of winter. Fortunately for us, the Americans did everything they could to make our task easier, not the least of their services being the loan of four jeeps to myself and the maintenance crews. In spite of the fact that we had to drive on the left side of the road, not one vehicle was dented or one pedestrian killed.

Seventh day

Our day of "rest" over, the crews went back to work with a will. News had been received that "Glover's Gang" had reached Greenland on the previous day, and we were anxious to be ready for a take-off as soon as he arrived in Iceland. Our meteorological expert, however, had not used the right spells when ordering his weather, and after lunch all prospects of departure on this day were ruined by reports of continuing bad weather over the United Kingdom.

At 2.00 p.m., Flt. Lt. Glover led his section of three over the base, and shortly afterwards the wing was again complete, with all 62 aircraft serviceable and ready to go.

Finding myself with a full evening free, I attended a Bingo party in the U.S.A.F. Officers' Club. The prizes were valuable, and excitement ran high. It so happened that the only Canadian winner was Wing Cdr. Malloy, who collected a new camera and exposure-meter.

As usual, I did a last tour of the Sabre line before turning in; but all was serene, and the U.S.A.F. Air Police patrol was there to see that no one could steal an aeroplane for a souvenir.

Eighth day

We were ready if the weather was. The T.F.C. anxiously waited for word from Flt. Lt. Harvey, whom Air Division had sent to Lossiemouth to help guide the operation over the last leg. No. 422 Squadron airmen loaded their North Star so that they would be ready to leave for the U.K. as soon as it became evident that the wing would depart. The Sabres had been moved into the starting position, and we were, as the man said, hot to trot.

By noon, Wing Cdr. Malloy and Sqn. Ldr. Bayliss had come back from their latest navigation briefing. The ceiling had lifted to 2000 feet over Lossiemouth and was still improving. At twelve-thirty I drove the three miles from the operations room to the aircraft to give the thumbs-up signal. The cluster of men around my vehicle broke up as everyone vanished to his job. Fifty-five minutes later, the wing leader gave the signal which warned his section to "light up."

Two hours after that, as the last of the 62 Sabres took off, most of No. 414's aircraft had landed in Scotland. The Chief Technical Officer breathed a sigh of relief. (I did not learn until I had reached Lossiemouth that Wing Cdr. Allan's number two had had an oxygen failure at the point of no return, and that the section had been forced to complete the leg at a much lower altitude. On account of the more rapid fuel consumption at the lower height, the section landed with about four minutes to spare.)

Midnight found the T.F.C. and his party being greeted with open arms by the Royal Navy's shore station "Lossiemouth." After bacon and eggs in the galley and a nightcap in the wardroom, I sank gratefully into the comfortable bunk which had been



Accompanied by Flt. Lt. A. H. Bauer, General L. Norstad inspects guard of honour on arrival for ceremony which placed No. 4 Fighter Wing under operational control of S.H.A.P.E.

allotted to me. My last thought, I remember, was: "The Navy is a wonderful Service, even if it doesn't speak English."

Last day

On the line at six bells (7.00 a.m. to you landlubbers), with perfect weather facing us for the rest of the day. The T.F.C. had indicated that, "come you-know-what or high water," we were to sleep in Soellingen this night; so fiendish activity was indicated. The Sabres had survived the last lap very well, but four frequency changes had to be completed in every aircraft so that our radios would put us in touch with things continental. It was a big job, and no one had time to stand slack and count his medals. Luckily, we had further assistance from a party of technicians from North Luffenham.

Suddenly it was two-thirty, and time for the last start. Communications and airframe technicians were still buttoning up No. 422 Squadron's Sabres when I crossed my fingers and informed the wing leader that we were ready. After all, I thought, if all 62 Sabres do not reach Soellingen together, the T.F.C. will certainly see that there are flowers at my funeral.

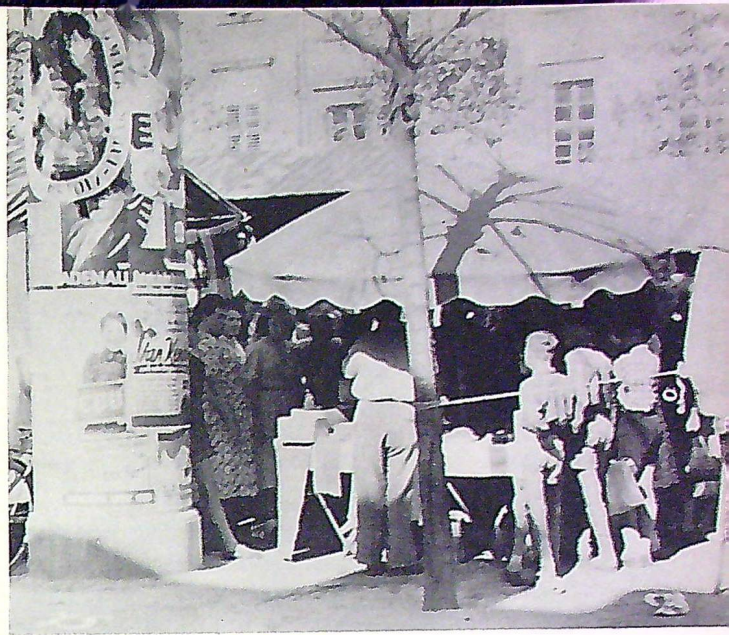
There should be a special medal for the ground crew of No. 414 Squadron and North Luffenham for the work they did. In addition to the fact that they had to work with starting equipment which was unfamiliar and in short supply, they found that many of the Sabres had suddenly decided to become temperamental and refused to start up as they should. The airmen would not allow any difficulties to defeat them. Five minutes before the last possible take-off time, the last six Sabres got airborne, thus saving my life and the wing's reputation. By 5.40 p.m. the last of the aeroplanes landed at Baden-Soellingen, and Operation "Leap-Frog Four" had been successfully completed.

EPILOGUE

What a reception! Following my normal practice of arriving everywhere at bedtime, I landed at Soellingen to find the parties of welcome well under way. The Sabres had been met by Air Cdre. K. L. B. Hodson, O.B.E., D.F.C., acting-A.O.C. Air Division.

No. 4 Fighter Wing's Commanding Officer, Group Capt. R. S. Turnbull, D.F.C., A.F.C., D.F.M., had opened the Station to our old friends and acquaintances from No. 2 Fighter Wing, at Grostenquin, and No. 3 at Zweibrucken, and the unofficial greetings lasted long into the night. All messes and clubs were bounding when our North Star arrived; but the German-built buildings were sturdy and came out unscathed. To attempt a description of the R.C.A.F. Station at Soellingen after a short three-day visit would be presumptuous on my part. It deserves a feature-length article of its own. Its low, green-stuccoed, modern buildings; its rich green grass; its winding concrete roadways; and, above all, the beautiful Black Forest out of which it has been carved — all combine to paint a picture which is almost too beautiful to be believed.

The surrounding country was no less interesting to me, since it was a part of Germany which I had not seen before. During these three days, while we awaited transportation home, we drove through many miles of the Black Forest. Once we paused on a mountain brow to eat roasted duck at the Hohritt Gasthaus, where we were surrounded by old European atmosphere and North American tourists; and, on another occasion, we descended into a valley to savour fresh trout at the Waldhotel Fischkultur, where, as the name implies, the meal came straight from the pond to the table. We



Potato-peeler vendor, Rastatt. (Photograph by Flt. Lt. R. H. Anderson).

marvelled at the old-world atmosphere of Baden-Baden, drank good German beer in its open-air cafes, and enjoyed the Casino of the Kurhaus. On our last day, we visited the lovely old market town of Rastatt to buy souvenirs of high quality at comparatively low prices for the folks in Canada.

Two weeks to the day after my departure from St. Hubert, Sqn. Ldr. Bayliss, Flt. Lt. Anderson, and I, returned to A.D.C.H.Q. I find it difficult even now to decide whether it seemed like two months or two days. Although "Leap-Frog Four" had actually been completed in eight days and five hours, there had been times when we thought it would never be over. For what had been the fastest of the four "Leap-Frogs," we could thank our lucky stars for good leadership, good luck, reasonably good weather, and, above all, for a good team which, although composed of over 100 individuals, had pulled throughout as a single man.

LEADERSHIP

A leader is best when people barely know that he exists. (*Whitter Bynner.*)

Pin-Points in the Past

The personnel of R.C.A.F. Station Winnipeg have in their possession the oldest known trophy of its kind in the Service — the Thorndycraft Trophy, for annual competition by teams in the station's bowling league.

The history of the award began in 1929, when Winnipeg Air Station (as it was then called) was located at 797 Notre Dame Avenue, and commanded by Flt. Lt. N. F. Mossop (Air Cdre., C.B.E., retired). The trophy was originally donated by Mr. A. H. Thorndycraft, who (except on a few occasions during the war) has made the presentation each year since.

The first competition was held in 1930-31, and the members of the winning team were: R. Hennessey (W.O.1, released), C. Lindberg (Sqn. Ldr.), E. B. Turland (W.O.1, rel.), J. Horner (Wing Cdr., M.B.E., retired), and D. O. Craig (Sgt., rel.). Winners in the second year were W. P. Mealing (W.O.1, rel.), G. L. Hobson (Sqn. Ldr.,



M.B.E., ret.), D. M. Duncan (W.O.1, rel.), D. O. Craig, A. V. Green (W.O.1, rel.), and S. Volk (Wing Cdr.). In 1932-33, the team was made up of Flt. Sgt. Turland, Sgt. H. Cobb (Wing Cdr.), Sgt. H. R. Dowie (Group Capt., O.B.E., ret.), Cpl. S. F. Clark (W.O.1, rel.), L.A.C. L. A. Baily (Flying Officer, ret.), and L.A.C. L. Stadfeld (Flt. Lt.).

We are indebted, both for the pictures and information on the trophy, to Cpl. L. B. McCurrie, of R.C.A.F. Station Winnipeg.



Personnel Movements ★ ★ ★

OFFICERS: SEPTEMBER

W/C R. W. McNair, DSO, DFC — Advisory Staff, Tokyo, to Radar Stn., Lac St. Denis.

OFFICERS: OCTOBER

S/L E. P. Wood, DFC — 3 FWgHQ, Germany, to 2 FWgHQ, France.

OFFICERS: NOVEMBER

S/L W. G. Cousins — AMCHQ, Ottawa, to AFHQ.
 S/L W. H. Durnin — TCHQ, Trenton, to ATCHQ, Lachine.
 S/L A. H. Fallis, DFC — CJATC, Rivers, to SHAPE HQ, France.
 S/L J. J. Killarn — 405 (MR) Sqn, Greenwood, to 1 AROS, Clinton.
 S/L P. J. Presidente — 408 (Ph) Sqn, Rockcliffe, to RCAF Stn Rockcliffe.
 A/C R. C. Ripley, OBE — ATCHQ, Lachine, to AAFCE HQ, France.

OFFICERS: DECEMBER

A/C C. L. Annis, OBE — CJS, London, to ADCHQ, St. Hubert.
 W/C D. B. Babineau — 5 SD, Moncton, to Radar Stn, Halifax.
 W/C E. R. Baker — AFHQ to 1 Air Div HQ, France.
 A/L J. J. Beaton — AFHQ to 4th ATAF HQ, France.
 S/L B. A. Cameron — 3(AW) OTU, North Bay, to AFHQ.
 A/C F. S. Carpenter, AFC — CJS London to AFHQ.
 W/C W. E. Edser — ADCHQ, St. Hubert, to 1 FWgHQ, U.K.
 S/L P. A. Jones — AMCHQ, Ottawa, to AFHQ.
 W/C R. McMillan — 11 TSU, Montreal, to CJS London.
 S/L H. R. Milne — AMCHQ, Ottawa, to 11 SD, Calgary.
 S/L L. J. Minion — 11 SD, Calgary, to AMCHQ, Ottawa.
 W/C F. H. Nichols — AMCHQ, Ottawa, to AFHQ.
 W/C J. D. Shannon — AMCHQ, Ottawa, to AFHQ.
 W/C R. C. Wilson — SC, Toronto, to AMCHQ, Ottawa.

OFFICERS: JANUARY

S/L J. E. Y. Levaque — ATCHQ, Lachine, to 1 TAC, Edmonton.

