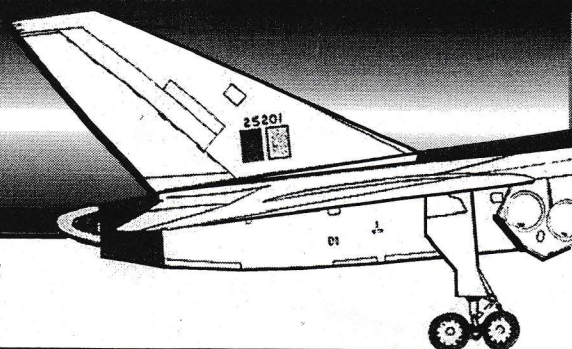


# *Pre-Flight*



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

Vol. 15, No. 2

March - April 2004



Up the ladder to the heavens ...

**Janusz Zurakowski**  
1915 – 2004

Founded 1989

AHFC

Aerospace Heritage Foundation of Canada



Patron William Coyle  
President Frank Harvey  
Secretary Keith McLaren  
Treasurer Al Sablatnig  
Membership Nicholas Doran  
Director AMRP Bob Saunders  
Director Web Michael Brigham  
PR Director Dita Vadron  
Directors Glen Beauchamp  
Bill Daniels  
James Harvey  
John Hughes  
Tim Patten



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

PRE-FLIGHT Ted Harasymchuk  
Nicholas Doran

**President's mailing address:**

1951 Rathburn Rd., E.  
Unit 199  
Mississauga ON L4W 2N9  
905-624-4909

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](http://www.ahfc.org)

## From the President

On February 12, accompanied by AHFC life member Bert Scott, I attended the funeral service for Janusz Zurakowski, held at St. Hedwig R.C. Church in Barry's Bay, Ontario. Many of us worked on the Arrow project and developed a great admiration for Janusz during this period. As a life member of AHFC, his support over the years has been greatly valued and appreciated.

The weather cooperated with brilliant sunshine and the service, conducted in English and Polish, commenced at 11:00 am and lasted for just under two hours. Over 300 people attended, including family and friends, a representative from the Polish Embassy, a contingent from the Canadian Air Force, along with members of the Polish Combatants Association, and Polish Scouts.

Eulogies were presented by Michael Olender from the Polish Embassy, and Colonel Bill Werny representing the Canadian Forces. Mark Robbins paid tribute to his close friend and childhood hero. There were also eulogies from several personal friends.

Janusz became a legend in his own time. The honours and accomplishments he attained are an inspiration to all.

As I am writing this message, I have just received information that Mike Cooper-Slipper has passed away. As Nick Doran aptly put it, "It would appear that there is a meeting of great pilots in heaven."

Chris Slipper-Cooper said that Mike died suddenly early Monday morning, on February 23 in Victoria, BC, with Rita and Jessica at his bedside. Chris thanks everyone for the many kind e-mails.

Frank

## Janusz Zurakowski - A Last Farewell

*This issue is dedicated to the memory of Janusz Zurakowski. He was a man of conviction, a quiet man; who tended to downplay his achievements in the air. The news media of the Golden Horseshore spoke respectfully and extensively of him, for Janusz lived a full, productive life. Not only did he act rightly, he also did the right thing.*

*The media focused on his career in the war, that he commanded a squadron of former Polish Air Force veterans in the RAF, of his flying skill, of his sense of responsibility, of his concern for his men. It spoke of his work in aviation as a test pilot for Gloster. He was the epitome of a skilled professional, with trusty slide-rule at his side.*

*He was an amazing pilot, one who was given an epithet "an impossible pilot". For in the depths of his heart, he was convinced that with serious, sensible thought and careful consideration, any action was quite possible. Though it was contrary to his personality, he became a legendary figure.*

*We feel that his words on the occasion of the first Annual Dinner of the AHFC are a true reflection of who Janusz was, how he felt about what happened, and what might come to pass with Canadian aerospace and the Canadian Air Force.*

## Jan Zurakowski's speech to the First Annual Dinner of the Aerospace Heritage Foundation of Canada.

Ladies and Gentlemen:

David Onley, President of the Aerospace Heritage Foundation of Canada, invited me to be present at the first annual dinner of our organization. He assured me that I would not be required to make any speeches and confirmed this in his letter. To my surprise, a few days later, I received a program and my name was mentioned as a guest speaker. I avoid making speeches because after spending the last 30 years in the bush, my English is rather poor, and anyway, I never was a good speaker. And so, I don't want to spoil a nice evening and my speech will be rather short. It is very difficult to tell the story of the Arrow in 20 minutes and because of that, I would like to deal with only a few of the more controversial issues.

