



# WINDSOCK

THE ROLAND GROOME CHAPTER  
CANADIAN AVIATION HISTORICAL SOCIETY

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## THE AVRO ARROW STORY: THE PERSPECTIVE OF RUSSELL ISINGER

Russell Isinger is what you might call a "reformed Arrowhead" -- an "Arrowhead" being the name militant fans of the Avro Arrow fighter jet have applied to themselves. He was one of those many Canadians who believed the delta-winged fighter plane (star of CBC's much-ballyhooed "docu-drama" in January) was killed off by a foolish federal government under pressure of the nefarious Yanks. So when Isinger was casting about for a subject for a master's thesis in political studies at the University of Saskatchewan, a professor challenged him to "go prove it". Available nearby were the "masses of documents" at the Diefenbaker Centre at the University of Saskatchewan, where Isinger had worked as a summer tour guide. After spending years digging into the Arrow affair, Russell (who spoke to the Roland Groome CAHS chapter Jan. 9, concluded the Arrowheads -- and the series- were wrong.

Tracing the history of this controversial aircraft, Isinger took it back to the Second World War and the difficulties the RCAF faced in acquiring foreign-built combat aircraft or its Home War Establishment units. This led to Canada's wartime decision to build sophisticated aircraft like the Mosquito and Lancaster. Postwar, this led to the awarding of contracts to Canadair for construction (under licence) of North American F-86 Sabre aircraft and, significantly, to Avro

Canada for the design and production of what became the CF-100 Canuck interceptor. It was a time of "technomania" -- an abiding faith in the ability of technology to solve military problems. It was also a time of great tension: in early 1950s, the Berlin blockade was only recently over, the Soviet Union had acquired nuclear weapons, there was sustained warfare in Korea and armed confrontation in Central Europe. Canada faced the particular challenge of protecting itself from the threat of Soviet aircraft coming over the Arctic. One response, the Avro Arrow, would be born, die and eventually spawn a group of pro-Arrow enthusiasts who pushed the "legend" of an incompetent government pressured into abandoning the Arrow by Machiavellian Americans desperate to eliminate a commercial and military competitor.

The books inspired by the Arrow affair

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## President's Message

The highest windchill in more than a decade wasn't enough to deter most Chapter members and guests from attending our regular January meeting at the Flying Club. And no one went home disappointed as guest speaker **Russell Isinger** from Saskatoon entertained us with his research on the Avro Arrow. His factual account of the political intrigue surrounding this Canadian story provided an interesting backdrop to the CBC version a few days later (I really enjoyed the TV version, incidentally). It seems that no matter how much research has been done over the past 40 years, our perceptions of the Arrow program retain a mythical quality. I wonder if the myth will still persist 40 years from now.

We have been invited to participate again this year at the **Second Annual Regina Indoor Air Show**. This will be held at the Science Centre from March 15 to 16. We will be putting a display together and will be looking for volunteers to man this. If you can help for a hour or two, please call Will Chabun at 586-7091. We can't do it without you! We also expect to have a display at the Saskatchewan Air Show over the July 5-6 weekend so watch for further announcements.

Ross Herrington

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are a mixed bag, with Isinger crediting Ron Pages's book on the Arrow's technical aspects as being nothing less than superb. Greig Stewart's and James Dows' books ("Shutting Down the National Dream" and "The Arrow", respectively, as "very fine" and Murray Peden's "Fall of an Arrow" as acceptable, if biased. But other books (like "There Never Was An Arrow" by E.K. Shaw and "Storm of Controversy" by Palmiro Campagna) "are of questionable utility", he said. Alas, professional historians have failed to respond to the "the Arrowheads". Now, though, most federal government papers from this era have been declassified "and the history can be told".