WARRANT OFFICERS: NOVEMBER

WO2 J. A. Bancroft — 4 FWgHQ, Germany, to 2 FWgHQ, France.
 WO2 H. S. Garrett — 2 TTS, Camp Borden, to AMCHQ, Ottawa.
 WO2 N. M. Hamill — 2 TTS, Camp Borden, to 1 R&CS, Clinton.
 WO2 L. B. Miskell — 11 ExU, Aylmer, to 1 TTS, Aylmer.
 WO2 K. M. Morrison — RCAF Stn. Summerside to RCAF Stn Portage la Prairie.
 WO1 J. A. G. Price — ADCHQ, St. Hubert, to 420 (F) Sqn (Aux), London.
 WO2 R. A. Round — RCAF Stn Chatham to Radar Stn., St. Margarets.
 WO1 R. H. Strong — 3 FWgHQ, Germany, to 5 FTTU, Germany.

WARRANT OFFICERS: DECEMBER

WO1 G. K. Casselman — AMCHQ, Ottawa, to AFHQ.
 WO2 G. A. Cook — AMCHQ, Ottawa, to AFHQ.
 WO2 L. T. Henderson — RCAF Stn St. Hubert to RCAF Stn Toronto.
 WO2 R. S. Lay — 10 TSU, Calgary, to 25 AMB, Calgary.
 WO2 A. H. Sear — RCAF Stn. Toronto to RCAF Stn St. Hubert.
 WO2 J. C. Wallis — AMCHQ, Ottawa, to AFHQ.

WARRANT OFFICERS: JANUARY

WO2 B. A. Andrews — 3 FWgHQ, Germany, to 2 CMU, Calgary.
 WO2 D. W. Cranham — 2 CMU, Calgary, to 3 FWgHQ, Germany.
 WO1 J. A. Slater — 408 (Ph) Sqn, Rockcliffe, to 426 (T) Sqn, Dorval.

KEY TO ABBREVIATIONS

AAFCE — Allied Air Forces Central Europe
 ADCHQ — Air Defence Command Headquarters
 AFHQ — Air Force Headquarters
 AMB — Air Materiel Base
 AMCHQ — Air Member Command Headquarters
 AROS — Air Radio Officers' School
 ATAF — Air Transport Command Headquarters
 ATCHQ — Air Transport School
 (AW) — All-weather
 CJATC — Canadian Joint Staff
 CMU — Canadian Joint Air Training Centre
 ExU — Examination and Maintenance Unit
 FTTU — Field Technical Unit
 (MR) — Maritime Reconnaissance
 OTU — Operational Training Unit
 (Ph) — Photographic
 R & CS — Radar & Communication School
 SD — Supply Depot
 SHAPE — Supreme Staff College
 (T) — Transport
 TAC — Tactical Air Command
 TCHQ — Training Command Headquarters
 TSU — Technical Service Unit
 TTS — Technical Training School

The Mysterious N.C.O.s

(Sooner or later on a winter's night, when the wind howls around the Mess and deep thinkers nurse their grog beside the fire, someone will probably raise the subject of those mysterious characters, the "King's Corporal" and the "King's Sergeant". None of us has ever met them, but most of us seem to know people who know people who have. Year after year they wander on their insubstantial way, always managing to keep just out of sight, and seemingly contributing nothing to the Service but the stuff of which legends are woven. In the following article, written some seven or eight years ago and here reprinted at second-hand from the British "Army Quarterly", Major T. J. Edwards, M.B.E., debunks a time-honoured myth.—EDITOR.)

Taking a broad view of literature, Hansard may not be regarded as entertaining reading for Servicemen, yet occasionally it contains an item which is arresting even for soldiers. One such item, like a flower in the desert, appeared in October 1944, and it referred to the legendary rank of "King's Corporal". By way of definition, we may say that the expression "King's Corporal" throughout this article embraces, for the sake of brevity, the kindred expressions of "King's Sergeant", "Queen's Corporal", and "Queen's Sergeant"

Here is the item from Hansard to which reference is made:

"Mr. Wootton-Davies asked the Secretary of State for War the total number of King's Corporals; how many have been created during the present war; what are the rules and conditions governing the rank, together with the award and privileges; and whether he can give a list of such King's Corporals together with the reasons for the appointment in each case.

"Sir F. Grigg: 'Extensive investigations have failed to disclose any factual basis for the suggestion made from time to time that there is, or has been within living memory, any such rank as King's Corporal.'"

This reply must have caused the eyebrows of many Service and ex-Service people to shoot up in surprise, for any one with the briefest contact with army life knows full well that such a rank has existed, or did exist, for many years. Or has it?

* * *

Having made considerable research into this subject, perhaps it would be as well for us to describe it — at least our early experiences — at once.

In the early days of the Great War of 1914-18, the Transport Sergeant, an old regular reservist, of a New Army (Kitchener) Service Battalion, at Fovant, Salisbury Plain, was noticed wearing a coat-of-arms, very much resembling the present rank badge of a Warrant Officer Class 1, just above his three stripes. On being asked the reason for this, he replied that he was a King's Sergeant, having been promoted on the field in South Africa, and that that was the badge officially approved for the rank. Moreover, he asserted that, being a "King's Sergeant", he could not be reduced from that rank without the King's approval. The matter was taken up with Brigade H.Q., etc., and the reply came back that the sergeant's story was a fable, and that he must take down the coat-of-arms badge forthwith. And down it came.

In 1921 the same question arose officially at the War Office, and, with the aid of the then Librarian, the late Mr. Huddleston, we carried out an extensive search into every likely regulation, warrant, letter, etc., etc., in an effort to discover some official basis for this somewhat common belief. We drew a blank.

Like most people who had served a few years in the army, we had heard of "King's Corporals" but had never met one in the flesh, at least one whose romantic rank would stand up to official scrutiny.

The matter came to life again in 1935, when a question appeared in the Journal of the Society for Army Historical Research (page 245), asking for details of the rank and the distinguishing badge worn by King's Corporals. In 1936, in the spring number of that Journal (page 62), the following appeared in reference to the question, quoting from the Naval and Military Record of a few years previously:

"There was an official suggestion in 1901 to the effect that soldiers who had distinguished themselves in war-time, but were unsuited to be N.C.O.s in peace-time, should be given some mark of distinction on the right arm, preferably an embroidered band, carrying with it a step in rank whilst actually on active service, with additional pay, and a donation of £10 at the end of it. Some members of the War Office Committee who sat to consider the proposal objected to the monetary grant, urging that such was derogatory to the soldier, but one of them pointed out that 'Lord Roberts had not hesitated to accept £100,000, so I cannot see why a soldier should object to receiving £10'. The idea, however, was not adopted, though some men were specially promoted in the field in the later stages of the Boer War, and were generally known as 'Kitchener's Sergeants'."

Although the expression "Kitchener's Sergeant" was new to us, it does seem to contain the germ of the idea from which sprang that of "King's Sergeants". Regimental histories, usually a fruitful field for information of this kind, were searched, but without positive result. General Sir Francis Davies, the author of the standard work on the Sergeant Major, was consulted, but he confessed that he had never heard of the alleged rank although he joined the Grenadier Guards in 1884.

Great prominence was given in the Press to the above-mentioned Question and Answer in the House, which soon brought a crop of letters from Generals, Colonels, etc., expressing the utmost surprise that the Secretary of State for War had never heard of the rank of "King's Corporal". To support their statements they quoted "known" cases in which they were concerned in some way. We have followed up these cases with the appropriate Record Offices and ascertained that in no instance has any man been officially described as a

"King's Corporal". Articles appeared in the provincial Press on the subject, and the writers described their interviews with some relative or friend of a "King's Corporal". It seems rather odd that so many "brother's, sons, cousins twice removed" type of relative could always be found to make a definite assertion regarding a "King's Corporal", but that none was actually produced in the flesh.

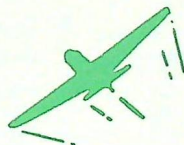
A writer in "The Derbyshire Times" for the 1st of December 1944, does not appear to have a very profound knowledge of army administration when he writes:

"If by the term 'factual basis' the Secretary of State for War means that there is no documentary evidence to support the existence of the rank, it appears that his ruling cannot be disputed. On the other hand, as reported last week, the consensus of opinion that there were 'King's Corporals' in the last war and before is such that it cannot be discarded as imagination on the part of the 'old sweats'. There is a possibility, however, that the 'Rank' was one which existed in the minds of the ranks, but which had no official recognition amongst the multitudinous clauses of King's Regulations and the like."

Then there is the picturesque story of the C.O. who reduced a "King's Corporal" in rank, upon which the soldier bet him five pounds that he would regain his stripes within a fortnight, and won his bet. This one was impossible to verify because no regiment, unit, or details of the N.C.O. or place where it occurred, were mentioned. To sum up, according to our researches there has never been any mention of the rank of "King's Corporal", or similar rank, in the King's Regulations or Royal Warrant for Pay, neither has any Record Office to which we have referred cases for verification traced in any soldier's official documents a reference to the supposed rank.

* * *

It's a pity to debunk such a pretty myth, but until it gets clothed in a little more substance it will have to continue in company with other myths such as the Loch Ness Monster.



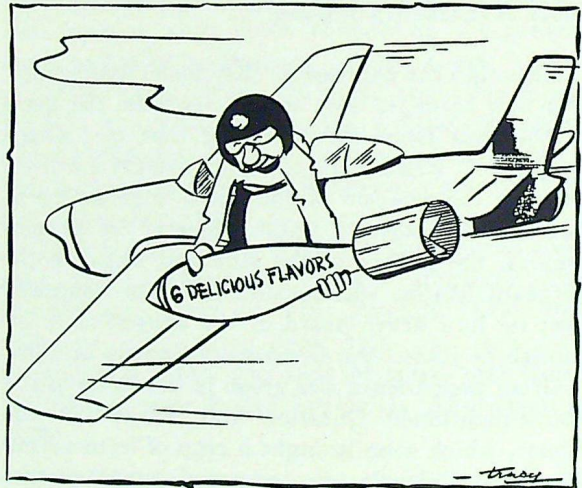
★ What's the Score?

"Without armament, there is no need for an air force."

The members of the Editorial Committee have shown their appreciation of Lord Trenchard's celebrated dictum by making an average score of 15 in this month's questionnaire. Correct answers appear on page 48.



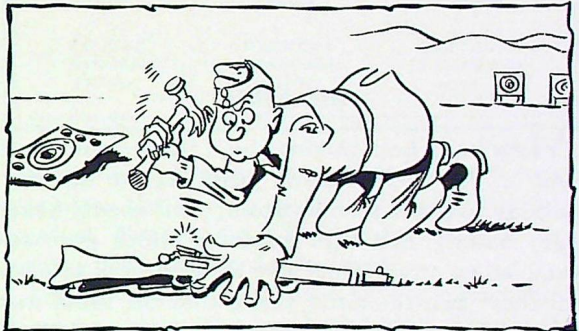
- The Chinese, who are generally believed to have invented gunpowder, used their discovery chiefly to:
 - Make war.
 - Make noises.
 - Make fire.
 - Make curry.
- In Europe, the discovery of gunpowder is credited to:
 - Sir Francis Drake.
 - Sir Francis Bacon.
 - Guy Fawkes.
 - Friar Roger Bacon.
- The first aerial bombardment in time of war took place in:
 - 1849.
 - 1914.
 - 1915.
 - 1939.
- The first bombs dropped by the R.A.F. during the Second World War were aimed at:
 - Aerodromes.
 - Merchant ships.
 - Naval ships.
 - Ground troops.
- The "Grand Slam" (the heaviest bomb dropped during the war) weighed:
 - 20,000 pounds.
 - 15,000 pounds.
 - 12,000 pounds.
 - 22,000 pounds.
- The target for the first "Grand Slam" was:
 - The Mohne Dam.
 - The "Tirpitz."
 - The Bielefeld Viaduct.
 - Berlin.
- The principal ingredient of the napalm bomb, used extensively in the Korean operations, is:
 - Jellied cordite.
 - T.N.T.
 - D.D.T.
 - Jellied gasoline.
- The standard armament on Hurricanes and Spitfires during the Battle of Britain was:
 - Eight .303 guns.
 - Two 20 mm. guns.
 - Four rockets.
 - Two 20 mm. and four .303 guns.
- Guns of large calibre (37 mm.) made their initial operational appearance in aircraft in:
 - 1941.
 - 1943.
 - 1915.
 - 1918.



10. If a pilot was told that his aircraft had a K-24 installed in it, he would expect to find:
- A radar gun sight.
 - A camera.
 - A rocket-firing mechanism.
 - A chemical toilet.
11. Of the German submarines sunk during the Second World War, allied aircraft were responsible for dispatching:
- Approximately 25%.
 - Less than 40%.
 - More than 50%.
 - More than 80%.
12. A highly necessary function is performed by the driving band on a projectile. It provides:
- A grip by which to carry the projectile.
 - The force necessary to drive the projectile.
 - A "screamer" to frighten the enemy.
 - A seal to prevent the forward escape of the gases.
13. Should the striker lever of a training-grenade be accidentally released, the prudent bystander will remove himself promptly. The fuse is set for:
- Seven seconds.
 - Fifteen seconds.
 - Thirty seconds.
 - One minute.



