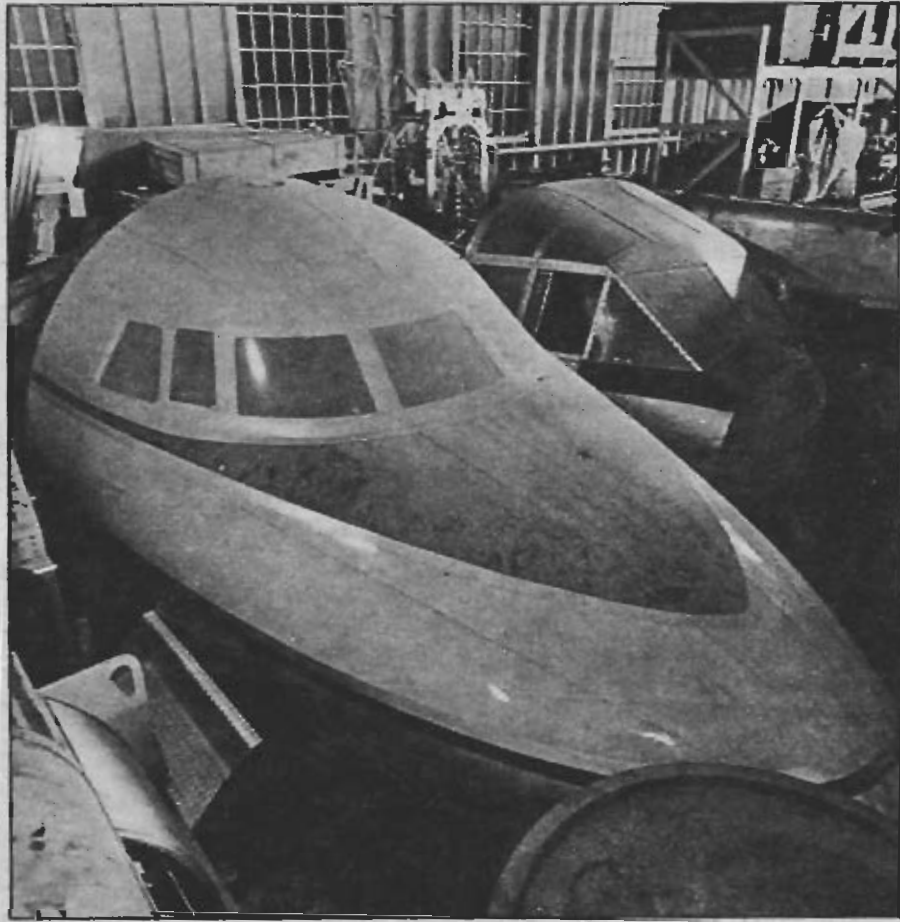


# HOWARD HUGHES LOVED IT

But Canada scrapped the first jet airliner to fly in North America

BY WAYNE SKENE



Stored among many other relics of Canada's aviation history is all that remains of the plane that was "a dream to fly" – the cockpit portion of its fuselage.

Only a few minutes' drive from the centre of Ottawa there is a sagging, slate-grey aircraft hangar left over from the Second World War. Inside the hangar, beneath the oily oak beams that lend a cathedral effect to the setting, there is an area strewn with relics of Canada's aviation past — old wing pieces, crates of oil-spattered engines, a battered fuselage or two, discarded parachutes.

Hidden among this mass of history at the Rockcliffe branch of the National Museum of Science and Technology are the remains of one of the most advanced jet airliners ever built. All that's left is the cockpit portion of the fuselage, but even beneath the layers of dust there is a certain pride and beauty to what is left of this plane; the lines are almost too modern to be a relic, the paint — yellow and black streaming along the fuselage — is hardly scratched.

All the instruments are intact, a strange gesture of respect for what remains of this plane. Other plane fragments are marked with the scars of cutting torches, broken glass and missing flight instruments. But looking over those still sleek lines of the airliner, you can almost hear the shrill scream of the four Rolls-Royce Derwent engines.

It wasn't a particularly unusual aircraft by today's standards. It could carry up to 50 passengers at speeds over 400 m.p.h., and at altitudes up to 40,000 feet. In fact, it wasn't unlike the now-familiar DC-9 and Boeing 737.