The Avro Canada organization was born from Victory Aircraft, which built hundreds of Lancaster bombers during the Second World War. Postwar, Federal Reconstruction Minister C.D. Howe -- the so-called "minister of everything"-- saw considerable peacetime potential in the Canadian aviation industry (q.v. Fred Shortt's December 1994 talk to the Roland Groome chapter on the development of Canada's aircraft industry). In an example of what is now called "privatization", Howe decided to sell the firm to Britain's **Hawker-Siddeley conglomerate**. (Another wartime Crown corporation, **Turbo Research**, became **Orenda Engine Ltd.**, also in Hawker-Siddeley's hands.) Avro Canada, as Victory Aircraft was renamed, got off to what Isinger called "a promising start", designing and building the C-102 Jetliner. Britain's deHavilland Comet beat it into the air by a mere two weeks: there was nothing comparable in American aircraft factories. But Avro Canada, ominously, was unable to sell it to either Trans Canada Airlines or Howard Hughes' TWA. This project was canceled so Avro Canada could

concentrate on the CF-100 Canuck interceptor at a critical time in East-West relations. This cancellation of the Jetliner, with its considerable commercial potential, was "perhaps the real tragedy" in this entire matter. Isinger suggested. The CF-100 itself was a considerable success. By the end of its production run, some 692 had been built, with 53 exported to Belgium. In all, this project cost about \$750 million and was only "moderately over budget." The robust "Clunk" stayed in Canadian service as an electronic warfare aircraft until the early 1980s.

Production of the doughty Canuck had just begun when the RCAF, looking at the future, issued a specification for a replacement aircraft. The requirements team was dispatched overseas in 1952, and found that no foreign type then in development would be suitable. The CF-100's successor would have to be developed and built in Canada. And why not? The economy was healthy and could support expenditures on a new aircraft. In addition to arming the RCAF, this project would obviously keep down unemployment and promote a sense of national pride. Those were heady times for the RCAF. In the mid-1950s, its manpower strength passed that of the army. There existed, as Isinger put it, "a sense that there was little Canada could not accomplish if it put its mind to it."

C.D. Howe announced in December 1953 that the Department of Defence Production had awarded Avro Canada a contract for the development of the new aircraft. It was assumed that the engines would come from Britain, and the missiles and fire-control system from the U.S. That would be a total of four systems, only one of which would be developed in Canada. Between 500 and 600 aircraft would be needed, at a total cost of between

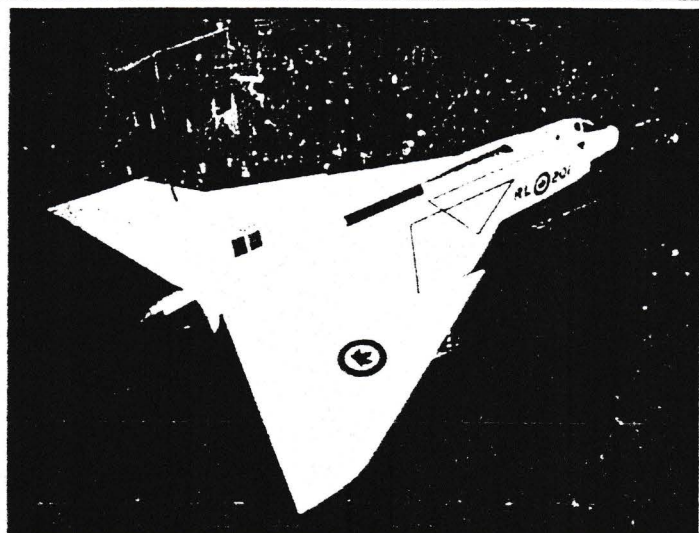
\$1.5 and \$2.0 billion. The relationship between Howe and Avro is worth exploring.

The development of the CF-105, for example, was not without problems, notably the fuselage-wing joint and series production. Despite this, the cabinet approved a contract for 38 Arrows, 11 powered by the Pratt & Whitney J-75 and 29 pre-production aircraft, to be powered by the as-yet undeveloped Orenda Iroquois. There was also to be a new production system that would see no hand-built prototypes; instead the first batch of aircraft coming right off the assembly line. Inherent in this, of course, was an assumption that production would go ahead. Given Avro's earlier problems, Howe admitted this complicated concept "gives me the shudders". Support for the Arrow, officially unveiled to Parliament in June 1955, was not unanimous. The National Aeronautical Establishment disputed some of Avro's performance projections and army generals began suggesting that guided missiles soon would make obsolete aircraft like the Arrow. Moreover, money put into the Arrow program was money that would not go to other arms of the military, including the replacement for the RCAF's Sabre fighters.