15. The "trace" made by a tracer bullet is caused by:
- Luminous paint.
 - A burning chemical.
 - Atmospheric friction.
 - An optical illusion.
16. When a rifle, equipped with an adjustable rear sight, is found to be shooting low, the aspiring marksman should correct the fault by:
- Lowering the target.
 - Re-bedding the barrel.
 - Raising the rear sight.
 - Lowering the rear sight.
17. If, on the other hand, the rifle is shooting to the right, the corrective measure would be to:
- Move the foresight blade to the left.
 - Move the foresight blade to the right.
 - Re-bore the rifle.
 - Bend the barrel slightly to the left.



14. The trajectory of a bullet is:
- Its average velocity during flight.
 - The path it traces during flight.
 - The highest point reached in flight.
 - The relationship between its velocity and the speed of sound.
18. Every gun has a bore, This is the name applied to:
- The calibre.
 - The hollow of the barrel.
 - The outside diameter of the barrel.
 - The individual who normally fires it.
19. The guns in an R.C.A.F. Sabre jet are mounted:
- Under the wings.
 - In the wings.
 - Both in the wings and fuselage.
 - In the fuselage only.
20. The size of the heaviest gun used operationally in aircraft during the Second World War was:
- 37 mm.
 - 22 mm.
 - 75 mm.
 - 88 mm.

Who Says

THE HYDROGEN BOMB

is a Mystery?

(Both the text and the illustrations of the article that follows are reproduced from a booklet written by a noted British scientist and published in the United States. It offers to the layman a remarkably clear explanation of the difference between the fission bomb of Hiroshima and the fusion bomb of today's stockpiles.—EDITOR).

By J. Bronowski

(Reprinted by courtesy of Alumni Publications)

THE ATOM

MEN HAVE been talking about the atom now, off and on, for two thousand years. Yet to this day nobody has ever seen an atom; until twenty years ago, nobody had seen anything which even resembled an atom. Then why have we been so sure, all these two thousand years, that the atom was there, somewhere at the heart of matter, if we could just find it?

The reason is a solid logical one — as plain today as it was to the Greeks who first thought of it. If I put a lump of salt on my tongue, I know at once what it is: it tastes salt. If I crumble the lump into grains and taste only a grain, I still know it is salt. If I put the grain under a microscope and pick it apart into its tiny crystals, each crystal is still salt and nothing else. We can shatter these crystals into smaller crystals — the process of breaking can go on and on — but it is simply not thinkable, that it can go on forever.

There must be a smallest unit of salt beyond which we cannot go and still have salt. There must be a smallest unit of sugar which remains sugar, and in the same way there must be a smallest unit of iron or chlorophyll or pencil lead.

Each substance must be made up of tiny pieces, each of them indivisible, each alike, and each characteristic of that substance — and not something else.

The Greeks called these pieces *atoms*, which means “indivisible.”

It is important to start this way, historically and logically, because it shows that our idea of an atom starts from sheer common sense. It is based on everyday notions which we all share. Of course, we're going to go on to more modern and detailed conceptions. But even these, we must remember, are attempts to find simplicity and order in the great variety of natural substances. Don't let anybody tell you that the atom is a complex mystery: it isn't. The atom is what we find when we look for the underlying architecture of nature, whose bricks are as few, as simple, and as orderly as possible.

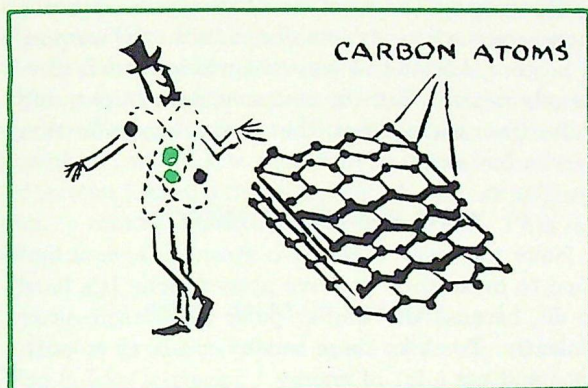
With that, we are ready to begin our questioning of nature.

WHAT IS AN ATOM

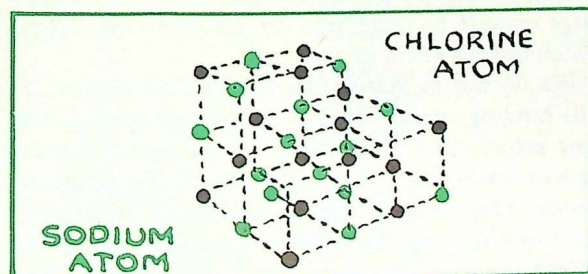
An atom is the smallest piece of an elementary substance which is characteristic of that substance and not something else.

This is still the Greek answer, but we have narrowed it by adding one word — the word “elementary.” The Greeks only thought of cutting up a lump of salt *physically* — that is, breaking it into its smallest pieces. But we have learned that the smallest piece of salt can still be taken apart *chemically* — that is, reduced to two more elementary substances, sodium and chlorine. We reserve the word atom for the smallest unit of one of these elementary substances.

Here is a picture of the atoms in the elementary substance, pencil lead (graphite). They are all alike, for they are all atoms of carbon. They are stacked neatly in sheets, and in each sheet they make a honeycomb of six-cornered cells:



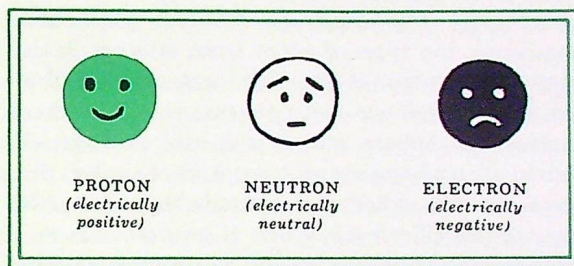
And below is a picture of a crystal of salt. The two elementary substances of which it is made each have their own atoms. They build up a strong square framework, in which each type of atom locks the other into place.



INSIDE THE ATOM

There are about 100 elementary substances like carbon, sodium, chlorine. Everything in nature is made out of these 100 types of different atoms. But it is natural to ask, Is this as far as we can go? Is the atom really the smallest particle of matter, or are there even smaller particles *inside the atom*? Can the atom be reduced to component parts, just as salt is reduced to sodium and chlorine?

This question has been answered in recent times: atoms themselves are composed of tiny *electrical* particles. These particles are:

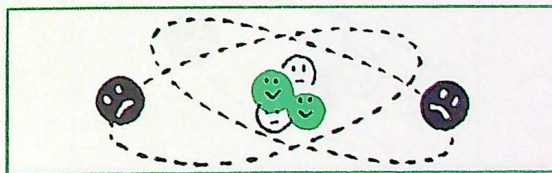


Electrically, the proton and electron are exact opposites: the proton is positive; the electron, negative. The neutron is halfway between: neither positive nor negative, but neutral.

The proton and the neutron have one important thing in common: they are both heavy. They make up the real mass in the atom. The electron, on the other hand, is so light that it is really nothing but a tiny charge of negative electricity.

Our task of picturing the atom is now simple, because every type of atom is constructed from these particles *on the same neat pattern*.

At the centre of every atom there is a heavy kernel or “nucleus.” All the protons and neutrons are concentrated here. Away on the outskirts of the atom are the light electrons. Here is a picture of an atom — in this case, a helium atom:



Notice how the protons and neutrons are bound together in the nucleus. The two electrons circle around the nucleus much as the planets circle around our sun.

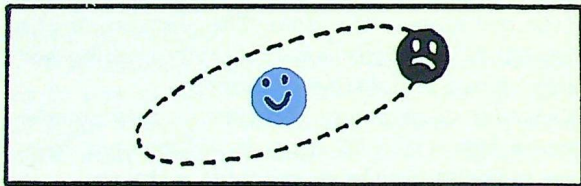
WHAT MAKES ONE ATOM DIFFERENT FROM ANOTHER?

This is an easy question, now that we understand the make-up of the atom.

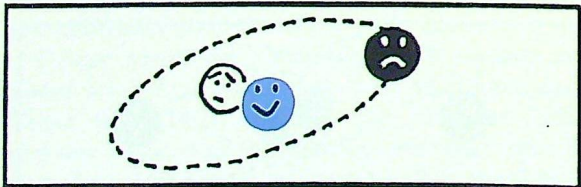
Different atoms are assembled from different numbers of protons, neutrons and electrons. Some atoms have very few of these particles; some have a great many, a hundred of each or more.

Protons. The essential number which distinguishes one type of atom from another is the number of protons it has. For instance, all hydrogen atoms have one and only one proton in their nucleus. All helium atoms have two protons; all carbon atoms have six protons. And of course, this holds also the other way around: the number of protons identifies each atom. If an atom has two protons in the nucleus, we can be sure it is helium; if it has six, it is carbon.

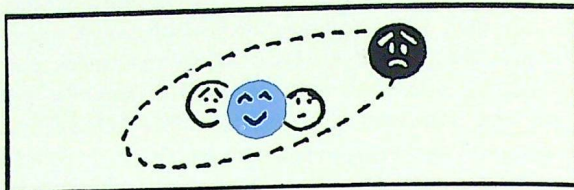
Neutrons. Each type of atom also has its own number of neutrons; but this number is not so strictly fixed as the number of protons. For example, the "ordinary" form of hydrogen has *no* neutrons in its nucleus; its picture is this:



But there is also a variant form, or *isotope*, of hydrogen which has one neutron in the nucleus. It is therefore heavier than "ordinary" hydrogen and is called "heavy" hydrogen. Here is its picture:



And we have recently created, in the atomic pile, an "extra-heavy" form or isotope of hydrogen which actually has two neutrons in its nucleus. This is its picture:



In short, the number of neutrons in the nucleus tells us whatever the atom is in its ordinary form or a variant form. The atoms of all elementary substances have variant forms — which differ from one another by a few neutrons and nothing else.

Electrons. The number of electrons spinning round the nucleus is normally equal to the number of protons in it; in this way, the whole atom is electrically neutral. But the electrons are so light, and so far from the nucleus, that they play no further part in our story.

WHAT IS NUCLEAR ENERGY?

Have you ever taken two strong magnets and tried to make their positive poles touch? It's hard to do, because the similar poles repel each other violently. To make them touch, you have to push hard and use a lot of energy.

Now take another look at the nucleus of the helium atom. You see two protons and two neutrons locked together. The neutrons are neutral, of course . . . *but the protons are both positive and ought to repel one another violently.* In fact, the whole nucleus ought to fly to pieces from their repulsion. It does not. Why?

There can only be one answer. Some energy must be binding the protons together — an energy large enough to overcome the electrical repulsion which pushes them apart.

We do not even now understand the nature of this binding energy. But we know that here is the true secret and source of nuclear energy. *Atomic or nuclear energy is the binding energy which holds the protons and neutrons together within the nucleus.* This is the energy we must unlock for our own uses.

UNLOCKING THE NUCLEAR ENERGY

Some arrangements of protons and neutrons naturally hold together more firmly or tightly than others. We say that these are the more *stable* nuclei. Some arrangements naturally hold together less tightly; we say that they are less stable.

When we go from a less stable to a more stable arrangement of the same protons and neutrons, there is some binding energy to spare. The more stable nucleus does not need so much energy to hold it together. It releases this nuclear energy for our use.

So in order to unlock nuclear energy, we make a nucleus reach a more stable arrangement. As it does this, some of its binding energy flies out.

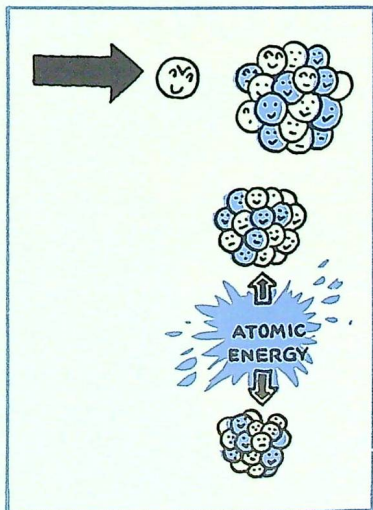
The most stable nuclei are those of middle size, neither too light nor too heavy. The very light elements (like hydrogen) and the very heavy elements (like uranium) are the least stable.

We can therefore unlock nuclear energy in two ways. We can break a large nucleus, such as uranium, into middle-sized halves. *This is fission.* Or we can join together light nuclei, such as hydrogen, to make a nucleus nearer middle size. *This is fusion.*

FIRST, WHAT IS FISSION?