On March 25th 1958, when I completed my first flight in the Avro Arrow, I hoped that for many years Canada would have a very modern and very good defense aircraft. This was the belief shared not only by the team of specialists at A. V. Roe who constructed the Arrow, but also by the Canadian people. Yes, Canadians wanted to be proud of this new aircraft produced in Canada. The first six months of flight testing brought the confirmation of this hope. The performance of the Arrow was excellent and the prognosis for its future, bright.

In April 1958, Air Force Headquarters announced, quote, "On the seventh flight, the Arrow reached at 50,000 feet, 1000 miles per hour (approximately Mach 1.5). Full details of the Arrow performance can not be released because of security reasons. It is not proposed, therefore, to release any further specific performance figures achieved by the aircraft as it proceeds through its full test program." unquote.

In November 1958, "Spud" Potocki, flying the Arrow with the American Pratt and Whitney engines, less powerful than Canadian Iroquois engines, reached a speed of 1.96 Mach number, very close to twice the speed of sound. This information was not released before the cancellation of the project.

The mood among the 14,000 workers, who participated in the creation of the Arrow Aircraft and Iroquois engines, was that of jubilation: This aircraft was the product of years of their dedication and hard work. Only a few people realized that the dark clouds had started to gather over the project. About six months before the cancellation of the Arrow, Prime Minister Diefenbaker announced the purchase of American Bomarc missiles. The contract for 37 Arrow aircraft and development flying was not affected at this time.

On September 24, 1958, a Toronto newspaper, "The Telegram" quoted a statement by former Chief of General



*The Anniversary Dinner*

Staff, Lt. General Guy Simmons. General Simmons said that he had criticized, from the beginning, any plan to spend large sums of money on, "the last of the fighters". He said the Arrow is just that..."The last of its line and kind." This statement reminds me of the situation 55 years ago when I trained in Poland as a fighter pilot. Lots of "experts" were trying to convince me that fighter aircraft had no future because new bombers were faster than our old fighter aircraft. I was stubborn and stayed with fighters. Thank God, England, in 1940, had good fighters. They won the Battle of Britain, preventing German invasion and probably world domination by Hitler.

The sudden cancellation of the Arrow project was announced in Parliament on the 20th of February, 1959. Prime Minister Diefenbaker declared "The outstanding achievements of the Arrow have been overtaken by events" Four days later, he added that the Arrow would have been obsolete by the time it was ready for squadron use. He said: "No one advocates building buggies in the age of motor cars". But the same John Diefenbaker in his book "One Canada", published in 1977 writes, quote "The need for a new interceptor had been on our books since the cancellation of the Arrow." unquote.

Yes, the Arrow was killed but soon the Canadian Government started to purchase American fighters: over one hundred CF-104's, 66 VooDoo's and over 100 CF-5's and early in the eighties over 100 CF 18's (Hornets). Now history repeats itself again: New bombers are faster than the CF-18, but I hope that in spite of this fact our Air Force will not abandon the CF 18. Fighter aircraft are not dead yet. Development of new fighters is progressing in Europe, the United States and the Soviet Union.

Coming back to 1958 - the Prime Minister was sure that the number of supersonic interceptor aircraft required by



*Peter Cope in discussion with Janusz Zurakowski*

the Royal Canadian Air Force would be substantially less if, in fact, such aircraft would be required at all by 1960. And what happened to the Bomarc missiles which replaced the Arrow fighters? According to John Diefenbaker's book, the Bomarc was very soon proven to be virtually obsolete, even before it was set up. I understand that after a few years, Bomarcs disappeared quietly. I think that the Bomarc was useful to our Government in this respect; it helped convince the general public that the Arrow, being an aircraft, not a missile, was obsolete. The Bomarc helped to kill the Arrow.