What is fascinating is that it was designed and built in Canada, and it was flown for the first time on Aug. 10, 1949. It was, in fact, the first jet airliner to fly in North America, and the second to fly in the world. A mere two weeks before, a DeHavilland DH Comet I had made a successful test flight in England, making it the first commercial jet airliner to fly in the world.

The Canadian plane was the Avro C-102 Jetliner. And in 1949 it represented a radical departure from the traditional propeller and turbo-prop airliners. Partly because it was so far ahead of its time, and partly because of the nature of Canadian politics at the time, only a prototype was built.

Like one other advanced Avro project — the Avro Arrow — the Jetliner was destined to become simply a short chapter in Canadian aviation history.

The Arrow was designed during the 1950s as a supersonic jet interceptor. Avro built six of them, but the project was scrapped after the Diefenbaker government took office in 1957.

Yet the Arrow was only the last in a long list of highly advanced aircraft that Canada produced after the Second World War. The Avro plant was very active during those years: the CF-100 All-Weather Fighter was in the design stage, work was being completed on two of the most advanced jet engines at the time — the Chinook and the Orenda — and the Jetliner was being built.

For Avro, and for Canada, it was a time of dedication and creativity in aeronautics. A time for men like Jim Floyd, chief designer of the C-102 and later design consultant for the Anglo-French supersonic Concorde, and Jim Chamberlain, who later went on to play an important role in the Mercury and Gemini space projects.

wasn't there.

"We were climbing at a surprising rate and yet it was so quiet you could hear the odd instrument ticking away."

The first test flight took place at the Avro Malton site on a hot and humid summer afternoon. Except for the staff assigned to the Jetliner, all Avro employees were enjoying the annual plant holiday shut-down. The three-man crew — pilot Jim Orrell, co-pilot Don Rogers, and Baker, the flight engineer — flew the Jetliner for an hour and five minutes.

A week later, when plant holidays were over, Avro officials, enthusiastic after the success of the Jetliner's maiden flight, invited their employees to watch the second test flight. Hundreds of plant and office employees lined the airfield fence in the warm afternoon sun to watch their Jetliner.

The test program called for a number of "stalls" — a manoeuvre where the plane is flown at such a steep climb that buffeting, vibration, and stall results. The plane is put into a dive to regain air speed, and the flight continues.

With tests completed, the crew flew the Jetliner low over the field for the benefit of the employees, made a tight circuit around the field, then prepared to land. Don Rogers pressed the button for releasing the undercarriage, but only the nose wheel came down. The main undercarriage was stuck. During the stall tests, the buffeting had caused an automatic locking device to slip out of position and now it couldn't be withdrawn far enough to free the gear.

Flight engineer Bill Baker tried unsuccessfully to release the gear by pulling on a manual release cord. He ended up with one broken release cord and one broken rib.

"We were more than a little concerned because here was the nose wheel sticking down, but no main wheel," says Baker. "I started to pull frantically on the cord and I guess I yanked so hard that it broke, but when it did, I separated one of my ribs as well."

"The tower suggested that we fly over Lake Ontario and ditch the plane, but Jim Orrell would have none of that," Baker continues. "We had parachutes and we could have jumped, I guess, but then the plane would have been a total loss."

Photography: Crombie McNeill

When the war ended, the Victory Aircraft plant at Malton, Ont. was taken over by A. V. Roe and Co. of England. One of their first projects was the development of an airliner for Trans-Canada Air Lines.

Agreement was reached in late 1945 between TCA and A.V. Roe to build a prototype jetliner. Work started immediately and by Aug. 10, 1949 the plane was ready to fly. Almost 24 years later, Bill Baker, the plane's first flight engineer and now vice-president of Douglas Aircraft of Canada, is sitting in his comfortable Ottawa office telling me about the plane's first flight.

"Adrenalin was running high that day," Baker says. "That flight changed our whole philosophy toward flying. With propeller engines we were used to lots of noise and vibration when we throttled up for take-off. There was quite a spectacular shock for me when the noise level faded as we took off this time. That reassuring roar of the props



## POLITICS AND A WAR GOT IN THE WAY

"Jim finally set her down on the grass alongside one of the runways and we rolled along on the nose wheel and the bottom of the jet pipes, coming to rest just a few hundred feet short of the road at the end of the field.