Fission is the breaking apart of heavy atoms. This is how it works.

A neutron is fired into the nucleus, like this:



The nucleus, suddenly made shaky and unbalanced by the extra neutron, breaks into two parts. Each part is of middling size.

And so the task is done. We have helped the heavy nucleus become lighter, and therefore more stable. The binding energy no longer needed is released. It is as simple as that.

THE ATOMIC BOMB

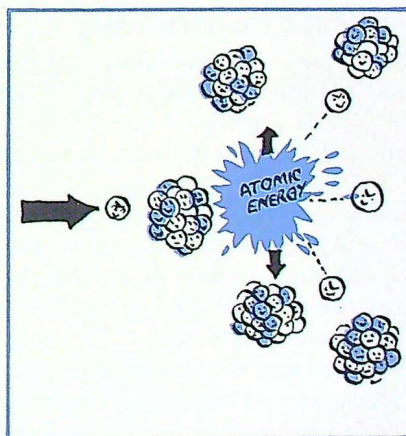
But there's one hitch to this in practice.

If we have to fire neutrons one by one, and break up atoms one by one, we can only get energy in penny packets. To make the breaking or fission of atoms worth while, we need a reaction which fires off neutrons of itself, without outside help, as it goes along.

Such a reaction was discovered late in the Nineteen Thirties. It is a remarkable reaction whose precise sequence is still partly secret. But what makes it remarkable is no secret.

When the nucleus of one variant form or isotope of uranium is struck by a neutron, the nucleus breaks in half . . . and at the same time releases several of its own neutrons.

These neutrons fly through the rest of the piece of uranium. If the piece is small, they may get out without meeting another uranium nucleus. But if the piece is larger than a certain critical size, each neutron is sure to hit another nucleus. Each of *these* nuclei splits, and fires off more neutrons. In this way the reaction carries itself on in a "chain" reaction. Here is how it looks:



The energy released by this chain of explosions is tremendous. The types of atoms which carry on such chain reactions most violently are the explosive variant of uranium, which was used in the Hiroshima bomb, and man-made plutonium, which was used in the Nagasaki and later bombs.

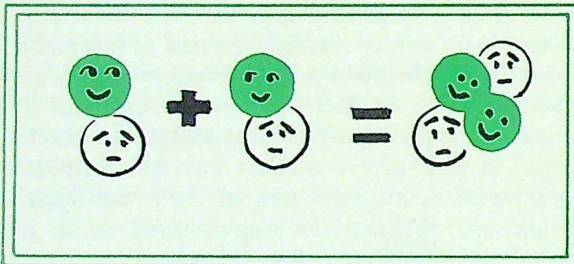
WHAT IS FUSION?

And now we come to fusion. Fusion is the joining together of light nuclei. In practice, we join together some hydrogen nuclei to form helium.

First, glance back at the diagram of the helium atom. Its nucleus contains two protons and two neutrons.

Next, glance back at the isotope of hydrogen called "heavy" hydrogen. Its nucleus contains one proton and one neutron.

If we could make two of these heavy hydrogen nuclei join, to become one helium nucleus, we would have a nucleus one step nearer the stable, middle size. Some binding energy would therefore be released for our use.



THE HYDROGEN BOMB

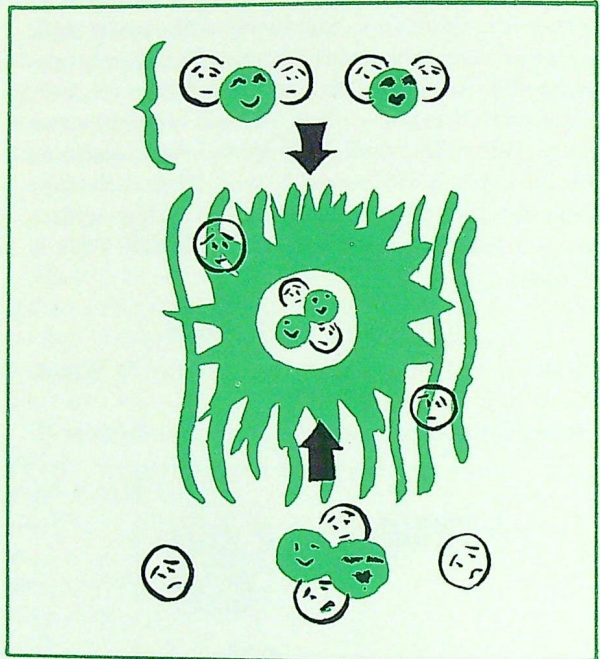
But it is not easy to make two nuclei join or fuse. For in order to do so, they must be pressed fantastically close together.

The difficulty is this: every nucleus is electrically positive. It therefore repels any other nucleus which comes near it. The only way fusion can overcome this repulsion is if every nucleus is moving tremendously fast — that is, if the whole substance is enormously hot, so that every part of it is darting about furiously.

Until ten years ago, we couldn't conceive of producing high enough temperatures on earth to make hydrogen atoms fuse. But now, the atomic bomb

of explosive plutonium will give us a temperature of 150,000,000 degrees Centigrade for about one-millionth of a second. That is long enough to start the fusion; its own heat will then carry it on. So by using the atomic bomb as a "match," we can start the fusion of hydrogen into helium. And this fusion releases the fierce energy which almost consumed Eniwetok.

Here is a picture of fusion in practice, using two atoms of "extra-heavy" hydrogen. Two nuclei of extra-heavy hydrogen fuse under terrific heat, releasing the energy of the binding force, and form a new element, helium, while firing off two superfluous neutrons.



WHY ARE FUSION BOMBS MORE POWERFUL THAN ATOMIC BOMBS?

First, fusion gives rather more energy from each pound of material than fission can. But there is a graver reason to fear the fusion — or hydrogen — bomb.

Hydrogen bombs need not be limited to pound sizes, but can be made in tons. In the fission — or atomic — bomb, the pieces of explosive uranium must be kept smaller than a critical size of a few

pounds; for a larger piece would explode by itself in a chain reaction, as soon as a single stray neutron happened to start it off. But we can build up as large a hydrogen bomb as we please, since it cannot set itself off. There is no natural limit to the size of a hydrogen bomb.

THE FUTURE OF THE HYDROGEN BOMB

We think of fusion as a great destructive power. A ton of hydrogen detonated over a city might kill a hundred times as many people as died at Nagasaki. But we must not despair of fusion because so far we know only how to do mischief with it. Our greatest power over nature rests in understanding her processes; and even the hydrogen bomb tested at Eniwetok can be a step in understanding, if we are willing to open our minds to it.

For fusion is the creative process of nature herself. This is what makes the stars shine: they are even now building up their hydrogen into helium, and then step by step into the other elements. The sun itself makes its energy, by which we live, exactly as the hydrogen bomb does, by fusing hydrogen into helium.

Just as the atomic pile has offered us the new wonders of radioactive medicine, so the hydrogen bomb offers us a glimpse of nature's own limitless and creative energy. These gifts are ours to use, if as responsible citizens we set ourselves to understand what science discovers.

The future of man's command of energy will lie in fusion. If we can unlock this source, the hydrogen in a pint of water will yield more energy than a thousand tons of coal. We are making only a frightening beginning. It is our business — every one of us as citizens as well as scientists — to put this beginning to its right use, to turn it from destruction and thereby to learn the creative art of nature herself.

For neither the fission of plutonium nor the fusion of hydrogen into helium are one-way roads to death. Like every great discovery, they offer an equal potential of happiness or disaster. They are the gift of science, and every scientist searches his heart at midnight to pray that the gift will bring a blessing. This prayer is in all our hearts; its fulfillment lies in all our hands.

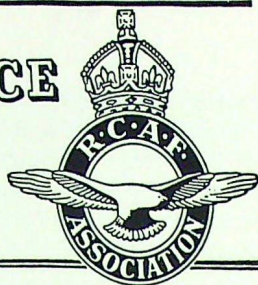
THE HIGHER ILLITERACY

And so most of us who have reached maturity avoid the question for faith; instead we escape into applied science — the world of the automobile, the frigidaire, radio and TV — and we do not permit the natural or supernatural worlds to disturb our social sufficiency. Of course, we allow pure scientists like Einstein to philosophize about the wonderful design of the atom or of the universe; and we tolerate poets like Dylan Thomas when they express through imagination their wonder at the pattern of life and death. But we do not think about the worlds depicted by these men. Though we applaud such thinkers, we do not read their thought-provoking, wonder-inspiring words; for while we deliberately imprison our imaginations, we can neither understand nor appreciate them.

(“London Letter”, R.C.A.F.)

ROYAL CANADIAN AIR FORCE

Association



(This section is prepared by National Headquarters of the R.C.A.F. Association, and does not necessarily reflect the official opinions of the R.C.A.F.)

YORK MINSTER MEMORIAL

THE FOLLOWING is an extract from an article (written by Robert McKeown and appearing in "Weekend Picture Magazine") describing the York Minster Memorial, which is being built in honour of Commonwealth and Allied airmen who lost their lives in the Second World War.

"The most welcome sight to Canadian bomber crews returning from Europe with the first morning light, was the gray outline of York Minster. This venerable landmark, close to the bombers' bases in north-east England, symbolized safety at the end of each mission.

"York Minster soon will have a permanent significance for the tens of thousands of Canadian airmen, especially those of No. 6 Bomber Group. A memorial shrine to Commonwealth and Allied fliers who lost their lives is to be erected in the Cathedral.

"The memorial will feature an astronomical clock showing phases of the moon and solstice. On the reverse side of the clock will be a map of the night skies, showing the constellations under which the aircrews flew to their objectives. The memorial will be paid for, in part, by public contributions which are being accepted by R.C.A.F. Association branches across Canada.

"A Book of Remembrance will contain the names of some 20,000 airmen who were killed while serving in the units based in this part of England. One page of the book will be turned each week. To Canadian airmen who revisit York Minster, the names will bring back many memories."

Air Vice-Marshal G. E. Brookes, C.B., O.B.E., the first A.O.C. of No. 6 Group, has expressed the hope that all members of the Association will gladly share in the privilege which is now afforded, and that Canadian next-of-kin, as well as those who served, will make possible a substantial contribution from Canada.

All contributions should be sent to:

H. E. Langford, Honorary Treasurer,
York Minster Memorial Fund,
c/o Chartered Trust Company,
34 King Street West,
Toronto, Ontario.

BON VOYAGE PARTIES

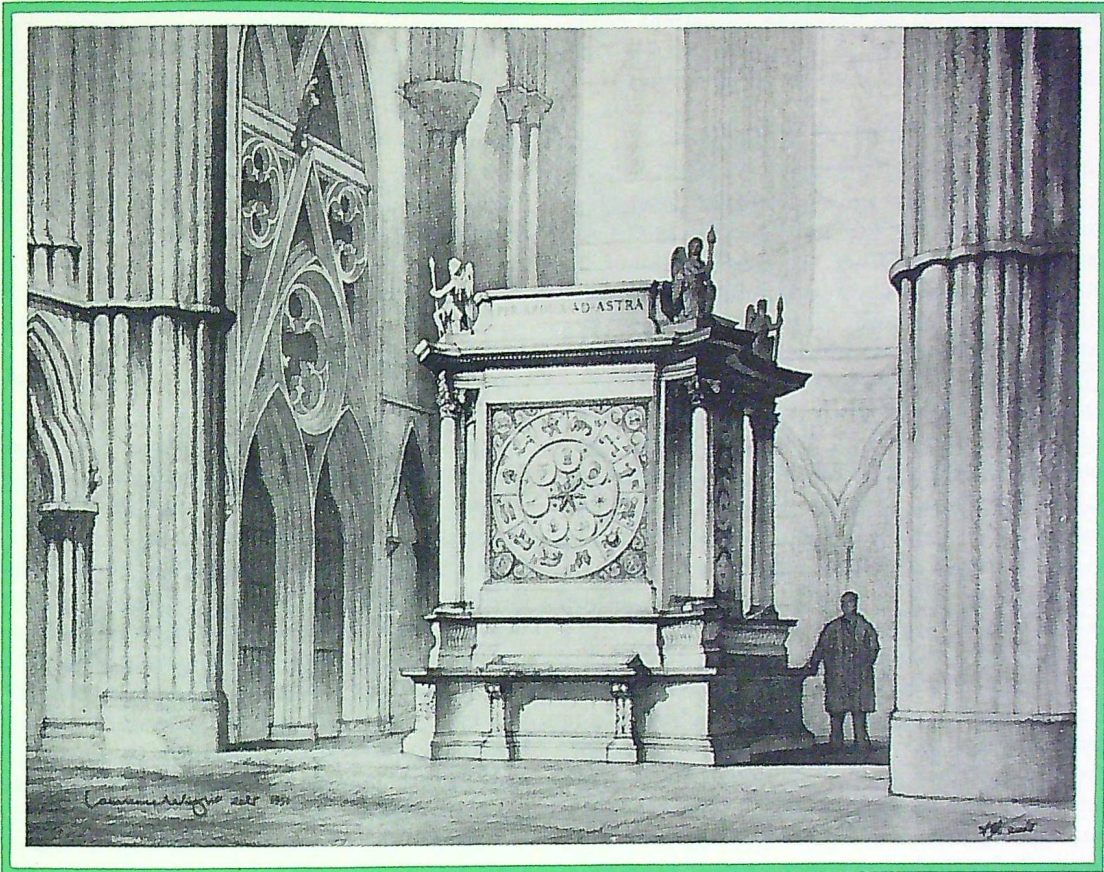
During the winter season, ports of embarkation for R.C.A.F. personnel and their families are Halifax and Saint John, and Association Wings at these points have expressed their pleasure in assuming responsibility for the provision of "going-overseas" parties. We congratulate the Quebec, Halifax, and Montreal Wings, for the splendid work they have done in this regard on past occasions, and we look forward with complete confidence to the continued success of *bon voyage* parties at Halifax and Saint John.

