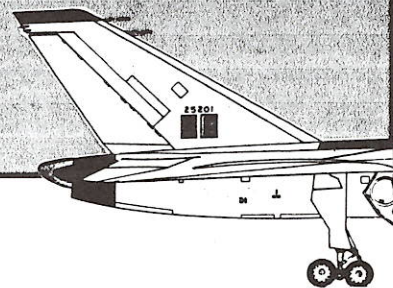


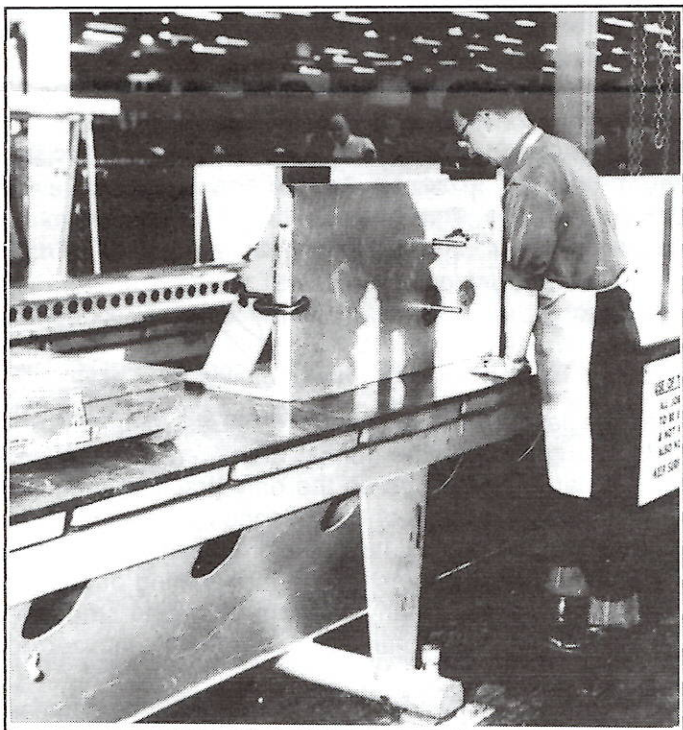
Pre-Flight



A Publication of the Aerospace Heritage Foundation of Canada
P.O. Box 246, Etobicoke "D", Etobicoke ON M9A 4X2

Vol. 11, No. 5

September – October 2000



Kenneth Rowe

Memories of the Shop Floor

In the early Fifties, though the government of the day was still vacillating about what to do with the AVRO "Jetliner", it finally decided that it needed a state-of-the-art interceptor for its Air Force. AVRO was given the task of designing and building it from the ground up. This meant not just the design work but also the buildings and machines that would make the components that could not be outsourced. The aircraft was the aerodynamically advanced "Arrow". Eventually, its construction involved a work force from just about every country in the Western world. This article is another in a series featuring people from some of the departments, and the work they did in the design, fabrication and flying of the RL "Arrows".

I left school in 1939 at the age of 14 and, in spite of my mother's wish that I get a job in a bank, I began a skilled apprenticeship in one of the newly established government ordnance factories. It produced 3.7 and 4.5 anti-aircraft guns, 20 mm anti-tank guns, and 5.0 howitzers. In 1943, I was old enough to join the army and was assigned to the mechanical transport section of the Royal Engineers. It is interesting to note that the corps was responsible for military aviation (balloons and planes) until 1912, when the Royal Flying Corps was established. The corps march dates from that period and is called "WINGS". After undergoing various types of training, I was sent to the India/Burma theatre and was posted to Chief Royal Engineers (CRE) British Airfields, SouthEast Asia Command, which was responsible for all airfields. Following Pearl Harbour, the Japanese conquest of Burma in 1942 closed the Burma Road which was the only overland supply route to Chiang K'ai

(continued on p. 2)

FOUNDED 1963

AHFC

Aerospace Heritage Foundation of Canada



Patron William Coyle
 President Ian Farrar
 Vice President Mike Deschamp
 Senior Vice-President Frank Harvey
 Secretary Glen Beauchamp
 Treasurer Al Sablatnig
 Membership Nicholas Doran
 Director AMRP Bob Saunders
 Director Web Michael Brigham
 PR Director Dita Vadron
 Directors Bill Daniels
 John Hughes
 Christine Mason
 Keith McClarry

Legal Consultant Jerry Faivish
 Editorial Consultant John Thompson
 Air Force Liaison Don Pearsons

PRE-FLIGHT Ted Harasymchuk

President's mailing address:

9560 Islington Avenue
 RR # 3
 Woodbridge ON L4L1A7
 905-893-8023

The Aerospace Foundation of Canada (AHFC) is a federally chartered non-for-profit organization. The current emphasis of AHFC is on Avro and Orenda. The Foundation is actively trying to locate former employees of these companies. No part of this newsletter may be reproduced without prior written permission. Opinions expressed in *Pre-Flight* do not necessarily reflect those of AHFC. Cash donations over \$25.00 and "gifts-in-kind" will be acknowledged by a receipt for income tax purposes. For more information on AHFC and how to support its activities, please write to:

Aerospace Heritage
 Foundation of Canada
 P.O. Box 246, Etobicoke D
 Etobicoke ON M9A4X2
 (416) 410-3350 www.ahfc.org

FROM THE PRESIDENT

The Foundation and the Toronto Aerospace Museum put on a good show at the CNE, thanks to the volunteers. The full-size replica of the Arrow produced a myriad of questions and opinions, including the feasibility of re-building a full-size Arrow. Palmira Campagna's comments in *Pre-Flight* reflect those of the late Dr. Owen Maynard, and more recently of Jim Floyd in a letter to me. Jim makes the crucial observation that anything is possible but that the key concern is, "is it worthwhile". After 45 years in the business and having come to Canada in 1955 to be one of thousands working on the Arrow Project, I saw first hand the details that went into making a part, then the special tooling to make that part into an assembly detail, and ultimately a sub-assembly. After this was done, there was special tooling to integrate all these sub-assemblies into the finished aircraft. I must conclude that, in my opinion, the proposed supersonic Arrow is not realistic nor is it worthwhile. This is the same reasoning why Douglas decided not to re-open the DC-3 line or that Orenda declined, in recent years, an invitation to produce more *Iroquois* engines. The Toronto Aerospace Museum, assisted by major aerospace companies, has the right answer: a full-size replica for display only.

Memories, cont'd.

Shek's armies in China. The Japanese also invaded NorthEast India at Kohima and Imphal. The roads through this jungle frontier area were in no state to handle supply columns. That left air drops as the only practical method of supplying the troops. As a result, a number of Long Range Penetration Groups (Wingate's Chindits) were dropped behind Japanese lines and were supplied by air. They were to act as advance parties for the forthcoming offensive to retake the country. During this period, many temporary landing strips were constructed by using interlocking steel planking laid over bituminized jute sheeting.

The workhorse of the air supply system throughout the Burma campaign was the dependable DC3 "Dakota". For those of us involved at the various supply airfields, it was occasionally possible to hitch a ride back to Chittagong or even Calcutta for some R & R and a change of diet from corned beef and C rations. Even so, riding in a stripped-down DC3 was not an ideal way to travel when one had to sit on the floor and hold on for dear life to the ringbolts that were used to secure the cargo. To this day, I am still very nervous when taking off and landing. In all, Royal Engineers and Indian Army Engineers constructed 150 airfields in North-Eastern India and Burma.

In July 1945, the Japanese Army in Burma had been destroyed. We were pulled back to Chittagong to form part of the Singapore invasion force. Luckily for us, the atomic bomb attack on Hiroshima and Nagasaki forced the Japanese government to surrender on August 10, 1945 – a date I still celebrate. After war's end, I served for a time with CRE Cyprus, and then as part of the British Occupation Force in Austria at CRE Vienna, before returning to England. In 1952-53, housing was in very short supply in England and food rationing was still in place. My wife and I decided that we would look for a better life in either Australia or Canada. We had friends who had emigrated to Toronto, who encouraged us to come to Canada, a decision I have never regretted.

(cont'd on p. 3)

After arriving in Toronto and finding suitable living quarters, I started to look for work. Eventually, I went to a local employment office, and after a short conversation with the desk officer, was told to contact AVRO, which was hiring at the time. I called AVRO and after a short conversation about my skills and experience, was told to come the next day for an interview. In those days (1953) getting to Malton without a car, by bus, was a bit difficult. I finally made it to the Employment Office. I was lucky enough to be hired as a bench assembler (Dept. 3901), working on small sub-assemblies for the CF 100. It was located very close to the hangar doors of what eventually became the *Arrow* production line. Needless to say, standing at a bench all day during the winter period at that location had some of us wearing longjohns. The following year, I also worked on the CF 100 structural assembly.

During this period, I adjusted to car-pooling, packing a lunch box and other aspects of working at AVRO. I was assisted in my adjustment to life in Toronto by my workmates, who taught me important Toronto coping skills such as to find a bootlegger, how to get to the old Victory Theatre, to name a few. They also taught me how to pronounce "Toronto" when crossing the border to the USA at Buffalo.

I was soon able to afford a secondhand car and to get an early start on the daily rodeo of getting out of the parking lot. It was fairly polite on day shift, but on night shift it could get quite wild as we all tried to get on the then-narrow road to the city.

In early 1954, there was a short layoff as activity was begun on the preliminary tooling on the *Arrow*. I was called back in February as a Jig and Fixture Builder (Dept. 4404). I found the next two years very challenging as we built most of the major assembly jigs and fixtures from the ground up. The use of surveyors transits and levels for precision measurements on the very large jigs made an aptitude for trigonometry essential. The last large assembly jig that I supervised as a shift team leader was the one for the *Arrow* vertical fin.

In June 1956, I transferred to the Toolroom as a tool & die maker (Dept. 4403) and produced many smaller jigs and convenience tools. The Fifties and Sixties were a golden period for Canada. Food and gasoline were cheap, the US exchange rate was high and interest rates were low. My first second hand car was an English Humber Hawk and cost only \$695. Many of my workmates bought houses in an AVRO subdivision in Malton. However, by 1958 it was quite apparent that *Arrow* tooling was nearing completion.

