

THE ARROW

BY
THE ARROWHEADS

The Airborne Classic:

If there ever was an Avro Arrow, if there was ever a book published on the Avro Arrow, then this is that book. Cover to cover, 100% the history of the Arrow from conceptual design, production, first flight to Black Friday. Engineering drawings, Color, Black and White photographs never before published can be seen in this book "ARROW". We have, with permission, taken excerpts from the book; published by the Boston Mills Press. The book really must be purchased to truly see and understand this dramatic and tragic story of Aviation history in Canada.

THE HISTORY of the Avro Arrow is one of the most fascinating, yet misunderstood stories in all the annals of Canadian Aviation.

The Arrow was a plane without equal and considered by many to be twenty years ahead of its time.

From Roll Out to First Flight

The official roll out of the Arrow on October 4th 1957 was the same day the Russians launched their famous Sputnik! This relegated the Arrow to a secondary importance in the media.

The unveiling ceremonies culminated what had begun some six years earlier as the germ of an idea in the minds of a small group of creative engineers, headed by J.C.

(Jim) Floyd—Vice-President engineering, and made up of: R.N. (Bob) Lindley, Chief Engineer; Jim Chamberlain, Chief Aerodynamist; and Guest Hake, Arrow Project Engineer. These four co-ordinated the efforts of all phases of engineering which went into creating the Arrow. The supersonic delta concept was not new, but these people felt it was possible for Canada, through engineering and production facilities of Avro, to design and produce in quantity an advanced aircraft type to meet the threat of future developments of potential enemy bombers.

About 12,000 people viewed the roll out, including representatives of Military, Government and Industry from NATO countries together with as many Avroites as could possibly be spared from their work for the period of the ceremony.

The Honorable George R. Pearkes V.C., Minister of National Defence, unveiled the ARROW with these words: "I now have the pleasure of unveiling the AVRO ARROW—Canada's first supersonic aircraft—a symbol of a new era for Canada in the air."

The following is an excerpt from his address:

"Fifty years ago a great Canadian pioneer, John A.D. McCurdy, who is with us on the platform today,

flew the Silver Dart, the first aircraft in Canada, in fact it was the first heavier-than-air plane to fly in the British Commonwealth. History recognizes that event as the beginning of Canada's air age."

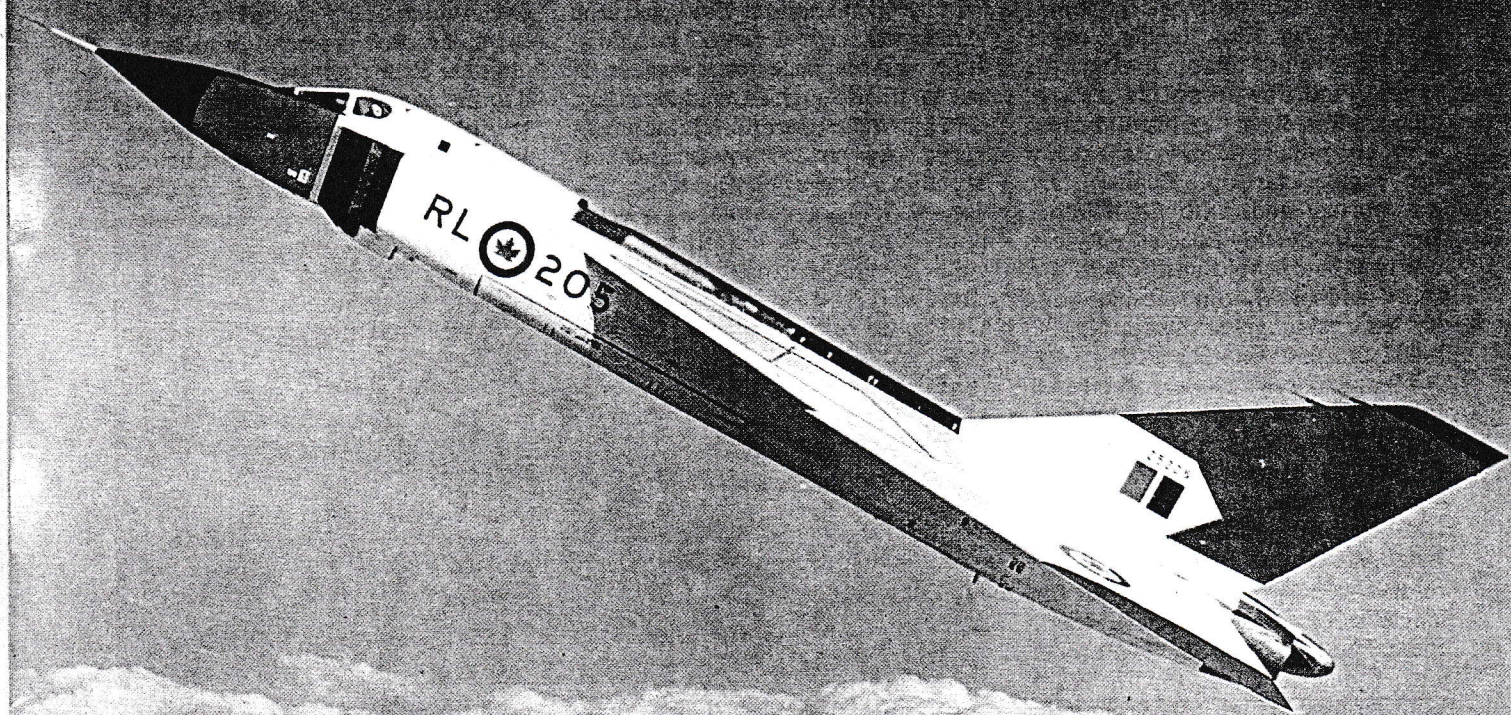
"This event today marks another milestone—the production of the first Canadian supersonic airplane. I am sure that the historian of tomorrow will regard this event as being equally significant in the annals of Canadian aviation."