EDMONTON ACTIVE

Financial arrangements are nearly complete for the proposed headquarters building of No. 700 (Edmonton) Wing. It is expected that this headquarters will be the first for the Association in the Province of Alberta. This is a forward step indeed, and we wish the Wing all success in this venture.

C. H. Wallace, President of No. 700 Wing, and Sqn. Ldr. Matthews, with the R.C.A.F.A. Air Cadet award.





The York Minster Memorial.

During the past year a real opportunity came to the Edmonton Wing. When asked to sponsor an Air Cadet Squadron at the Edmonton Indian Reservation School, Wing members immediately agreed, and No. 570 Squadron came into being, with D. Wright, a member of the Wing executive, as chairman of the sponsoring committee. V. Fowler is commanding officer, with H. Marshall as adjutant, and C. White as instructor. Our best wishes go to the Wing in this worth-while endeavour.

N.A.T.O. TRAINEES ENTERTAINED

Through the efforts of T. Segsworth, President of No. 702 (Lethbridge) Wing, 50 aircrew trainees from R.C.A.F. Stations Penhold and Claresholm, in Canada under the North Atlantic Treaty Organization air training plan, were guests at the United States Air Force base at Great Falls, Montana, during the Christmas holiday. This international goodwill and friendship programme was instituted last year.

Wings of the Association located in the area of

R.C.A.F. Stations where N.A.T.O. training is being carried out, all arranged Christmas hospitality for the visitors. It is hoped that this will become one of the Association's new projects.

GALA NIGHT AT HAMILTON

About 500 former members of the Polish Air Force, and their guests, gathered for their third annual Blue Ball at the Royal Connaught Hotel, Hamilton, in November. It was a reunion for many of them; some coming from Buffalo, Toronto, and Montreal, as well as the area surrounding Hamilton. Among the guests were: Mayor Lloyd D. Jackson and Mrs. Jackson; Air Vice-Marshal Brookes, National President of the R.C.A.F.A., and Mrs. Brookes; Brig. J. A. Roberts, D.S.O., Commanding Officer, Third Infantry Brigade, C.A. (R.F.), and Mrs. Roberts; Group Capt. D. B. Annan, D.F.C., A.F.C., Commanding Officer, 16 R.C.A.F. (Auxiliary) Wing, and Mrs. Annan; and Sqn. Ldr. A. C. Golab, Commanding Officer, R.C.A.F. Station Hamilton, and Mrs. Golab.

The Polish Air Force Association, with branches in Hamilton, Toronto, and Montreal, is now part of the R.C.A.F. Association, and the branch in Hamilton is known as No. 431 (Krakow) Wing. The Krakow Wing was well represented at the ball, and much credit for the success of the evening is due to Wing President S. Olsewski, Mrs. Olsewski, and A. J. Grodecki (secretary).

Left to right: Mrs. A. J. Grodecki, Lt.-Cdr. J. P. Wright, D.S.C., Mrs. Wright, and Mr. Grodecki.



NEW WINGS

The month of December was very productive for the Association, with three new Wings being formed: No. 310 (Wilno) Wing (Polish), Montreal; No. 311 (Lower St. Lawrence) Wing, Rimouski, Quebec; and No. 433 (Welland) Wing, Welland, Ontario. We welcome these Wings into the Association, and assure them the help of this headquarters at all times.

NO. 900 (ARDUA) WING

30 January, 1953.

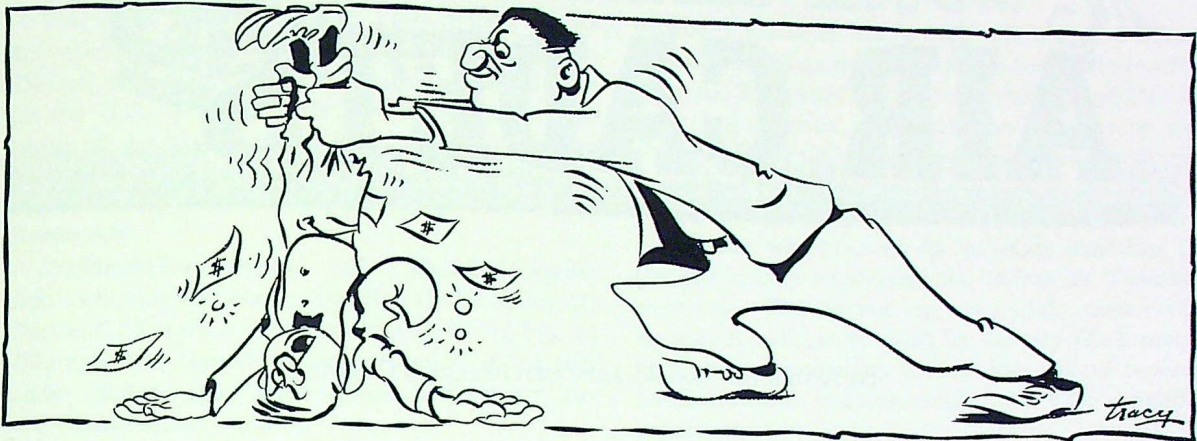
The General Secretary,
R.C.A.F.A. Headquarters.

Dear Sir:

We of No. 900 (Ardua) Wing Always find that the collection of annual dues is one of our major problems, as I suppose is the case with other Wings of the Association. However, bearing past difficulties in mind, this year we made an early start and laid our plans solidly, for we were determined to set a record by being the first Wing in Canada to have a 100-per-cent paid-up membership. So, at a recent General Meeting, we were authorized to form a special Collection Committee to put all members in the desired category.

Although it may not be strictly according to our democratic principles, a few of us got together and decided that a hand-picked committee would serve our purposes best, as (and I am sure you will agree) necessity sometimes demands such firm action. The members were picked for their tact, aggressiveness, and, last but not least, their physical strength. Of course, as far as the last-mentioned is concerned, we did not intend to resort to terror-methods, but we did feel that a member of timid nature might be talked out of his money by a big determined fellow with much less palaver than by a chap of this own temperament. We left it up to each individual collector just how far he should go, at the same time making it clear that the Wing itself could not be held liable for any personal injuries caused.

It was amazing and most encouraging to see our system work so well. Defaulters were shadowed, cornered, and embarrassed, and renewals came in at a great rate. It was something we had never ex-



perienced before, and even the “strong-arm” squad had good results, without a single report of an accident.

Finally, all that was stopping us from sending in our fully paid-up report into National Headquarters was one member. This was extremely frustrating to the whole Wing, the Committee in particular — and, above all, to the part of the Committee dealing with the “tough customers”.

The Committee chairman was a big fellow, weighing somewhere in the vicinity of 210 and quite a football player in his day. He laid his strategy well, and then invited some of the rest of us to watch him get the dues. Well, to begin with, he picked two other fellows almost as big as himself and they made their plans.

We were told to be across the street in front of the Supermarket on Friday evening at eight o’clock, and nothing more was said.

Well, we went as we were told and made ourselves look as inconspicuous as possible, at the same time keeping a good look-out towards the store, alongside of which we could make out an occasional shadowy figure. The boys certainly put a lot of

research into their plan, because, just a few minutes after eight, out heads our outstanding member. Somebody in the store held the door open and out he came, staggering under as big a box of groceries as I have ever seen one man carry. He was handicapped still more by two big sticks of celery blossoming out from the top of the box and pretty well blocking his view. In any case, he didn’t know what hit him until he and his groceries were on the ground. I guess, in theory, they planned to help themselves to the \$3 out of his wallet, but, when he saw that the game was up, he cheerfully paid and we all joined in to help him re-pack the groceries. The only real damage done was two dozen eggs broken, which the Wing was only too glad to reimburse him for.

We hope we are the first of the Wings to send in a fully paid-up membership,

Yours, with Air Power,

Corresponding Secretary,
No. 900 (Ardua) Wing.

FLATTERY

Flattery is fine, if you don’t inhale. (*Adlai Stevenson.*)

The ROYAL CANADIAN AIR CADETS



By Arthur Macdonald, Air Cadet League of Canada

NEWS ROUND-UP

THIS MONTH we again turn to our press-clipping service for a round-up of Air Cadet news items from across the country. These items have been selected, not on the basis of their importance, but because they are generally interesting and contain a few ideas that other squadrons may find useful.

Calgary

A new idea in fund-raising was tried out just before Christmas by Nos. 52 and 538 Squadrons of Calgary. Thousands of packages of Christmas-wrapped assorted nuts were sold from door-to-door throughout the city in a one-night campaign to raise funds for the two squadrons.

Over 200 cadets were driven to all points of the city to do their house-to-house canvassing. They were stocked up with 7,200 packages, purchased on consignment from the Planters Nut Company, and valued at about \$10,000. The cadets worked in teams of four or five salesmen to a district, each group being under the supervision of an adult civilian committee member.

After the last house had been canvassed, the campaign committee found that over \$2,000 had been raised for the two squadrons. But even this didn't quite satisfy the local committee. Said one member: "We have learned a lot, and next year I think we can do much better."

Port Colborne

Plans for a ground observer corps were discussed at a recent parade of the Port Colborne Air Cadets at the McBain Memorial Hall. Pilot Officer Bruce McArthur told the attending 16 cadets of the new civil defence unit, and several indicated that they were interested in joining the group.

The remainder of the evening was spent in an intensive study of new rifle movements. In addition, various classes were held, including a lecture on navigation for those enrolled in the flying training course. A movie, "Action Stations", was shown at the completion of the instructional period.

Lakehead

For Air Cadets in north-western Ontario, 1953 was the most successful year on record, according to W. H. Griffis, honorary secretary of the North-Western Ontario Zone. At a recent meeting of the Zone Committee, Mr. Griffis summarized the year's achievements as follows:

Lakehead Air Cadets won nine flying scholarships, one overseas scholarship, two senior leaders course scholarships, a University of Toronto aeronautical engineering scholarship, and the A.T.C. Trophy for the highest average flying training marks in 1953. He also cited the "remarkable" interest shown by the girl cadets of No. 84 Port Arthur Squadron.



The Zone committee had kind words for its travelling representatives: chairman Gordon Dalzell, who was selected as League representative on the U.S. exchange cadet tour in 1953, and the team of Air Cadet sharp-shooters who compiled such a fine record at the D.C.R.A. meet in Ottawa.

Dartmouth

Dartmouth's leading Air Cadet, Garnet Anthony, has enlisted in the Royal Canadian Air Force. C. Teasdale, commanding officer of No. 18 (Dartmouth) Squadron, announced that his star cadet had already commenced preliminary air-crew training at London, Ont.

Before leaving, Cadet Anthony addressed members of the Dartmouth Lions Club, recounting his experience in last year's exchange visit to the United Kingdom and telling the Club of his plan to enlist in the Air Force. The Dartmouth squadron is sponsored by the local Lions Club.

In addition to taking part in the exchange visits scheme, Anthony was last year awarded a flying scholarship and has been rated as one of Canada's top cadets.

Chatham, Ont.

About 50 cadets from Chatham's No. 294 Squadron were entertained by No. 420 (Aux.) Squadron, R.C.A.F., at Crumlin Airport. Divided into five groups of ten cadets each, the party, led by Flt. Lt. D. Russell, enjoyed an interesting and varied programme.