It is interesting to look at the headlines at the time of the cancellation of the Arrow. Here are the headlines from one page only of the Toronto Daily Star, February 21st 1959: "Arrow scrapping leaves blank in defense policy"; "Arrow death is sell out to Yanks"; "Arrow Cancellation- colossal blunder"; "Fear Arrow decision to cost 150 millions, wonder who pays"; "Canada relies totally upon U.S. for weapons"; "See it up to Ottawa to find 13,800 jobs" What the Canadian press was writing at the time of cancellation, indicates how controversial this aircraft really was. Over 30 years passed, and during this time, hundreds of articles appeared in Canadian and Foreign press; 5 books were published and in many memoirs the Arrow has been mentioned and discussed. In the Canadian Encyclopedia and in history books, the Arrow exists, defiant of those who want it forgotten. In his speech in Parliament, the Prime Minister stressed that defense constitutes the sole justification for defense procurement. But in a very good

book by Kaye Shaw, under the title, "There never was an Arrow", Shaw indicates that Air Defense requirements as expressed by Defense Authorities at the time, were showing a clear need for an interceptor aircraft.

Air Marshal Slemon, second in command at NORAD Headquarters in Colorado Springs, was allowed to talk to reporters only once on November 1958. In reply to direct questions, he stated, and I quote.. "yes, the manned interceptor would be required for defense for the foreseeable future but no, no interceptor to equal the Avro Arrow would be available for several years." unquote. At the same time, General Partridge, United States Air Force, Commander of NORAD stated that manned interceptors were a vital facet of Defense Planning and would be for some years to come. In spite of those opinions, Prime Minister Diefenbaker insisted again a few weeks later that the evidence before the cabinet, was that the Arrow would be obsolete before it could be delivered, even in minimum quantity, by 1961.

Let's go back to the Arrow aircraft. It was built to the specification of the Royal Canadian Air Force and one of the requirements was speed equal Mach number 2, which means twice the speed of sound. In the past, even during the war time when development effort in aviation was very high, improvement in speed between aircraft in service and a new prototype usually was not higher than 10 to 15%. The Avro company had to make a jump from the speed of the CF-100 (.85 Mach number) to the speed of the Arrow (2 Mach number). It was equivalent to an increase in speed about two and a half times or an increase in speed over 700 miles an hour. At this time speed over 1000 miles per hour presented a number of unknown problems requiring solutions. Most of the money spent on the Arrow and the Iroquois engines was for research and development. Nearly all the problems were solved successfully.

Shortly after cancellation of the project, near total destruction was carried out very efficiently. All the results of research and development, drawings, reports, films, photographs, and five aircraft which had been already flown, disappeared. This action produced shock and indignation in Canada. In June 1975, I took part in a CBC TV program called "Front Page Challenge" and I was asked if any crime was involved? I hesitated at that time. Now I have to admit that I think that total destruction of technical records could be classified as a crime. In his book "The Arrow", Major James Dow remarks that, wherever responsibility lies, the wholesale destruction of the Avro Arrow was a reprehensible and mindless act that did a profound disservice to all Canadians and to posterity. John Diefenbaker in his book admits that he was reviled for having had the completed Arrow prototypes reduced to scrap. But he says he had no knowledge, whatsoever, of this action. For me, personally, there is one point not clear: If the Prime Minister, an experienced criminal lawyer, was reviled and had no knowledge whatsoever, why then did he

not instruct his departments, to investigate and find out who ordered the destruction of these aircraft. He accepted the abuse, he accepted accusations and apparently did not make any effort to clear his name. The book "Shutting Down the National Dream", written by Greig Stewart, adds more to the controversy. He writes that Fred Smye, at the time Vice President of the Aeronautical Division of A. V. Roe was opposing destruction of the five Arrows flown. Final telephoned instructions from the Government were: "If you don't do it, we will send the Army in to do it". There are many conflicting stories, but the fact remains that exceptional effort was made to destroy everything connected with the Arrow.

