

# The plane that lost out as a "first" jet airliner lent its name to the breed.

By Bill Mellberg



Owing its creation more to "enthusiasm" than to technical precision, Canada's first and only jet airliner was an excellent plane that deserved a better fate than it got.

Like most homes, Jim and Irene Floyd's house is filled with all sorts of mementos and photographs collected over the years. There are the usual assortment of knickknacks on the shelves and family pictures on the walls. But visitors to the Floyd's Ontario home will find a few somewhat unusual items placed here and there. One wall of their living room, for example, is graced by a beautiful painting of the famous British Lancaster bomber. "The Lancaster brought Irene and me together," Jim says with a smile. And it truly did. . . .

Jim Floyd was a young engineer working in the Chadderton, England, design office of the A.V. Roe Company (more commonly known as "Avro") in 1940. That was the year Jim married Irene—a "lovely lass" who also worked in Avro's design office. At the same time, Avro was hard at work turning out its problem-plagued, twin-engine "Manchester" heavy night bomber for the growing air war against Germany. The firm's chief designer, Roy Chadwick, had recently assigned Jim to a small team of engineers instructed to study a new version of the Manchester powered by four Rolls-Royce Merlin engines. The end result was the

legendary Lancaster which Sir Arthur Harris ("Bomber" Harris of the Royal Air Force's Bomber Command) would credit as "a major factor in the defeat of the Nazi enemy." More than 7,000 Lancasters were eventually produced, including 430 in Canada at the Victory Aircraft plant near Toronto.

After the war, Sir Roy Dobson, the head of Avro Aircraft, visited Malton where Victory Aircraft was located (now the site of Toronto's Pearson International Airport) and decided to acquire the largely idle plant. On December 1, 1945, A.V. Roe Canada, Ltd., was created, and "Dobbie" assembled a brilliant team of engineers for his new venture. The following February, Floyd left England for Canada, where he quickly became chief design engineer of transports (later vice president of engineering) at Avro Canada. In the years that followed, his work would earn him several of aviation's most prestigious honors.

Scattered about Jim's upstairs office in the Floyd home are photographs, awards and model airplanes which reflect his long career in the industry. Included in the collection are models of Avro Canada's all-weather, twin-engine CF-100

"Canuck" interceptor; the fabulous (though controversial), delta-winged, supersonic CF-105 "Arrow"; and the elegant Concorde supersonic transport—a program in which Floyd became deeply involved as a consultant back in his native England.

But the undeniable centerpiece of Jim's office is a large model of another jet transport, a yellow-trimmed silver aircraft not immediately recognizable, even to many aviation enthusiasts. The same airplane appears in a faded, though cherished, photograph hung over Jim's desk with the following inscription: "To Jim Floyd, with commendation for this very good design."

It is signed by Howard Hughes. Yet this four-engine jet airliner is still unfamiliar to the average visitor. "The first impression expressed by most people seeing it for the first time," Floyd notes, "is that it looks like a modern passenger jet. In fact, it was flying 40 years ago—almost halfway back to the Wright brothers. And it was the first passenger jet to fly on the North American continent."

Indeed, it was the airplane which brought Jim Floyd to Malton—and Avro Canada's first major project. Although it is rarely mentioned in aviation history books (and then usually only as a footnote), this pioneering aircraft took to the air on its maiden flight only two weeks after the famous de Havilland D.H.106 Comet jet airliner—just missing the distinction of being the first passenger jet to fly in the world.

The airplane was originally designed to a Trans-Canada Airlines requirement for a twin-engine jet transport. The Rolls-Royce AJ65 power plants did not become available as planned, and Avro substituted four Rolls-Royce Derwent 5 jet engines in their place. The result was a jet airliner that consumed more fuel—affecting its economics somewhat. But performance was improved in other areas, such as in takeoff thrust and engine reliability. In fact, it exceeded all of Trans-Canada's original flight-performance specifications.

The engines were neatly paired in pods slung under each wing. This 50-passenger

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## Aerial Oddities

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ger, intercity airliner was designed to cruise at 450 mph, with a top speed in excess of 500 mph. It would have a stalling speed of 80 mph. A straight wing incorporating simple flaps was chosen to allow low landing speeds because of the short runways that existed at the time. Simplicity was an inherent part of the design, and ground crews could service the airplane with ease. But that is not to say that Avro's engineers faced a simple task.