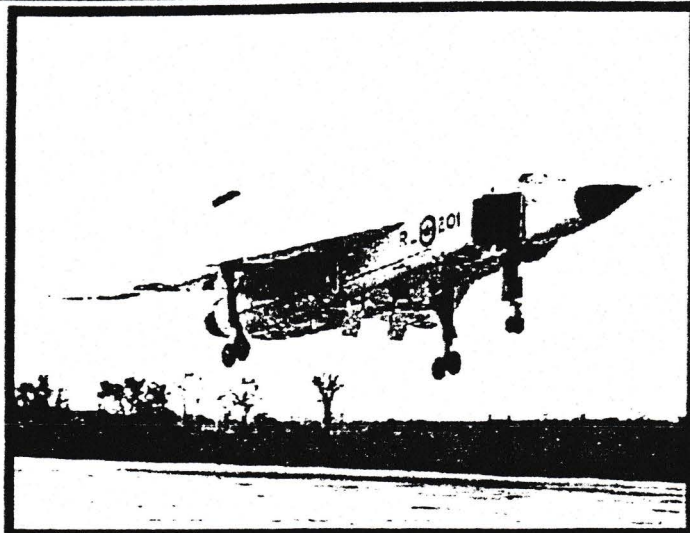
The Arrow's per-unit cost was now put at \$2.6 million and nobody knew when it would enter service. (Significantly, a special project office, to co-ordinate these four complicated systems, was not set up until 1957.) Defence Minister Ralph Campney was dispatched to the U.S. to inquire about a large-scale purchase. No luck. The same year, the federal cabinet began reviewing the program every six months; by 1957, the Liberal government had indicated to Avro that the Arrow could be cancelled at any time. Moreover, the obvious complexity of the new aircraft meant

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Avro Arrow Mk.1 25201 unveiled (DND photo)



Avro Arrow Mk.1 25201 on approach (DND photo)

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the RCAF's auxiliary squadrons, seen, perhaps a bit unfairly as "weekend flyers", would not be able to operate the mammoth machine. This reduced the requirement to between 200-300 aircraft, from 500-600, and boosted the per-unit cost. Runways at existing RCAF bases would have to be lengthened to handle it. Another complication: Hughes Aircraft "balked" at continuing to develop the radar fire-control system, called Astra I; so the government decided to go it alone. The idea of developing a Canadian air-to-air missile waned, so the government "snapped up" the Sparrow II, a cancelled US Navy program. From overseeing one expensive development program (the airframe) Canada was now overseeing four (airframe, electronics, weapon and engine). Isinger says all documentary evidence confirms that the Liberal federal government was prepared to cancel the Arrow in 1957. However, it also realized this would be "political poison" before an election.

It is important to understand that Avro had developed a kind of political clout of its own, for it, its subsidiaries and its contractors had 41,000 employees, most concentrated in the politically influential Toronto area. It can be

speculated that the Liberals planned to cancel it after the 1957 election. However, to the surprise of virtually everyone, John Diefenbaker's Progressive Conservatives won that election, forming a minority government. Diefenbaker's government faced three military problems: 1. NATO had asked Canada to purchase and equip its European squadrons with a new aircraft for a new role: nuclear strike and reconnaissance. 2. The U.S. was pressuring Canada for a signature on a pact committing the two countries to co-operation in the air defence of North America -- the NORAD agreement -- which the RCAF supported. Diefenbaker dallied and then, without consulting anybody, signed it, setting off considerable controversy. 3. The future of the Arrow.

The NORAD agreement led to a rough ride in the Commons, making the government wary of future controversies. Moreover, the Conservatives had only a minority government and thus recoiled from decisions that might cost them popularity. The national economy was slowing down, yet Diefenbaker could not bring himself to cancel the Arrow yet, said Isinger, who said the prime minister "always hoped the

postponements might beget miracles" -- presumably, a large purchase by a foreign buyer. Thus, in October 1957 did "Dief" accept a recommendation to continue work on the project, specifically for 29 aircraft at a cost of \$172 million. Whatever the government intended, Isinger said, "Avro saw what it wanted to see in this decision" -- apparently a green light to the entire project. Thus was the Arrow rolled out in a lavish ceremony.