From time to time, letters or articles appear with strong attacks on the Arrow or its designers. These attacks very often show a lack of knowledge and a spreading of misinformation. For example: A letter was printed in the Globe and Mail on February 24, 1979, under the title, "Down With Arrow Claptrap" I quote, "Good grief! Another cliché ridden piece of recycle claptrap on the Avro etc. The truth is that the Arrow was a bag of beans, Avro flew it only a couple of times with its own Iroquois engines and it caught fire". unquote. A week later the Globe and Mail published two letters opposing this view. One by Mr. F. H. Keast, Chief Engineer of Orenda, corrects the errors. He writes, and I quote, "The five Arrows had flown a total of 68 hours ...but they never flew with Iroquois engines. The Arrow never caught fire!

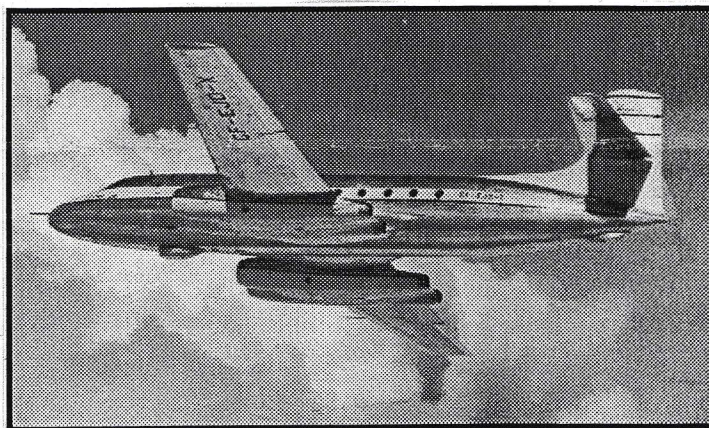
The truth is that both the Arrow and the Iroquois engines were years ahead of the world in technology. I made many visits to the United States technical teams during the development period. I can only describe their reaction as amazed admiration of our achievements. It was unbelievable to them that we had advanced the technology of titanium fabrications, the aerodynamics of transonic compressors and fiberglass reinforced blades, far beyond their abilities. Compared to the Pratt and Whitney J-75 (American Engines) flown on the Arrow, the Iroquois had over 43% greater thrust...at the same time the Iroquois was 35% lighter than the J-75." unquote.

There was a noticeable difference in the presentation of these letters. The headline "Down With Arrow Claptrap" occupied the space 8 times larger than "Arrow Dispute". In this way, many casual readers would easily notice the first letter, but not the next two letters, correcting the errors. In the official journal of the Association of Professional Engineers of Ontario, "Engineering Dimensions". we can find a good example of badly informed persons arriving at a wrong conclusion and then publishing it. One of Canada's foremost historians, Dr. Desmond Morton described the Avro Arrow as a "Fatally flawed weapon". In the "Toronto Star" he said, "A politician took the blame for aborting a design whose imperfection should have been obvious to a first year engineering student".

In "The Illustrated History of Canada" in the text which most Canadian school children will read, Professor Morton claims that Prime Minister John Diefenbaker cancelled the Avro Arrow program not because guided missiles made it obsolete, but because it was "A flawed plane and an inept corporation". In the "Military History of Canada", Dr. Morton refers "To the crippling design flaws in a reputed triumph of Canadian engineering". To make a long story short, I think, that Dr. Morton mixed up the armament pack of the CF-100, which was lowered and retractable in flight, with the armament pack of the Arrow, which was never intended to be lowered in flight, and certainly could be fatal if lowered at high speed. To close the issue, in a letter published in "Engineering Dimensions" on January 1989, Dr. Morton explains, and I quote, "One of my students with a background in engineering thought he could manage. Probably he could manage. Probably he could not because that was how I was misled on the Arrow weapons system" unquote.

Personally, I think that the history books of Canada should not rely on students, even with engineering backgrounds. On technical matters, professional engineers are much more reliable. It is unpleasant for me to explain to the high school students in the place where I live, Barry's Bay, that the Arrow was not badly designed, but that history books were badly researched. The latest effort to condemn the Arrow was in the story by Professor A. T. Hodge in the Globe and Mail, February 9, 1990, under the headline, "The legend that wasn't". He refers to the Avro team, quote, "In fact they were really a bunch of ineptly directed technical incompetents" unquote. Here are answers to these accusations.