The high spot of the outing was a trip in a Harvard aircraft for senior cadets and in an Expeditor for the rest. While one group was flying, the others watched a radar demonstration, spent some time inside the decompression chamber, examined Air Force safety equipment, or were shown around the station armament section. Before returning home, the cadets watched an aerobatic display put on for them by pilots of No. 420 Squadron.

New Waterford

New Waterford Air Cadets are now training in new quarters in the "Orange and Blue Hall". The hall, formerly used by the Reserve Army, offers

excellent facilities for stores, offices, and classrooms, as well as adequate space for practice drill sessions. The cadet squadron formerly used Calvin Church basement but, with the transfer of the Reserve Army unit to Glace Bay, the new quarters became available.

The squadron got another good break when permission was granted for practice shooting, in the Glace Bay armouries, for cadets on Tuesday evenings. Transportation to and from the armouries will be provided by Rotary Club members, who are anxious to see the cadets receive marksmanship training under the best possible conditions.

Middle Musquodoboit

Air Cadets of No. 543 (Rural High School) Squadron received two impressive trophies and much praise at a largely-attended public gathering held in the high school auditorium.

Air Vice-Marshal A. L. Morfee, C.B., C.B.E., League chairman for Nova Scotia, addressed the meeting and outlined the many awards available to Air Cadets.

H. B. Rhude, of Halifax, presented the C. K. Beveridge Trophy, annually awarded to the best all-round squadron at summer camp, and congratulated the unit on winning the award in competition with 39 other squadrons in the four Atlantic provinces. This is a remarkable showing for a squadron which has been in existence only since December 1951.

No. 543 Squadron also carried off the 1953 summer camp Sports Trophy, which was presented by Sqn. Ldr. A. L. Jewett, Air Cadet Liaison Officer for Maritime Air Command.

Dauphin

A free flying lesson was given to five members of No. 50 (Dauphin) Squadron recently — but not in the way you'd expect.

While flying model aeroplanes at the airport, the boys were invited for a flip in D. Barber's Hornet Moth. Up in the air they were shown most of the essentials of flying and various other manoeuvres. In on the trip were B. Marsh, G. Hutton, W. Moore, D. Tycholis and B. Dunwoody. One at a

time — the 'plane is a two-seater — they were given a bird's eye view of the south edge of town and the airport.

Kingston

Freshly-scrubbed teeth, shiny boots, and immaculately pressed tunics were much in evidence as members of No. 58 Kingston Squadron paraded in the armoury to see three of their comrades being presented with their cadet wings and civilian pilot's licenses.

In a simple but impressive ceremony, the three Kingston boys received, from the hands of Mayor Wright, their awards for good work and hours of study. They were F. Redden, now a cadet at the Royal Military College, Warrant Officer S. Smith, and Flt. Sgt. G. Innis.

Prior to the presentations, the squadron was inspected by Mayor Wright, who also took the salute at the march-past.

Vancouver

Fathers got a taste of their sons' medicine at the Friday night parade of No. 57 Squadron. It was the squadron's first parents' night, and after the visitors were shown through the No. 1 Air Cadet Wing Training headquarters, the sons took over. They made their fathers fall in, and marched them back, behind a drummer, to the reception hall. "They all took it with a grin. I think they enjoyed it", said Flt. Lt. J. Hunter, C.O. of the squadron.

The tour included a visit to the radio section, the machine shop (where the cadets learn the ins

and outs of engines), the rifle range, the orderly room, and various classrooms. The evening wound up with coffee and cakes for the 110 cadets and their parents.

Yorkton

A zone athletic meet was held at Yorkton, and was attended by representatives from the six Air Cadet squadrons which come under the direction of H. W. Vaughan, provincial League director for north-east Saskatchewan. This programme was such an outstanding success that it will probably become an annual event in future.

No. 603 (Yorkton) Wing of the R.C.A.F. Association donated a beautiful trophy for annual competition in this event. The trophy was won by No. 566 Squadron, Canora, and was presented by Flying Officer D. Cook, president of No. 603 Wing, after the meet. Flying Officer Cook, incidentally, was a member of the original Air Cadet squadron in Yorkton. He later served overseas with the R.C.A.F. and at present is an officer of the local squadron.

In conjunction with the athletic meet, a rifle competition was held in the evening, with the Yorkton Squadron carrying off the trophy donated by Mr. Vaughan. All targets were shot at the Yorkton Collegiate range, under the direction of L. F. Kustash, the squadron's rifle instructor. Mr. Vaughan later presented the trophy at a squadron parents' night.

A picture showing one of the trophy presentations appeared in last month's edition of "The Roundel".

BEST TROOPS

Madame Montholon, having enquired what troops he (Napoleon) considered the best, "Those which are victorious, Madame", replied the Emperor. (*Bourrienne's "Memoirs"*)

Feminine Gen



Hi, girls:

As the tumult of the festive season dies down, a much-desired peace settles around us, leaving us time to think back over the past year and forward to 1954. In the midst of all this heavy thinking, a very pleasing and interesting article arrived on my desk from R.C.A.F. Station Trenton. Here it is. I hope you like it as much as I did — and don't forget that I'm waiting to hear from you too!

Alice Twitterwhistle Cpl.

(Alice Twitterwhistle, Cpl.)

RABBITS, GOLDFISH, and BRIC-A-BRAC

By Corporal Ruth M. Vogler

Much is known about the work of our airwomen — but what of their hobbies?

It would seem that each station and command has its own "Plaid Shirt Flight", its "Pennant Flight", and its "Collector's Flight". No matter where you go, from Halifax to Comox, they're all very much in evidence.

This is particularly true in the case of the "Plaid Shirt Flight". To drop into an airwomen's lounge on any station on a domestic or other informal night is to see many airwomen in plaid shirts of every known colour combination. What an array! — and what a contrast to the muted blue of the Service or working dress they wear during the daylight hours!

To meet the girls of the "Pennant Flight", you must visit the barracks. Here you'll see walls tastefully decorated with pennants from the various station on which the airwomen have served and the places in Canada and the United States they have visited since joining the Service.

Some even display pennants of places they HOPE to see! Many of the rooms are quite a study in geography, and the girls can tell you something of importance connected with each pennant.

Next is the "Collectors' Flight", the members of which collect things. There are those who collect snapshots: these girls will have interesting collections to show their families and friends when they go on leave, as well as priceless mementoes of Air Force life for their future years.

L.A.W. Lorna Clifford's room, at Station Portage la Prairie, makes you wonder whether it is you or she who is in the dog house! Lorna collects dogs — in china, plaster, and glass — and her walls are decorated with pictures of all types of canines. That isn't her only hobby, though, for she makes paper and plastic flowers as well, and on her dresser is a large spray of apple blossoms that are hard to distinguish from real ones.

The field of "hobbyism" increases. Across the hall from Lorna we visit L.A.W. Betty Slade, who will, no doubt, be hard at work on a leather bill-fold. Or perhaps, for a change, this evening she's working on a model aircraft. As we glance around, we see many and varied miniature aircraft which Betty has completed in her leisure hours.

Wandering on into another wing of the barracks, let's look in on Corporal I. M. "Scotty" Campbell. Scotty collects goldfish — cute ones, ugly ones, and even one-eyed ones. She has another hobby: music. Her collection of classical and semi-classical records is the envy of all music-lovers in the barracks.

We say "good-bye" to Scotty and we call on L.A.W. Georgie McGillivray and A.W.1 Lydia Spellman. We'll probably find Georgie engrossed in a new oil painting, while Lydia is busy building a ship in a bottle. Lydia's excellent crocheting testifies to her skill in yet another phase of handicraft.

In the same wing are A.W.1 Gail Shoebridge and her roommate L.A.W. Corrine Summers. Gail belongs to the "Pennant Flight", but Corrine's



Claire and her rabbits.

hobby is woodwork — when she isn't busy on her D.V.A. study course.

Leaving Portage and flying east, we drop into Station Winnipeg. Here we find Corporal M. V. "Bonnie" Wade, who collects miniature Indian figures, tepees, and totem poles. Bonnie herself is a Maritimer, but her dresser top seems to indicate that the West can claim another convert.

A few hours later we're in Trenton, where someone has told us to be sure to see Corporal Claire Baker's collection of rabbits. Rabbits, apparently, no matter what they're made of, never forget the tradition of their race. Claire started with one rabbit: she now has 107 of them, in china, glass, plaster, rubber, and furry cloth. They range in size from one inch to full-scale models. Claire is

anticipating a transfer in the near future. Imagine the fun she'll have, packing each precious rabbit to travel!

There is another "must" for the visitor at Trenton: Sgt. Edith Bowlby's plants. Edith is an amateur horticulturist, who really goes in for eccentric planting. For example, she takes a fancy glass bottle with a small neck and places about an inch of earth in it, using a funnel to keep the sides of the bottle clean. Then, with a long knitting-needle, she pushes a plant (usually an ivy plant which has been well-rooted in water) gently through the small neck of the bottle and sits it firmly in the earth. Having covered the earth with a little moss or some tiny prettily-colored pebbles, she sprinkles the plant with water and replaces the top of the bottle, making it as nearly airtight as possible.

Once a week Edith takes off the top of the bottle for half an hour, then seals it again. No more water is added. The growth and richness of plants thus grown are really astounding.

Asked where she got the idea, Edith told us: "From a magazine. It sounded so impossible, I just had to see if it would work". Edith is fond of all types of plants, and she "baby-sits" for other girls' plants when they go on leave.

Variety, it would appear, is the watchword among the hobby-minded airwomen of our service.

TOUGH COPS

It is reported that when members of a recent Canadian Police College Class were writing an examination marking the conclusion of their course, the tomblike silence of the lecture hall was suddenly shattered by the staccato sound of the sergeant major's voice:

"Left. Right. Left. Right. Halt!"

Everyone in the lecture hall understood the significance of those commands, as the O.C.'s office adjoined the hall. Some poor browbeaten recruit being paraded, they mused.

One or two in the lecture hall did not know, however, that the indoor revolver range was also housed in the same building — in the basement. Following a short interval during which only muffled voices could be heard, the sharp report of a .45 calibre revolver reached the ears of those in the lecture hall, whereupon one of their number ejaculated:

"Good Heavens! They've shot him!"

("R.C.M.P. Quarterly")

Instructions for YOUNG OFFICERS

By Colonel Wolfe

(Some years before Wolfe and Montcalm met on the Plains of Abraham in what was to be the last battle for them both, Wolfe, while still a Colonel, wrote the INSTRUCTIONS which are reprinted below. Though the pedant might cavil at both their grammar and their punctuation, the officer in today's armed services will be able to find no fault with the precepts laid down in them.—EDITOR.)

WHEN A YOUNG GENTLEMAN betakes himself to the profession of arms, he should seriously reflect upon the nature and duties of the way of life he has entered into, and consider, that it is not as the generality of people vainly imagine, learning a little of the exercise, saluting gracefully, firing his platoon in his turn, mounting a few guards (carelessly enough) and finally, exposing his person bravely in the day of battle; which will deservedly, and in the opinion of judges, acquire him the character of a good officer: no, he must learn cheerfully to obey his superiors, and that their orders and his own be punctually executed.

As there must of necessity be in a new battalion many young and uninformed officers, I shall, as briefly as I am capable, inform them what I think their duty, and what consequently is expected from them.

They are, without loss of time, to make themselves perfect masters of the exercise of the firelock, that they may be able to assist in training the young soldiers in arms.

They are constantly to be present at roll-calling; and so soon as they can make themselves acquainted with the names and persons of the men of the companies they belong to; and so soon as possible with their characters, that they may know the proper subjects to encourage, and point out as examples, as well those also whom it will be necessary to keep a strict hand over.

They are to observe that the men are dressed in a soldier like manner, and conformable to the orders of the regiment.

They are to get exact lists of the mens necessaries, and as well as the captains, of the arms, accoutrements, and stores.

They under the captains are to be answerable that the proportion of the soldiers pay, ordered by the commanding officer, (*viz*) two shillings and four pence per week, be laid out in good and wholesome provisions.

They are to visit their companies quarters at least thrice a week, see that they are kept clean, well aired, and beds made; and that if the landlords have any just cause of complaint against the soldiers, or the soldiers against the landlords, the aggrieved may, by application through the proper channel, find redress.

They should frequently chuse the hour of the soldiers dining for their visitation, that they may judge whether their victuals are comfortably cooked; and they should particularly at that hour inspect the quarters of those men who are billeted upon houses of the lowest class, as they are most likely to be prevailed upon, by the disobedient soldier, to give him liquor for his meat.

They must now-and-then occasionally go round the quarters between nine and eleven at night, to see that the men keep regular hours, conformable to orders, not always trusting to the reports of serjeants.