"The supersonic era of flight is just beginning. Many of today's aircraft are regularly breaking the sound barrier, but this is done at the extreme peak of their performance. Supersonic flight is still not a routine matter. Present aircraft travel at these exceptionally fast speeds for a relatively short period of time."

"The Avro Arrow, however, has been designed from the outset to operate supersonically throughout as much of its mission as is deemed necessary. It will be as equally at home at one side of the sound barrier as on the other. It will be a truly supersonic aircraft."

First Flight March 25th 1958

As the taxiing trials were just about completed and first 'take off' for the Arrow was drawing closer, considerable interest was being generat-



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ed. The exact date of the first flight was, of course, unpredictable as it depended on many factors, not the least of which, was the weather.

As any experimental test pilot will testify, good weather and aircraft serviceability rarely coincide. However, at Toronto's Malton Airport, March 25th, 1958, both the Arrow and the weather were ready!

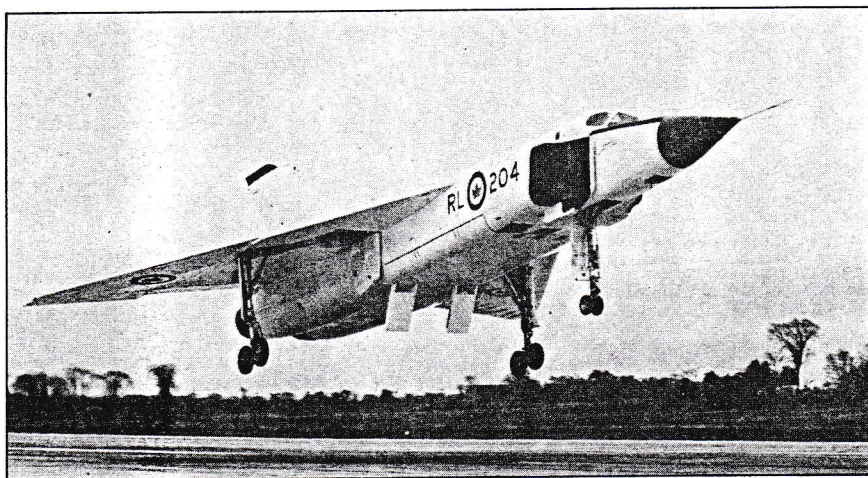
The plant emptied even faster than at normal quitting time! Jan Zurakowski had inspected the Arrow, RL25201, signed acceptance of it from the ground crew, and was ready to go! The watching crowd was tense as Zura climbed the somewhat tall boarding ladder, eased himself through the open clamshell canopy and down into his seat. A quick assist from his ground crew with strap-in, and all was ready for engine start-up. Engine start was normal and, with flight clearance, Zura quickly taxied the Arrow out to take-off hold position, at the south end of Malton's recently extended and longest runway, No. 32 (320°), 11,050 feet in length.