"We were breaking completely new ground on this airplane, and we were pioneering a new concept in air travel at a time when technology on jet passenger airplanes was virtually non-existent," Jim Floyd explained. "The design was started fewer than six years after the Battle of Britain when the fastest Allied aircraft were the Spitfire and the Hurricane. Yet this 'huge' aircraft, for those days, anyway, had to cruise at a higher speed than the top speed of those sleek military airplanes. At the same time, we had to take full advantage of the jet power plants—designing an aircraft to fly at almost twice the altitude passenger airplanes were flying at the time. Which meant developing new techniques in air conditioning and pressurization, as well as designing the structure to take those very high levels of cabin pressurization."

All of this was done during a period Jim Floyd described as "B.C."—Before Computers. Slide rules, logarithm tables and simple calculating machines were the Avro engineers' tools. "But I think the major tool—maybe I should call it the major *ingredient*—was *enthusiasm*," Floyd said. "This aircraft was designed, built, and flown on the unlimited enthusiasm of a very young and very talented team with a complete disregard for the words 'difficult' or 'impossible.'"

On a very hot August 10, 1949, five years before Boeing's "Dash Eighty" prototype of the 707 took to the air, this revolutionary aircraft was ready for its maiden flight. It had been given the Avro project designation C-102. But the name emblazoned on its nose in bold, red script was Avro "Jetliner"—a name that would become a generic term used to describe all jetliners.

The captain for the first flight was Avro's chief test pilot, Jimmy Orrell, who was brought over from the United Kingdom. The flight went even better than expected, and Orrell described it as "a piece of cake." Don Rogers, Avro Canada's chief test pilot, flew in the right-hand seat that day and praised the Jetliner for its ease of handling and its extraordinary performance. A stuck

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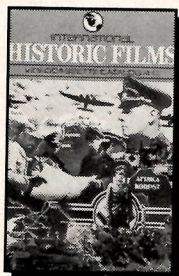
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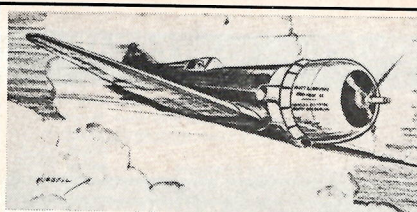
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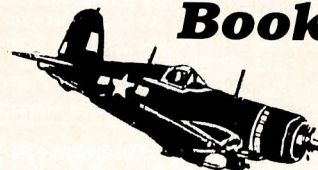
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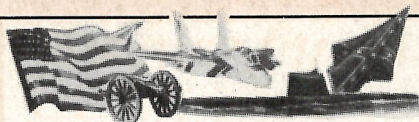
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landing gear forced a belly landing on the second flight, but only minor damage was sustained, and the airplane was soon back in the air again. That was the only serious mishap during the C-102's seven-year flying career.

By the time of the C-102's first flight, TCA had opted out of pioneering such a bold project, leaving American carriers as the Jetliner's primary market. The airplane began making headlines across North America as it shattered all existing records for transport aircraft on demonstration flights that took it from coast to coast. On January 10, 1951, it flew a triangular route from Toronto to Chicago to New York and back to Toronto. Along the way it had flown at twice the speed and altitude of existing piston-powered airliners. Nearly a decade would pass before any other transport would match that performance.

Miami-based National Airlines signed a letter of intent to buy four Jetliners with an option on six more. Howard Hughes had a keen interest in the Jetliner for Trans World Airlines (TWA) and spent many hours discussing the production airplane's performance, as well as flying the prototype. Other airline executives expressed a similar interest, and the press and public were wildly enthusiastic about the Jetliner. Work was proceeding on the second prototype, which would be lengthened to carry 60 passengers and would be equipped with American-made jet engines.

But the second aircraft was never completed, and the Jetliner was abandoned just when success seemed imminent. The Jetliner's demise had little to do with its performance. Rather, it was the Canadian government that put a stop to the project in 1951—directing Avro to focus all of its resources on the CF-100 because of the Korean War. Even Howard Hughes' attempts to have the C-102 produced in the United States were thwarted by the politicians in Ottawa who failed to recognize the lead it would give to Canada in civil aviation. Jim Floyd believes it was a foolish decision—costing Canada countless dollars in lost sales, prestige and technological development. The prototype was used as a "chase" aircraft for several more years, until the order came to scrap the Jetliner in 1956. Only its nose was preserved for Canada's National Aviation Museum. It was a sad ending to what should have been a great success story.

Had the C-102 gone into production, it could have brought the Jet Age to short- and medium-range air routes more than a decade before the BAC One Eleven, the Douglas DC-9 and other, similar aircraft. Indeed, the Jetliner was scheduled to be in service by early 1953—a six-year lead over its nearest competitor, French Sud Aviation's elegant Caravelle.

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