Ominously, it was overshadowed in the next day's headlines by an event of cosmic significance: the launch into orbit of the planet's first man-made satellite, the Soviet Union's Sputnik. Almost overnight, fear of Soviet bombers was replaced by fear of Soviet missiles. Moreover, the requirement for Arrows had been halved again, to about 100-150 aircraft, with the costs spiraling higher. So far, \$300 million had been spent on the project. An estimated \$871 million would be needed to finish it. Each Arrow, Isinger claims, would have cost in the vicinity of \$12 million. By this point, the RCAF was getting a full 50 per cent of the defence budget. The army and navy realized there would not be much money for their own projects: new frigates, armored personnel carriers

(Arrow continued on page 5)



*Arrow continued from page 4)*

and unguided surface-to-surface Honest John rockets. There was also intra-service rivalry within the RCAF. for non-NORAD units wanted surface-to-air missiles and strike aircraft. Isinger referred to a "growing rift" between the RCAF elements committed to NATO and NORAD.

The Central Intelligence Agency confirmed the growing threat from Soviet missiles. Duncan Sandys, Britain's defence minister, issued a high-profile white paper predicting growing use of guided weapons. Another factor would soon change. In March 1958, the Progressive Conservative government was returned with an overwhelming majority -- removing, for a while, its fear of the electorate. In August 1958, the chief of the defence staff recommended cancelling the Arrow and buying U.S.-made Bomarc missiles and American-made interceptors. But the cabinet still waffled. The Astra fire-control system and the Sparrow II missile were cancelled. A solution was cobbled together: the Falcon air-to-air missile and a Hughes fire-control system. Ontario Premier Leslie Frost entered the project, pleading to save the jobs of Avro workers and subcontractors. An opposition MP replied that the Arrow had become "the costliest employment program in Canadian history".

To be sure, Avro had made no serious plans for other work and threatened the nervous Tory government with mass layoffs, hiring a Liberal advertising firm to lobby for it. Defence Minister George Pearkes came up empty-handed in another quest to interest the Americans in buying the Arrow. Academic James Layr later wrote that if the Soviet Union itself had offered to buy some Arrows, Canada might have been tempted to sell it some! Isinger says

there exists "no evidence that the U.S. tried to influence Canada to cancel the Arrow" and "if there was a man unlikely to be pushed around, it was John Diefenbaker". What an issue, he could have made of such a threat! Indeed, Isinger says there was considerable U.S. support for the project.

The U.S. let some funding trickle through to Hughes Aircraft, which was working on the fire-control system. There are even indications the Americans might have bought a small number of Arrows to equip its own interceptor units at Newfoundland (leased during the Second World War). "I don't think they cared one way or another whether we built it," Isinger said. "There is little or no evidence that they killed it." Nor, he said, is there any evidence the U.S. government planned to use its legal veto over foreign sales of sophisticated technology to kibosh either exports of equipment to Canada for use in the Arrow or Avro's desperately sought export sales of the Arrow. The Arrow's fate was now sealed.

Pearkes later claimed that the decision to cancel the Arrow was the "hardest that I ever had to make". Thus there came "Black Friday" -- Feb. 20, 1959 -- and the official cancellation of the project. Avro responded by laying off virtually its entire staff of 14,000. The story was not over yet. Cancellation charges drove the total cost of the project to \$420 million. Significantly, though, letters to Diefenbaker's office ran 2-1 in favor of the cancellation. (In the Diefenbaker Centre's files are also letters from people who offered to store the large white aircraft after its cancellation.) The federal Liberals, then in opposition, objected, but Isinger said "the Liberals would have done the same thing because of cost overruns and delays." Where the

Liberals differed, he said, was in the technicalities of the cancellation. Howe, for example, said he, too, would have cancelled it, but spread this over six months, so as to give the workers a chance to adjust.

Avro president Crawford Gordon and many other senior executives resigned, though many of the actual employees were quietly hired back for a while. Canada's aviation industry did as much business over the next five years as it had done before the Arrow cancellation. Avro Canada survived for a short while but eventually Hawker-Siddeley sold Avro's malton plant to McDonnell-Douglas, where it is presently producing major aircraft subassemblies. Paralleling this, the federal Department of Defence Production was able to negotiate a defence production-sharing agreement with the U.S., in effect giving up domestic design capability for steady assembly work.