Meanwhile two chase aircraft had taken off and were waiting Zura's signal that he was ready to take off. Flight Lieutenant (F/Lt) Jack Woodman, the resident RCAF Central Experimental and Proving Establishment (CEPE) Test Pilot, on the Arrow project, was flying the single seat F-86 Sabre. Avro experimental test Pilot, "Spud" Potocki was flying a CF-100 with Avro photographer Hugh MacKechnie in the back seat.

Having obtained flight clearance, Zura moved the Arrow onto the runway and started to roll. The two chase aircraft, with flaps down, were approaching flying parallel to take-off runway. With terrific acceleration, the Arrow was quickly airborne, less than half way along the runway. History was recorded by Malton Control tower, "Avro 201 off at 9.51 a.m. and cleared to company tower." The take-off was without afterburners and the aircraft climbed steeply to around 5,000 feet with gear down, at an indicated air speed of 200 knots. At 5,000 feet the automatic flight control system (A.F.C.S.) was se-

lected in the normal mode and the landing gear retracted.

At Zura's request, Spud Potocki, flying the CF-100 chase aircraft, closed in to ensure positive closure of the nose wheel landing gear door, as the uplock warning light was showing red in the cockpit. The speed was then boosted to 250 knots and the Arrow climbed to 11,000 feet where handling assessment was made with A.F.C.S. in emergency mode. For over half an hour, the Arrow flew around accompanied by the two chase planes. They kept very close to the Arrow and acted as extra pairs of eyes on the outside of the airplane, as Zura put the Arrow through a set of mild manoeuvres to check the response of the controls, engines, undercarriage and air brake operation, handling at speeds up to 250 knots and low speed in a landing configuration.



Zura later recalled that the aircraft's flying characteristics were similar to that of other delta winged aircraft, like the British Gloster Javelin and American F102, but the Arrow had a more positive response to control movement. The only unpleasant part of the flight was the feeling of responsibility combined with the realization that the success of the flight depended upon the thousands of components, especially electronic and hydraulic, with only a small percentage under his control.

Zura obtained clearance to land, from Malton Control Tower, and the landing gear was lowered. The Arrow lined up with the runway and after a very fast descent with

air brakes out, made its approach at 180 knots. The wheels touched—right on the runway button—at 160 knots. The tail parachute billowed and filled, slowing the aircraft until it turned off at the far end of the runway.

Black Friday, February 20th, 1959

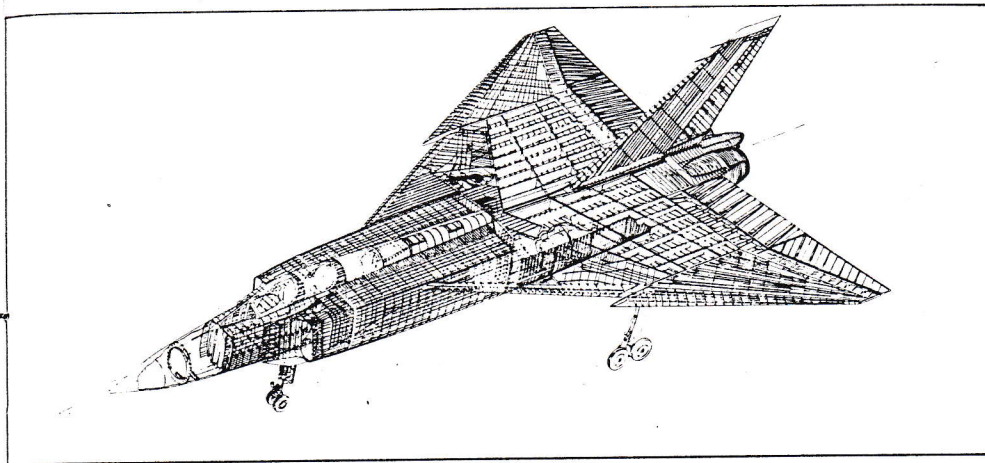
On Friday, February 20th, at about 11:00 a.m., the Prime Minister announced in the House of Commons termination of the Arrow and Iroquois Programs. At Avro, Toronto, at 11:20 a.m. approximately, the following announcement was made to all employees over the P/A system:

"The radio has recently announced that the Prime Minister stated in the House of Commons this morning that the Avro Arrow and Iroquois programs have been terminated. We, the Management of the Com-

pany, had no official information prior to this announcement being made. The Cancellation of the Arrow and the Iroquois has, however, been confirmed as a fact by Mr. Hore, the representative here of the Department of Defence Production. It is impossible at this stage to give you any further details until such time as I receive the official announcement from Ottawa. In the meantime, I would ask that you continue with your work. Later on in the day you will be informed as to our future."