A young officer should never think he does too much; they are to attend the looks of the men, and if any are thinner or paler than usual, the reasons of their falling off may be enquired into, and proper means used to restore them to their former vigour.

The Turbo-Encabulator

(We are indebted to Mr. J. A. D. Gray, of the R.C.A.F. Association, for forwarding us this unusually lucid description of one of the miracles of modern aeronautical science, the turbo-encabulator. Mr. Gray is not sure who wrote it, but we think our readers will agree that it might well serve as a model for any engineer who is called upon to explain complex equipment in terms that the layman will understand.—EDITOR.)

FOR A NUMBER of years now work has been proceeding in order to bring perfection to the crudely conceived idea of a machine that would not only supply inverse reactive current for use in unilateral phase detractors, but would also be capable of automatically synchronizing cardinal grammeters. Such a machine is the Turbo-Encabulator. Basically, the only new principle involved is this: instead of power being generated by the relative motion of conductors and fluxes, it is produced by the modial interaction of magneto-reluctance and capacitive directance.

The original machine had a base-plate of pre-fabulated amulite, surmounted by a malleable logarithmic casing in such a way that the two spurving bearings were in a direct line with the pentametric fan. The latter consisted simply of six hydrocoptic marzelvanes, so fitted to the ambifacient lunar wan shaft that side-fumbling was effectively prevented. The main winding was of the normal lotus-o-delta type placed in panendermic semi-boloid slots in the stator, every seventh conductor being connected by a non-reversible tremie pipe to the differential girdlespring on the "up" end of the grammeters.

Forty-one manestically spaced grouting brushes were arranged to feed into the rotor slip-stream a mixture of high S-value phenylhydrobenzamine and five-per-cent ceminative tetryliodohexamine.

Both of these liquids have specific pericosities given by $P = 2.5^{\circ}Cn^{-6.7}$, where n is the diathetical evolute of retro-grade temperature phase disposition and C is Cholmondeley's annular grillage coefficient. Initially, n was measured with the aid of a metapolar refractive pilfrometer (for a description of this ingenious instrument, see L. E. Rumpelverstein in "Zeitschrift für Elektrotechnistatistichs-Donnerblitze", Vol. VII), but up to the present date nothing has been found to equal the transcendental hopper dadoscope. (See "Proceedings of the Peruvian Academy of Skatological Sciences", June 1914).

The early attempts to construct a sufficiently robust spiral decommutator failed largely because of a lack of appreciation of the large quasi-piestic stresses in the purwell studs; the latter were specially designed to hold the roffit bars to the spamshaft. When however, it was discovered that wending could be prevented by a simple addition of the living sockets, almost perfect running was secured.

Undoubtedly, the turbo-encabulator has now reached a very high level of technical development. It has been successfully used for operating nofer trunnions. In addition, whenever a barescent skor motion is required, it may be employed in conjunction with a drawn reciprocating dingle arm to reduce sinusoidal depletion.

DAWN SWEEP

I met him on the tarmac in the dawn
 (Soar again, Johnny, into the wild blue yonder!)
 And he spoke to me as he buckled his harness on,
 And the sky was a green glass dome with a hint of thunder:

*"It's only a split snap-second that lies between 'fire' and 'break',
 But it's big as forever. You fire, break sharp, and the rest
 Is the luck of your cards and turns on the chances you take
 When you hit for the deck at low level and head for the west.
 O I've hung my hat on the weeping willow tree
 And can
 No longer stay with you. So long, brother!
 I can no longer stay with you."*

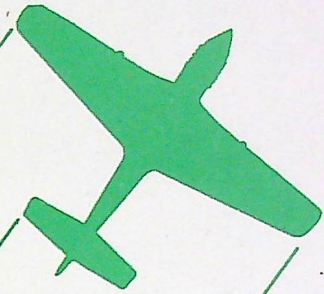
There is a wind that blows too loud and keen,
 Swift in its rising, fatal in its fall.
 Hand in your name and regimental number!
 (Immortal light immobilizing dawn)
 "B" flight stand by for take-off! Man your planes!
 Run like a schoolkid gaming on the lawn.
 Swimming in daylight, westward rising like thunder,
 Black-bellied mustangs, turning above the 'drome,
 Immortal gyre turning.

Immobilized

I see two crewmen running from the mess
 To bicycles, yet they are motionless
 Airmen at reveille, stricken in attitudes
 Of frozen dawn whose ice hold will not die
 Till Johnny's squadron drifts in from the sky.

Johnny in your bright mae west,
 Johnny with your chute snapped on,
 Johnny with your coupe-top back.

Where do you fly,
 American mustangs hitting the wind for France?
 Two crewmen running in a timeless trance,
 The eye's bright souvenir.



Dead minutes pass
 The Waaf at the wireless, calm as a telephone girl,
 Calls with polite professional unconcern:
"Hello red leader. Hold your heading. Over!"
 'Planes hang in space, waiting for earth to turn
 And flash their target. Voice as sweet as clover:
*"Hello red leader. This is flower two.
 Return to base. Return to base."*

A few

Stray wisps of hair fall over her pale eyes,
 Blue as the skies, empty of clouds and 'planes.
 Where do you orbit, Johnny overhead?
 Red squadron pancaked long ago at base.
 O valiant young runner of no race,
 Where do you fly? In what formation led
 Do you keep station? Say, now, did clouds flash black
 With winged destruction in swift curved pursuit
 And life-entangled turn to negative,
 Grey metal petals falling?

O did you wake
 Big as forever in the split snap-second
 That lies between the firing and the break?

Tom Farley

(Courtesy of The Ryerson Press.)

Operation Santa Claus

By Flt. Lt. J. D. Harvey, D.F.C., Directorate of Public Relations.

“I HAVEN'T had a good drink of tea for two months. Can you please drop me a tea-pot?”

We heard these words on the Department of Transport radio at the R.C.A.F.'s Base at Resolute Bay on 17 December, just before taking off from the Base on one of our Christmas drops. A D.O.T. operator at Mould Bay had broken their only tea-pot; so, along with the hundreds of pounds of mail and parcels, spare parts, clothing, fresh fruit, and a Christmas tree, a new one was sent.

This was Operation Santa Claus — the flight undertaken by No. 426 Squadron each Christmas in order to parachute something extra to the men who man the lonely stations on the arctic islands. On this operation, Santa switches direction and sends presents to his own stamping-grounds.

At seven isolated places, members of the R.C.M.P. and Canadian and United States weathermen, who have only limited contact with the outside world, were waiting to renew the welcome link with their families to the south. Apart from the yearly visit of the supply ship and the spring and fall re-supply operations of the R.C.A.F., radio is their only contact with home during their tours of duty.

We arrived at Resolute Bay, main base of the operation, from Dorval, via North Bay, Winnipeg, and Churchill. If the weather remained clear, if the moon would shine, and if we could keep the aircraft serviceable, all should go well.

It's dark at Resolute in December — with nothing except the moon, hanging like a frozen orange close to the horizon, to cut the total darkness. Clocks are deceiving: 11 o'clock in the

morning is just like 11 o'clock at night (unless you've visited the canteen) — dark, cold, and empty. And all around you — as the sign in front of the mess hall reads — are “miles and miles of nothing but miles and miles”.

Our North Star, piloted by Flying Officer R. Cook, was to make seven drops at such widely scattered locations as Mould Bay on Patrick Island; Isachsen on Ellef Ringnes Island; Alert, Eureka, Alexandria Fiord, and Craig Harbour, on Ellesmere Island; and Arctic Bay on the northern tip of Baffin Island.

During the entire operation, we dropped over 9,300 pounds of supplies, flew more than 10,000 miles in some 50 hours, and pushed out about forty-five 200-pound bundles. The total mileage did not include flying in circles while we jettisoned fuel to enable us to land back at base on one occasion when our gyros refused to work. Nor did it include our first attempt to reach Alert, when we had to turn back on account of extremely high surface winds which would have scattered the bundles from Churchill to Moscow.

It sounds easy to fly to a given spot and kick out 200-pound baskets. However, it becomes more complicated when you consider the many problems peculiar to the Arctic — total darkness, the uselessness of ordinary compasses, maps still out of date, 40-below temperatures, cloudy skies, and high surface winds, etc. Add to this the fact that you must find target areas about the size of A.F.H.Q. in the unending whiteness. That all seven were found, and all received their bundles, is a compliment to No. 426 Squadron's aircrew.



The operation had started months before in Dorval, with many practice drops over the airfield at St. Hubert (sandwiched in between trips to Tokyo) to test newly adopted techniques. Although the operation had been carried out in other years, snags had always cropped up and sometimes bundles had fallen short of, or overshot, their targets, never to be found in the darkness and wind-swept snow-drifts. This time the operation was to be perfect. Safety equipment personnel were sent to Churchill, the gathering-point for all mail and parcels, two weeks in advance of our aircraft. There, two men worked steadily with mail bags and panniers (dropping-baskets) sorting the various loads. In addition, each parachute had to be opened, examined, aired, and repacked, and all items tagged for their final destination.

"Eerie..."

When we arrived at Churchill, all the cargo was in readiness; and, after an overnight stop, we headed almost due north for 1100 miles to Resolute Bay. After a late arrival at Resolute, we took to our beds after a thorough briefing on the first flight, which was to take place the next morning.

The following day, with a temperature of 44° below zero, considerable difficulty was experienced in starting the engines of the North Star. However, we got away around noon, with a full load for Mould Bay and Isachsen — the first two drops. The outbound trip found the ground crew, safety equipment men, and movement controllers, all busy arranging each load and attaching the

parachutes and bicycle lamps (to enable the bundles to be followed from the ground once they left the aircraft) to the panniers. The dropping-ramp (a roller conveyor) was placed in position near the door, and the airmen donned parachutes, attaching static lines from their harnesses to "D" rings on the floor as a precautionary measure.

Ten minutes away from the target came the word from the captain to get ready and stand by. The inner door was taken off and the inky blackness began to rush past, turning the interior of the aircraft into a large-sized deep-freeze. Even through heavy parkas, double mitts, flying boots, and overpants, the icy blasts made you realize that old Jack Frost was really turning it on. We appeared to be flying in continuous cloud — the effect of moonlight diffused through an icy-crystal layer; and below, we caught glimpses of small lights, like street lamps in a heavy snowstorm. They were the burning oil-barrels laid out in a circle to mark the dropping-zone.

After feeling our way down from 5,000 to 1,000 feet, at reduced speed, we circled the area to determine the best approach. In the meantime, general weather conditions and the surface wind were received by radio from the D.O.T. operator. Soon we descended below the ice-crystal layer, where the moon bathed with a bluish white the snow on the hilly terrain surrounding the camp.

Once the drop-heading had been decided, word was given to get ready. The first two panniers were placed on the conveyor, their static lines attached to "D" rings, and four airmen stood over the bundles. The navigator, meanwhile, had come aft to act as dropmaster, and he too stood at the door, connected with the pilot by intercom, ready to give the signal. Suddenly the navigator swept his arm down, and the airmen pushed. The blast of air rushing past the door caught the panniers and whipped them down and under the tail plane, and the North Star climbed away for another run. This procedure was repeated until all the bundles for Mould Bay, including the tightly-bound Christmas tree, had disappeared into the night. We could see specks of light swinging gently as the baskets floated down.

Meanwhile, the radio was alive with directions

from the ground operator, "last bundles too far — first two right on the target". As we climbed away from the last run, to set course for Isachsen, the "Thank you, boys" and the "Very Merry Christmases" followed us.

The most terrifyingly beautiful scenery was seen on the seventh and last drop, at Alert, Canada's most northerly inhabited area. Flying up the middle of the island from Resolute, words like "eerie", "grotesque", and "austere", came to mind as columns of rock, the ice on their sides carved and twisted into weird shapes, rose perpendicular — in places, to 6,000 feet. The moon dully illuminated the snow in the crevices, and the shadows covering the off-side made a remarkable contrast. Great fiords twisted across the snow plains, and dull, metal-coloured glaciers hung on many slopes. In some places, ice crystals blotted out everything but a hazy whiteness, in others the moon shone through like a floodlight. The entire panorama reminded one of a science-fiction movie, or an imaginary visit to another planet.

Alert, as well as providing the most beautiful scenery, also provided the most satisfying target. Here, on the very edge of the ice-cap, huddled the small buildings of the isolated camp. Here was the most northerly Canadian settlement; and it was easy, as we circled over the packed ice, to realize that we were just 380 nautical miles from the North Pole. The remoteness of Alert drilled into your mind the importance of making a successful drop.