A controversial question: why were the surviving Arrows destroyed? Isinger says documents indicate the air force did not have any use for them, and worried that their presence, even as "gate guardians", might mean "that the air force would be blamed for embarrassing the government." The National Aeronautical Establishment, an arm of the National Research Council, declined an offer to take the surviving Arrows because of their high operating costs. Then, Isinger argues, as per normal government practice, the stage was set for the federal government's Crown Assets Disposal Corporation to strip the existing Arrows of useful equipment and sell what was left-over for scrap. Thus, Isinger suggests that this one controversial element of the Arrow drama was nothing more than a bureaucratic machine that did what it was supposed to do -- dispose of government assets. The Arrows were

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*(Arrow continued from page 5)*

thus sawed (not torched, according to Isinger, as is commonly believed) into small chunks. Journalist June Callwood's widely discussed claim that she heard the sound of two Orenda jet engines one night soon after the cancellation loses much credibility when one realizes that she had never heard two of them running in an aircraft; she could have heard only one of them running in a testbed. And the RCAF got Bomarc missiles and Voodoo interceptors -- the latter aircraft a type that, Isinger noted, had been evaluated and rejected by the RCAF's evaluation team in 1953.

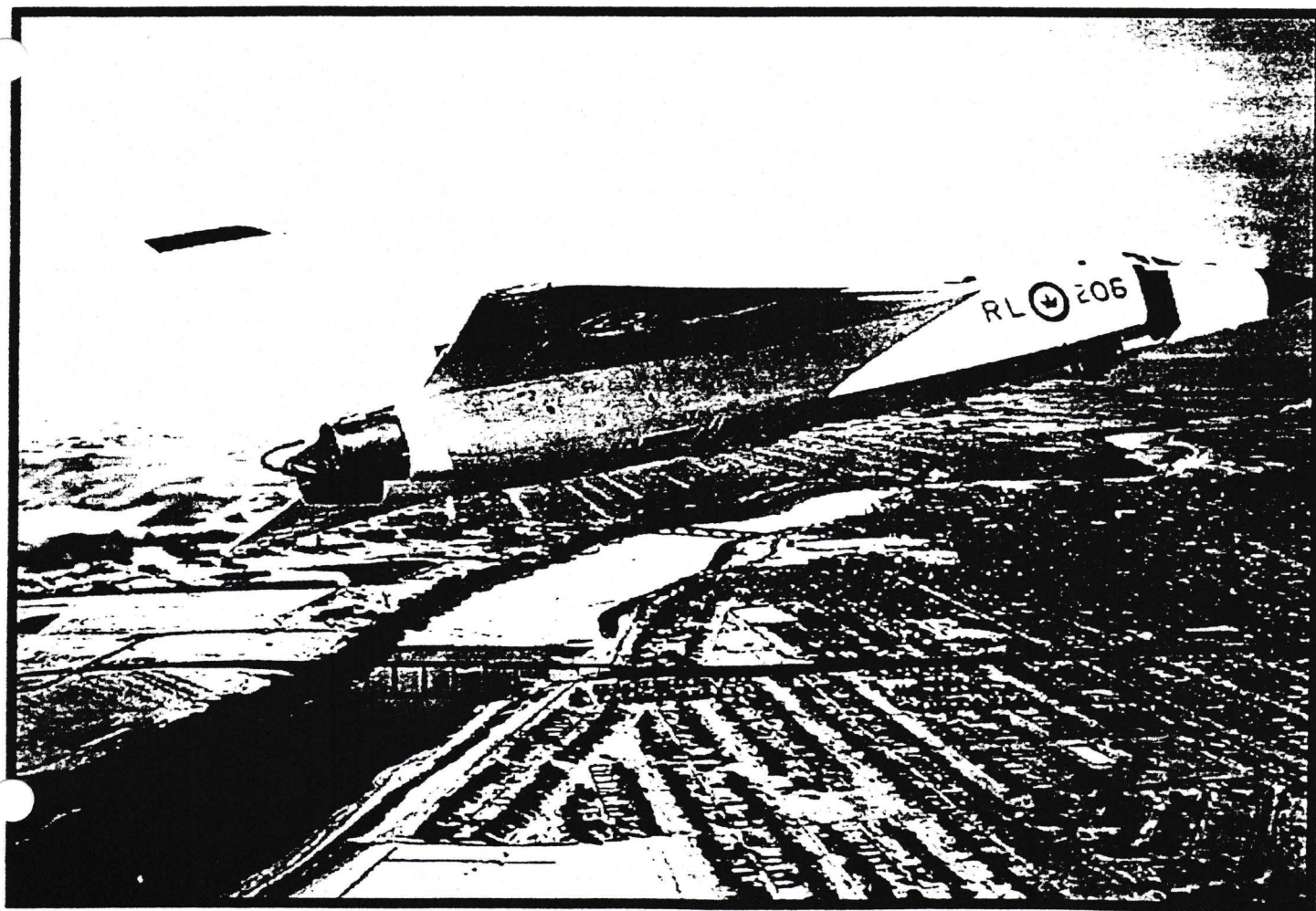
The Diefenbaker government, continuing to eschew tough decisions, waffled on acquiring nuclear