"As we were sliding down the grass strip toward the fence where most of the crowd had gathered, we spied a young girl in a white dress, watching as the plane skidded toward her.

"When she realized that we might not be able to stop, she started to run — two steps to the left, and then two steps to the right — she didn't know which way to go. I can remember someone in the cabin saying 'Make up your mind sister, we're coming through'."

But the girl wasn't hurt, and the Jetliner survived with only minor damage.

The Avro C-102 Jetliner wasn't simply an intriguing research project to occupy the time of Avro designers and engineers. It was a radically new concept in commercial air travel. Although the original idea was to construct a new aircraft for use by TCA, Avro also planned to develop a market for the plane in the United States.

In the postwar period, commercial transport aircraft were severely limited in speed and range. Most propeller-driven passenger aircraft were at least 200 m.p.h. slower than the C-102 and were restricted to altitudes of less than 18,000 feet. Other than the larger intercontinental transport like the Lockheed Super Constellation, most planes in service carried fewer than 45 passengers.

But the Jetliner's speed and altitude, not to mention the attractive interior, made it appealing to prospective buyers. The original prototype was planned to carry up to 50 passengers and a 65-passenger "stretched" version was in the blueprint stage. The prototype was used for demonstration as well as testing.

The Jetliner's interior design was distinctly Canadian. The bulkheads were covered with a soft tan material that formed a background for a mural of familiar Canadian scenes: mountain-scapes, prairie wheat, rugged seacoasts. The light fixtures were delicate plastic dome starbursts that gave a night/sky effect to the ceiling.

But the plane was known more for its performance than for its plush interior. The Jetliner was test-flown from Toronto to Winnipeg in two hours and 40 minutes, and returned in two hours and 30 minutes. Today, more than 20 years later, the same flight west by DC-9 service takes two hours and 20 minutes.



**Don Rogers, here in a present-day plane, piloted the 1949 jet for most of its 440 flight hours. The painting of the Jetliner (top) is by Robert Bradford.**

The plane was "a dream to fly", say the men who flew it. "Like a great big-baby carriage", Bill Baker recalls. "And so far ahead of its time. It was a shame that the project had to get caught up in politics during those years. With the plane's speed and the range of a little over 1,000 miles, it was ideal for the inter-city passenger service."

When the Jetliner was formally introduced to the Canadian public at a show-

ing held at Malton on Oct. 7, 1949, response was optimistic. The Toronto Star described the plane as "a graceful, sleek lady who is expected to bring Canada the title of Queen of the Airways".

But in the late 1940s the whole idea of using jet engines for commercial flying was a shockingly new concept, even to some people associated with the aviation business.

On the other hand, the people whose business it was to fly passengers quickly and economically to their destinations — the airlines — had no qualms about the Jetliner. Several American airlines showed enough interest in it to seriously consider writing orders.

But history was unkind to the Jetliner. The Korean War began in June, 1950 and Avro Canada had to switch production emphasis from commercial to military aircraft.

All three of the major projects at Avro at that time — the CF-100, the Chinook and Orenda engines, and the Jetliner — were funded by the federal government. And Ottawa made it clear that, with the start of the Korean War, work was to stop on the Jetliner.

The decision meant Avro had to cease production on a second prototype and was unable to give prospective buyers schedules for production and de-

livery of the aircraft.

Don Rogers, the man who piloted the Jetliner for most of its 440 flight hours, and who's now an executive with DeHavilland Aircraft of Canada, says sadly, "It was a pity that some way couldn't be found to continue work on the plane, at least on a reduced scale until production could be resumed after the war."

The decision to stop production was only the beginning of the end for the Jetliner. Political controversy over the federal government's operation of TCA put the finishing touches to it.

The federal government had been committed to providing TCA with the propeller-driven North Star aircraft. "The North Star was a combined version of the DC-4 and the DC-6, built especially for Trans-Canada Air Lines," Rogers explains. "There was a lot of criticism of this program from the press at the time. The opposition parties in Parliament also attacked the program because of the cost. Apparently it would have been cheaper to simply purchase DC-6s or DC-7s in the U.S."