Everyone kept a close eye on the seniority lists as various rumours made the rounds. As I was No. 64 in a department of 80, I knew that my days as a tool & die maker were numbered. So I decided to make a career change and enrolled in the Bachelor of Arts (part-time) degree program at the University of Toronto.

In spite of the rumours and the forewarnings, it was still a shock when the termination notices were handed out and the announcement of the termination of the *Arrow* programme was made on February 20, 1959. I think that most of us knew that we would never be back. Indeed, when I was eventually called back, I was already working as Assistant to the Superintendent of Engineering of Consumers Gas Company in Toronto.

The way that the *Arrow* programme was terminated was very distasteful. It has influenced my opinion of the political party responsible ever since. However, I said to Elwy Yost, formerly of Employee Services and Public Relations, and now a famous (and retired) TV personality, "It is an ill wind that blows nobody good." This was when we met at a fund raising event several years later; at the time I was Assistant Administrator of the Hospital for Sick Children in Toronto. For both of us, the decision to change careers was advanced by the cancellation of the *Arrow* program.

Nevertheless, I feel that my time spent at AVRO was very influential and rewarding; I look back on it with fond memories, and the way it opened my eyes to the future. And I remember the freedom and opportunities that Canada provided then and now.

SPECIAL EXTENDED C.N.E. OFFER

AHFC / TAM

Renew

your **2001** membership in AHFC

and
at the same time
a **one-year** membership
in the Toronto Aerospace Museum

for

\$30.00

Yes, for both.

Take advantage of this one-time only offer!

Applications are included with this newsletter.

Diving for Arrow Models

AHFC has not given up on recovering the Arrow models in Lake Ontario. So here is an additional bit of pertinent information about diving, contributed by Greg McTigue, Dive Team Leader of the Water Rescue Team in Clinton, NJ. He confirms what Bob Saunders, who coordinates the AHFC diving project, previously said in *PreFlight*, that divers do not use oxygen. "We use air!" Greg did, however, note emphatically, that "the only time we use straight oxygen is for staged decompression at very shallow depths, usually 20 feet or less, to allow the body to rid itself of nitrogen at a much greater rate via the increased osmotic pressure gradient." According to McTigue, divers use more than 21 percent oxygen only in special applications, such as mixed-gas diving or, recently, via Nitrox, an enriched form of air composed of 22 to 40 percent oxygen and is used at depths between 40 and 130 feet. However, such considerations are for experienced divers only.

The Bane of Aircraft - Icing

DISCOVER magazine in its July issue, calls Victor Petrenko, a professor of engineering at Dartmouth College, the "Ice Man". Petrenko works in a lab cooled to -50C degrees. He is used to regularly wearing a down-filled parka to work. His studies are important; ice can be not only damaging but also costly. For example, de-icing a jumbo as it sits on the runway can cost thousands of dollars and buys it only a five-ten minute window of safety for take-off. And the ethylene glycol used in de-icing is a potent poison that can induce heart and kidney failure. So the work in the relatively-obscure realm of ice physics is important. Petrenko has developed an efficient technology that a car battery could generate adequate energy to de-ice that jumbo on the tarmac or in the air. It consists of a 125 micrometer thin plastic film impregnated with electrodes to drape over an aircraft's wings. If ice begins to form, a sensor would be triggered automatically. The small battery power source would then break apart the hydrogen bonds between metal and ice. Petrenko's idea has yet to be tested on a real aircraft. At any rate, his idea is based on frozen water's ability to conduct electricity. Thus electrical energy pulsing through the electrodes transforms the ice from a solid to a gas, bypassing the liquid state. Hydrogen and oxygen bubbles form under the ice and weaken its hold on the metal, cracking it. The ice then sloughs off the

wings. This amazing de-icing process also could be used to remove ice from ships, towers and bridges, and bring a significant gain in safety for people and profit from the innovative use of the characteristic of water by Professor Victor F. Petrenko.

Membership Matters

Taking care of membership concerns has never been a difficult or unpleasant task for me. Over the years, I have had the pleasure of speaking with many individual as well as group members. This has convinced me that AHFC is fortunate to have such members: people who really care, not just by belonging, but also by their moral and financial support. And, of course, by coming out to help at different functions throughout the year.

I am somewhat concerned, though, at the state of our membership. It is slowly dropping - not that much - but nevertheless noticeably.

So in October, at the monthly meeting of the Board of Directors, I will be proposing several steps that might be taken to maintain and increase our membership. It is important that together we pass on an important parts of Canadian aerospace heritage, from the early years of flight, to the apex of the Arrow, and the contributions those talented people made, "to mankind's journey to the stars", as an astronaut so well put it.

This information constantly needs to be researched, documented, safely stored and then shared with the many schools, colleges, universities and the general public.

I therefore will be proposing:

- accelerating practical planning of communication alternatives, in keeping with our mission statement
- maintaining strong support and focus on our web site
- maintaining our new membership fee structure
- recognition of members' special participation and/or volunteering in AHFC
- initiating an annual membership event.

More on this in November's *Pre-Flight*.


Nicholas Doran, Membership

pf