warheads for these weapons, leading to a political crisis that would topple it. "The Arrow had its revenge," Isinger said, "proving the first link in a chain that defeated the government." Escaping all blame was Louis St. Laurent's and the Liberal Party, which undoubtedly would have cancelled the Arrow program had it been returned to power in 1957. It had made, Isinger said, "all the wrong decisions for the right reasons". Diefenbaker's government, on the other hand, made the right decision in the wrong manner."

The legend of American arm-twisting lives on, though, because the Arrow drama touches all the right political hot buttons: many Canadians' pride in

their accomplishments and their near-paranoia about U.S. influence; the aircraft was particularly esthetically pleasing, too. Said Isinger: "It appeals to a lot of things. I think . . . in Canadians' minds. People want to believe legends. Nobody wants to believe the truth."

Report by Will Chabun



*Arrow in flight (Crone collection)*



## 1997 SNOWBIRDS AIR DEMONSTRATION SCHEDULE

### April

25 - 25 Nellis AFB, NV for the USAF 50th!  
29 Page, AZ

### May

3 - 4 Redding, CA  
6 Sandspit, BC  
7 Smithers, BC  
10 - 11 Juneau, AK  
14 Nanaimo, BC  
17 - 18 Kelowna, BC  
24 - 25 Winnipeg, MB  
27 Hanover, ON  
29 Glens Falls, NY  
31 Borden, PE

### June

1 Miramichi City, NB  
4 St. Georges-de-Beauce, QC  
7 - 8 London, ON  
14 - 15 Hamilton, ON  
18 Drummondville, QC  
21 - 22 Borden, ON  
24 Bonavista, NF  
26 Goose Bay, NF  
28 Harbour Grace, NF  
29 Gander, NF

### July

1 Ottawa, ON  
3 Terrace Bay, ON  
5 - 6 Moose Jaw, SK  
26 - 27 Prince George, BC

30 Hay River, NT

### August

2 - 3 Red Deer, AB  
5 Cranbrook, BC  
6 Kamloops, BC  
8 - 10 Abbotsford, BC  
16 - 17 Lethbridge, AB  
19 Virden, MB  
21 Rouyn-Noranda, PQ  
23 - 24 Mont-Joli, QC  
27 Centralia, ON  
29 - Sept 1 Toronto, ON

### September

3 Trois-Rivieres, QC  
6 - 7 Halifax, NS

## WHAT IF THE ARROW HAD SURVIVED

Speaker Russell Isinger, who is consulting on an Avro Arrow multimedia project for Bell Canada and the National Aviation Museum, posed a playful and thoughtful picture of what might have happened if the federal government had not -- repeat not -- decided in 1959 to cancel production of the Avro Arrow fighter jet.

He begins by assuming that an order for 100 of the machines was confirmed, and built at cost of \$1.2 billion. To pay for it, the 1959 federal budget announced tax increases, provoking severe criticism. Mike Pearson's Liberals focused on "this sinkhole for public funds". The slogan "Tory times are tough times" began to be heard across the land.

By 1961, the first Arrows were entering service and all accounts indicated that pilots were very pleased with them. Not everybody celebrated, though. To pay for the CF-105, the army and navy had been starved of money; their leaders gave frequent and hostile interviews to the media about the Arrow. Even before the Arrow's production run ended, Avro had sought work building the new CF-104 strike fighters ordered by the RCAF for its European air division. However, this contract went to Canadair. Avro responded by laying off 5,000 employees; many others drifted away. Avro demanded more work, but the only additional order that arrived was for four Arrows for the air force of the Sultanate of Oman!