At 12:22 p.m. the following termination instructions were received from the Department of Defence Production:

"Take notice that your contracts



bearing reference numbers set out below including all amendments thereto are hereby terminated as regards all supplies and services which have not been completed and shipped or performed thereunder prior to the receipt by you of this notice Stop You shall cease all work immediately, terminate subcontracts and orders, place no further subcontracts or orders and instruct all your subcontractors and suppliers to take similar action Stop You are requested to submit to the Department of Defence Production, Ottawa, Ontario, for consideration any claim which you may have as a result of this termination Stop Such claim and those of your subcontractors and suppliers, if any, are to be submitted on the prescribed departmental termination claim forms Stop On receipt of this notice, you should make application in writing to the Chief Settlement Officer, Department of Defence Production, Ottawa, for the requisite set of forms Stop Your claim and all correspondence concerning it should be addressed to . . . Stop Ends."

When the termination notice was issued by Crawford Gordon, employees walked around in a state of disbelief. Many had expected that a scaling down of the Arrow program might occur, but an entire cancellation of the program left both the employees and management in a state of shock; it was totally unexpected.

The Company had no option; they were under contract and committed to various subcontractors to the tune of several millions of dollars of their own money, await-

ing the Government's next fiscal year's appropriation. This was done with full knowledge and consent of the Government. The Company informed the Government of its decision to let an estimated 13-14,000 employees go, giving the Government an opportunity to come up with some kind of alternative, but no answer was forthcoming. There were five aircraft completed that had already flown and others virtually ready to roll off the assembly line, including the parts and components for virtually all 37 aircraft awaiting final assembly.

Shortly thereafter the Government ordered the Company to destroy or scrap anything and everything which related to the Arrow. The completed Arrows sitting on the flight line (death row) lasted a little longer but finally they too were cut up by welders and trucked away to a scrap dealer from Hamilton, Ontario, under the watchful eyes of Government personnel. The aircraft in final assembly and the various components were likewise destroyed and carted away. The only surviving memory of the Arrow is a hacked off front end of Arrow No. 206, along with a section of landing gear in the Transportation Museum in Ottawa. The cancellation of the Arrow project not only put an end to the Arrow and the Iroquois engine, but put the kiss of death to one of the most advanced aeronautical research and development organizations in the world. In one fell swoop, a national asset which had been created after years of work came to an abrupt end. It was not just the cancellation of an aircraft,

it was the cancellation of an industry. Things like the supersonic transport and double-decked airliners already on the drawing boards went by the wayside. One after another top people were snatched up by our neighbours to the south, who had been waiting on the sidelines with their shopping list of key personnel. Many of these people, giants in their respective fields, moved south; later they helped put man first into space and then onto the moon—they used to live here!

To Quote Jim Floyd:

"The Arrow Mk1 that flew in 1958-59 was only the first of a fine family of aircraft to fly. With normal development, it would have been a most interesting family!"

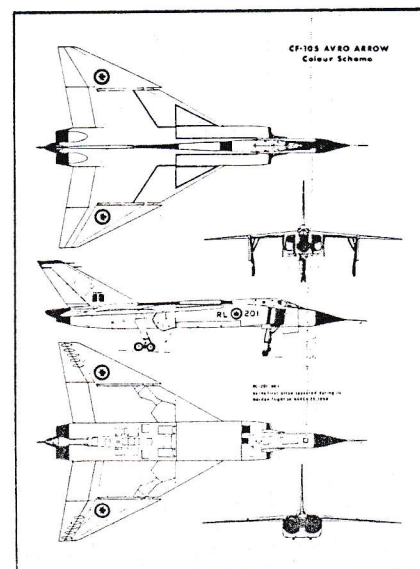
Now one can only guess as to what could have been!

Epilogue

One thing that should be made quite clear. The Arrow was a truly Canadian product by Canadians for Canada. The Arrow and Iroquois programs were a pinnacle of Canadian aviation achievement, the like of which we may never see again. It was a time when the eyes of the Aviation world were on Canada.

The design, construction and development of these two fine products was the Canadian equivalent to putting a man on the Moon.

The tragedy is that although we demonstrated success, we were never able to reap the benefits.



airborne

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AN EXCLUSIVE:
THE AVRO ARROW



PILOT REPORT: THE CESSNA

0058347 02

ELEANOR J BAILEY
SITE 13 BOX 6 RR 5
CALGARY AB T2P 2G6

CA