The Avro team built the Jetliner, the CF-100 and the Arrow. The Avro Jetliner designed by Jim Floyd was the first



*Avro Jetliner, Queen of the Skies (1948 - 1956)*

passenger jet transport aircraft on this continent. This took place over 40 years ago. In 1988 an aircraft of similar characteristics was proposed for development by Canadair. The unhappy end of the Jetliner, abandoned, when, due to

the Korean War, the Company's effort was directed to military production, does not change the fact that the Jetliner was many years ahead in its design and development. Jim Floyd is a distinguished designer, well known in England, the United States and Canada. He was awarded the Wright Brother's Medal for meritorious contribution to aeronautical engineering; It was, the first time the award was given to a non-American.

Coming back to the Arrow! Compared with modern interceptors, like the Soviet's MiG 31, the most capable Soviet Air Defense interceptor, or the Tornado, the best NATO interceptor, the Arrow was very similar to both these aircraft in characteristics and performance. The main difference is that the Arrow was ahead by 20 years.

The brutal termination of the Arrow was a devastating blow to our technological potential. Even before the installation of its ultimate Iroquois engines, the Arrow was probably the most advanced interceptor in the world. Its cancellation resulted in the loss, in many cases to other countries, of the technological brain trust that created her and damaged our confidence in ourselves. Canada lost the opportunity to establish an advanced industry which had a very good chance of becoming an economical means satisfying a large part of our demand in defense and an exporting industry.

Over thirty years have gone by since the days of the glory and destruction of the Arrow, the memory of that time has not disappeared. The torches can destroy an aircraft but they cannot destroy our pride in our success. For us and for generations to come Canadians can be proud of these achievements. Let's hope, younger people will find in the Arrow's story an inspiration for effort leading to even greater success.

## Members Matter

### Back on the Job

*Just as I promised in the last issue of Pre-Flight, the next day after I returned to Toronto, I immediately started on the process of sending out membership renewals. A whole pile of them! In passing, you can contribute to the growth of our Foundation by telling others about it, about our purpose of existence. Membership in AHFC is reasonable. Tell them by joining, they will belong to a great group of people.*

*True, we are not a huge outfit; we rent a small area. We wish it could be larger, but circumstances and finances somehow hamper us for various reasons*

*and keep AHFC from moving on. But we do have a very concrete reason to be on the scene of historical aviation, to tell our story. Especially from the point of view of the men and women who were with Avro during the glory years. It's wonderful that Arrows are being built elsewhere; we congratulate those who try to do more this way. Yet, to really think about it, we want to go to the heart of the matter, the human factor, primarily through Pre-Flight.*

*The people who saw their dreams destroyed. Their story has to be told and we will continue to do so; there is so much yet to tell. So dear members, all of you that so faithfully support AHFC (one member saves his Toonies in a box till there are enough for his membership), I sincerely thanks you for your support and encouragement. You are the heart and soul of our Foundation. And I thank you for the e-mails to Florida, where it frequently does rain!*

*You should be getting your memberships soon by extra swift snail mail.*

### Feedback from the Board

*History TV is producing a program about the search for the Arrow models in Lake Ontario. from 'way back our searches have been plagued by this treacherous body of water. Hopefully the television presentation planned for April 2005 called "The Sea Hunters" will be successful as planned. More information is still needed by the channel re this project. So if you have any information at all, please come forward. More in the next issue.*

*The CBC recently did some interviews at the Toronto Aerospace Museum about those underwater Arrow models. We hope that the photos and negatives we have from Hugh McKechnie will be copied and used. They are excellent.*

*A donation of \$100 in memory of the late Janusz Zurakowski will be sent to the local hospital in Barry's Bay. The future, one of the important matters that will have to be discussed by the Board of our Foundation is a serious look at several alternative for AHFC in the next 10 years. As we Seniors well know, time accelerates with the passage of years. We all say, "Where did the time go so quickly?" So our monthly meetings will have a full slate each time.*

*Some members have inquired about the book on the CF-100 "Canuck". The latest information is that it is about ready to go to print. It is a fine book and great as a gift, worthy to be passed on. As they say, 'It's a good read.'*



Nickolas Doran,  
Membership