By 1964, all of the Avro work force was gone. Burned by the furor over signing of the 1958 NORAD agreement and the high costs of the Arrow program, John Diefenbaker's government had vacillated on acquiring nuclear weapons for the Genie-equipped Arrows in the RCAF. Thus the dramatic Cuban missile crisis of October 1962 arrived with the Arrows carrying only Falcon missiles. This indecisiveness, plus government cutbacks, saw his government fall, humiliatingly, on a non-confidence motion in the House of Commons. The new Liberal government acquired nuclear-tipped Genie missiles (under American control) for the Arrows. Avro's layoffs precluded development of a replacement aircraft, so the Arrows had to soldier on in RCAF service until 1981, when the first of 138 F-18s arrived to replace them. After their 30 years of service, a few Arrows went into storage or to museums in the mid-1980s -- and were never discussed again.

*Let us know what you think of this "what if" theory. Do you have your own theory? Why not submit it to the Editor.*



# WINDSOCK NEWS FILE

## The CF-105 Avro Arrow

According to the Canada Institute for Scientific and Technical Information (CISTI), which is a part of the National Research Council in Ottawa, a collection of about 200 reports related to the Avro Arrow has recently been declassified by National Defence and is now available to the general public for the first time. As well as the information in the reports, several books and articles written about the Arrow are in the collection in Ottawa. Over the next few months, the collection will be added to CISTI's online catalogue for easy identification and document ordering.

How these documents survived the purge of Arrow records after the program was cancelled on February 20, 1959 is the stuff of legend. Apparently, when government representatives came to CISTI's Aeronautical and Mechanical Engineering Branch in February 1959 to seize the document collections related to the Arrow, Marion (Molly) Leach, who was the librarian, refused to give them access to the vaults and told another library employee to call the RCMP. The representatives left and never came back!

*CISTI News, December 1996*

## Canadian Postal Museum

According to Volume XII, Number 4 of *The Canadian Aerophilatelist* (December 1996), the National Postal Museum in Ottawa has officially changed its name to the Canadian Postal Museum. In 1997, this year this museum will have a permanent exhibition space in the Canadian Museum of Civilization. The first exhibit will be

development of air mail service in Canada from 1918 to 1948. This special exhibit will be on display from June 12, 1997 until September 30, 1998. A selection of first day covers (envelopes) and air mail stamps is being organized by the Canadian Aerophilatelic Society for this event. The significance of each to Canada's air mail development will be highlighted. But the most significant exhibit might just be a full size aircraft representative of the air mail service during this period! Efforts are underway to locate such an aircraft. One possible choice is the de Havilland Dragon Rapide which was used throughout the late 1930s and early 1940s. This aircraft provided the first air mail service between Vancouver and Seattle (and then to all parts of the US and eventually to Eastern Canada). It also played a significant role in servicing the isolated communities along the North Shore of the St. Lawrence River. One such Rapide still exists near Calgary, although this particular aircraft did not arrive in Canada until 1976. It will be interesting to see what aircraft is finally selected.

*Ross Harrington*

## Post Cards

Canadians have a long history with post cards. For example, 41 post cards were mailed in 1918. When our country was about 7 years old, we had to do without. Under how many of the early post cards have

copies of these early post cards? They would tell an interesting story about the development of aviation. *The Canadian Aerophilatelist, XII (4)*

## Jericho Beach and the West Coast Flying Boat Stations

A new book written by Chris Weicht, outlines the chronological history of the Air Station at Jericho Beach (Vancouver). This station was constructed by the Civil Operations Branch of the Air Board in 1920 to undertake fisheries and forestry patrols along the B.C. coast. Its role continued to expand until Jericho Beach ceased flying operations in 1945.

The book has approximately 300 pages and contains many first-hand recollections and original photographs. Pre-distribution price is \$35.00, tax and shipping included (offer valid until February 15). The first 1000 copies will be signed by the author and will be identified by a unique number. The book is available through the author at P.O. Box 85, Chemainus, B.C. V0R 1K0 (604 246-1203).

*Ross Harrington*

## Waldek "Spud" Potocki

"Spud" Potocki, perhaps best known as one of the test pilots of the Avro Arrow, died on December 23, 1996 at Columbus, Ohio at the age of 77. Spud was born in Poland, flew with the RAF and after the war graduated from the Empire Test Pilot School. During the early 1950s Potocki joined Avro Canada and on November 11, 1958 took the Arrow to Mach 1.98. Following cancellation of the program in 1959, Potocki joined North American Rockwell as a test pilot.