During Operation Santa Claus the entire crew worked about twelve hours a day. The ground crew in particular had their work cut out for them, as they carried out their servicing tasks in a temperature of 44° below zero. To add to their problems, the aircraft heaters went unserviceable and the engine heaters broke down, making the trip for the engineers and servicing crew anything but a picnic. Spirits, however, never once flagged.

The reward for a successful operation, I think, came over Arctic Bay, where one of the largest drops was made. As we turned away, the radio operator, speaking for his whole detachment, said, "God bless you for coming. God bless you — and a Merry Christmas".

Letters to the Editor

WAR-TIME RADAR SCREENS

Dear Sir:

May my humble words of congratulations, for a job truly well done, be added to the many others which you have no doubt received in respect to the October 1953 edition of "The Roundel."

I often wonder if the much-harassed Air Historian might be induced during a weaker moment to prepare an article, or a series of articles, about the origin, construction, and operation of the radar screens which operated in Eastern and Western Air Commands during the Second World War. Life on those isolated detachments was very interesting — at times — and was generally quite carefully recorded in the Daily Diaries.

I was posted as the technical officer to many of these units in Nova Scotia, New Brunswick, and Prince Edward Island. However, those which remain most vividly in my memory were at Cape Bauld, Nfld., and Brig Harbour, Labrador. I recall that Sqn. Ldr. E. A. Kenney, who was C.O. at Cape Bauld (No. 30 R.D., I believe) was particularly adept at recording in a most interesting manner the events which took place there, and I think he also included snapshots.

I am sure there are many airmen who served at those lonely outposts who would like very much to kindle old memories of places which were less spectacular in the war effort, yet fulfilled their purpose under both very adverse and heart-warming circumstances.

For my part, I would be glad to contribute whatever I can to make the stories more interesting and broader in scope. I have a number of very relevant snapshots which I would be glad to forward.

J. Malcolm Redding (R.C.A.F.A.)

(The only article which we have ever run on this subject was written by Group Captain C. B. Limbrick and appeared in our issue of May 1950. We much appreciate Mr. Redding's kind offer to send us whatever material he has, and, if other readers will be equally co-operative, we shall be only too glad to do what we can to produce a complete story.—EDITOR.)

ORIGIN OF NO. 426 SQN.

Dear Sir:

In your article in the November issue on the history of transport squadrons it was stated that No. 426 (T) Sqn. was formed out of No. 164 (T) Sqn. in the Summer of '46. To my knowledge, the original 426 (T) Sqn. was formed in May of '45 out of 426 (B.M.R. Sqn) and it operated out of Tempsford, England, to Karachi, India.

Sgt. L. W. Yule,
R.C.A.F. Station Winnipeg.

(We quote the Air Historian: "The original No. 426 converted from bomber to transport work overseas in the summer of 1945, and, after three months in its new rôle, was disbanded overseas on 31 Dec. 1945. A new 426 Sqn. was formed in Canada on 1 Aug. 1946 by the re-designation of No. 164 (T) Squadron. Officially, No. 164 was relocated at Edmonton and designated No. 435, and No. 425 was formed at Dartmouth; but what actually happened was that No. 164's detachment at Edmonton became No. 435 and the main body of No. 164 at Dartmouth became No. 426. Flt. Lt. Langille's statement is less incorrect than incomplete."—EDITOR.)

SEARCH AND RESCUE

Dear Sir:

A recently developed pigment, sold commercially as "Cold Fire Paint," is three times as bright as ordinary daylight. It is not luminous, but it is plainly visible for quite a while after the sun goes down.

Since it can be obtained in almost any colour, surely its use on aircraft might well prove valuable as a means of enabling search operations for crashed aircraft to be continued for at least an hour or two longer each day than is at present possible.

For your interest, a girl in a bathing-suit coated with this paint can be seen five miles away.

Cpl. K. W. Goodall,
R.C.A.F. Station, Portage la Prairie.

(Cpl. Goodall's suggestion has been duly forwarded, as an original suggestion, to the office of the Deputy Minister for National Defence. In his final paragraph, Cpl. Goodall shows a sinister insight into editorial tastes.—EDITOR.)

GROUP CAPTAIN E. A. MCGOWAN

Dear Sir:

"Pin-Points in the Past" in your November issue states that Group Captain E. A. McGowan was retired in 1944.

Was not Group Captain McGowan commanding officer of R.C.A.F. Station Clinton during a portion of the years 1946 and 1947? The figure in the picture bears a definite resemblance to the man I remember as my C.O.

Flying Officer R. S. Park,
Radar Station, Parent, Que.

(Records prove Flying Officer Park to be correct. Group Captain McGowan was retired in July 1948, and has recently resumed association with the Air Force as an Air Cadet Officer, with the rank of Flight Lieutenant.—EDITOR.)

ICHABOD?

Dear Sir:

Gad! Has the old warhorse met his Waterloo at last? I am referring to the front cover of December's "Roundel." Who is this wench, seated on Shatterproof's left? He merely refers to her as "Miss Clasper" . . . but by the look of happiness on her face, and her position beneath the sprig of mistletoe, surely we should know her first name, and the relationship between the two of them?

Flt. Lt. D. H. Webb,
Radar Station (Aux), Montreal.

(We do not feel that the relationship between Sgt. Shatterproof and Miss Clasper need give our Air Force bachelors any cause for alarm—or our Air Force husbands any reason for pity. Miss Clasper, who is Farmer Fetlock's unmarried sister-in-law, is the old gladiator's inevitable companion at the Fetlock table. Much as he may have pranced about in his salad days, however, he has been wedded to the Service too long to entertain any ideas of bigamy.—EDITOR.)

A MATTER OF PROTOCOL

Dear Sir:

In the Nov. 1953 issue of "The Roundel" there appears on the inside cover of the last page a picture which, to me and to many others, seems to lack the proper sense of propriety.

The caption indicates that the photograph was taken while the Last Post was being sounded during the unveiling of a



cairn erected to the memory of the crew of a Lancaster which crashed and killed all on board while dropping supplies to a remote outpost on Ellesmere Island in 1950.

The picture shows the cairn draped by both the unofficial Canadian Ensign and the Stars and Stripes. Flanking the cairn on one side is another U.S. flag, and on the other side, the R.C.A.F. Ensign. The scene thus portrays the R.C.A.F. taking the rôle of co-equal with the U.S.N. in a ceremony which was entirely Canadian in nature.

National and Service protocol should surely be observed under any or all conditions, and regardless of location or personal feelings, in order to avoid offence.

Wing Cdr. P. Wilkinson, A.F.C.,
T.C.H.Q.

("The Roundel" apologizes to all concerned for its omission to mention in the text that one of the "two civilian observers" was a famous American authority on the Arctic.—EDITOR.)

SCARCITY OF "THE ROUNDLE"

(In our January issue we published a letter under the title of "Criticism." The following is an extract from the reply we have since received from another member of its writer's station — to which a more adequate supply of "The Roundel" is now being sent.)

"The airman could well be advised to visit the Station Library, where copies of issues since March 1953 are available for personnel during daily library hours."

That seems to be a pretty sound suggestion.—EDITOR.)

No. 6 GROUP HISTORY

Dear Sir:

Since the war I have been compiling a history of No. 6 (R.C.A.F.) Bomber Group, and now I am writing to ask if you can possibly give me your kind assistance in obtaining some information.

Having completed the historical framework of the story, I am now anxious to obtain any reminiscences of former 6 Group members which will spotlight the human angle and round off the whole work. I have already obtained a fair amount of such material, both from Canadians whom I met in my home town of York during the war, and from Servicemen and civilians at such places as Linton-on-Ouse (where I was stationed myself shortly after the war), "Betty's Bar" in York, and the "Alice Hawthorn" at Nun Monkton. Other valuable sources whom I have successfully contacted have included "Ma" Bainbridge — who will be remembered by many Canadians who were stationed in Yorkshire — and several ex-R.A.F. types who served with R.C.A.F. Squadrons as flight engineers.

However, in order to do all the squadrons concerned anything like the justice I feel they deserve, I still require more stories which ex-members consider worthy of note. Anecdotes on the boys' hilarity during off-duty hours, squadron celebrations and customs, V.E. night, and particularly any information about life at some of the smaller stations like Dalton and Wombleton, would be most welcome.

Photographs, also, would be of great assistance, and any received would be copied and safely returned. Here again, any stories concerning the individual aircraft, such as those which ex-crew members of those Halifaxes, "The No Nuttins," "Snoop and Droop," "Embraceable 'U'", "Cowan's Cowards," "Pappy's Gang," and others may have to offer, would be greatly appreciated. Incidentally, I photographed all the

above and many more 6 Group machines before they were finally scrapped after the war.

I wonder if an appeal for some of the information outlined above might be made via your correspondence columns. Perhaps I should point out that this history is an entirely personal undertaking.

So far, 6 Group's outstanding achievements have been accorded little of the publicity which they deserve, and I am sure many will agree that the need of some permanent record is an urgent necessity.

P. J. R. Moyes,
38 Carr Lane,
Acomb, York,
Yorkshire, England.

AN APOLOGY

Dear Sir:

Although one now sees and reads a lot of the exploits of such Squadrons as Nos. 426 and 412 Squadrons, very little seems to be known or remembered of the earlier Squadrons which were the backbone of the R.C.A.F. Transport Command as it is today. As a result I was particularly interested in the November 1953 issue, when mention was made of Nos. 164, 165 and 168 Transport Squadrons. It was the first time I had seen any mention made of these first Transport Squadrons. It so happened that I had the honour of commanding and forming the first of these (No. 164 Squadron), was also connected with the formation of No. 165 Squadron, and again had the honour of commanding and forming No. 168 Squadron.

Being an egotistical rascal, and also because of my close connection with the earliest transport operations, I was a little surprised that so little seemed to be remembered of these squadrons that in a picture shown on page 8 of the November issue (of the first mail service between Canada and the U.K.) I was referred to as Flight Lieutenant B. Middleton when it so happens I was a Wing Commander and in command of the Squadron!

It is only natural that more attention be given to the history of bomber and fighter squadrons, but let's not forget Transport and what it has accomplished, sometimes under not too ideal conditions.

R. B. Middleton,
Imperial Oil Ltd.,
56 Church St., Toronto 1.

(Since Wing Commander R. B. Middleton, A.F.C., was a personal friend of ours in those days, our oversight is even more culpable. We extend our sincere apologies.—EDITOR.)

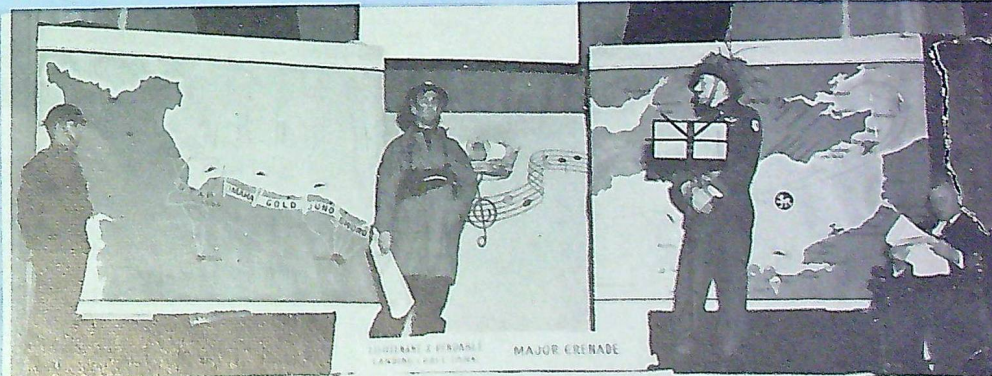
Answers to "What's the Score?"

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

It is easier to catch a serpent with somebody else's hand. (Turkish proverb.)

1993

Every so often the United Services Institute of Ottawa meets to listen to a talk by some authority on matters of interest to ex-members and serving members of Canada's armed forces. Not long ago, with the help of the R.C.N., a whimsical variation was introduced into the usual pattern of these gatherings. From a broad outline written by Capt. R. P. Welland, D.S.C., a group of naval officers ad-libbed through an hour-long play (or rather, series of monologues) on the subject of tri-Service operations through the ages. Included among the characters who stated their cases from the stage at H.M.C.S. "Carleton" were: Julius Caesar, Admiral La France, General Hamilton, Admiral Ramsay, Rear Admiral Speidel, Lieutenant X. Pendable, Commander Lineshoot, Squadron Leader Mach One, Lieutenant Winch, Major Grenade, and 1993's tri-Service superman, Genamad Smith. Some of the humorous, yet most effective, treatment given to the subject under discussion may be obtained from the accompanying photographs.



The
CROWNDL