TCA engineers had been involved in the original design specifications for the Jetliner, but they and the government weren't prepared to chance a second controversial program, especially some-

Painting courtesy Rolph-Clark-Stone Ltd.

Photography: Ken Elliott

thing as radically different for its time as a jet airliner. So with the loss of the TCA contract, work came to a halt.

But the single prototype continued to fly. Because of its size, its speed and its altitude capability, the plane was put to work in a weird variety of ways. On occasion the plane was used as a "camera platform" for taking photographs of the CF-100 while it underwent testing. The Jetliner was also a popular attraction at air shows across the country. It was so much in demand that the famed Howard Hughes once held the plane captive for six months. In 1952 the Jetliner had been scheduled to take part in tests for a fire-control system slated for installation in the CF-100 by Hughes Aircraft at its Culver City plant near Los Angeles. Don Rogers was the pilot.

"On the second day at Culver City I gave Hughes a demonstration flight and checked him out at the controls of the Jetliner," Rogers recalls. "He was evidently impressed because he immediately ordered the plane moved to the far side of the field, away from the company work area, and placed under guard."

## "More than a decade ahead of its time"

The Jetliner quickly became the personal toy of Howard Hughes. When he had the urge to fly in it, he had his secretary call Rogers and his crew, who were billeted in a nearby motel, and instruct them to stand by to go up. The crew were only scheduled to remain in California for about ten days, but they ended up staying for six months.

"Hughes took over most of the flying. In fact I only logged 13½ flying hours at the controls during the entire period," Rogers says.

The Jetliner was recalled by Avro officials when it became evident that Hughes wasn't so much interested in buying as he was in flying it.

How good an aircraft was the Jetliner? Both Don Rogers and Bill Baker agree it was the quietest and fastest, and probably the most reliable aircraft of its time. "It was designed for inter-city passenger service and not for long-range flying," Baker says. "In terms of equivalent aircraft, one didn't come along until the DC-9 was put into service in 1965.

"It was more than a decade ahead of its time," he adds proudly.

A lot of pride went into the plane, and the technical advances that were built into the Jetliner tell a sad tale of wasted Canadian technology. After three fatal crashes in 1953 and 1954, the DeHavilland Comet jet airliner was grounded. Later investigation found that one of the major causes was "metal

fatigue" — the stresses on the outer "skin" of the aircraft due to the constant pressurizing and de-pressurizing of the fuselage. But the problem of metal fatigue had been foreseen by designer Jim Floyd when he designed the Jetliner's airframe in 1946. Floyd solved the problem by designing a "fail-safe" airframe that restricted any possible stress damage to a very small area of the plane's fuselage, eliminating the possibility of a rupture in mid-flight.

But the days of the Jetliner were numbered. Its last flight was logged on Nov. 23, 1956 — 7¼ years after its first.

With the years, parts and equipment had begun to age and wear. Without the tooling facilities needed to produce replacement parts for the prototype, Avro officials were forced to make a decision on the Jetliner's future. Attempts were made by Avro to have the plane accepted by museums, but none had enough room for it.

Finally, the day arrived when the order was given to dismantle the Jetliner. Charles Batchelor worked as a crew chief for Avro during the life of the Jetliner and the plane's last day is still fresh in his memory.

"We were standing in the hangar when Jim Floyd walked up to us," Batchelor recalls. "He'd just left the management meeting on what to do with the Jetliner, and he was visibly upset. He stared at us, then at the plane, then he paused and said quietly, 'Chop her up'.

"We were horrified! All along we had sort of expected it might come to this but we always hoped that maybe something would happen and production would start all over again. We serviced the plane on the side when we should have been doing other things. Toward the end the company even paid for the plane's upkeep through the fighter aircraft budget."

The company order had been to take the Jetliner apart in the privacy of the hangar and not outside where the public might witness the mutilation.

"I picked up a fire-axe and took a swing — it didn't make a dent," Batchelor says. "We finally had to take her apart with power saws.

"Jim and I were careful to remove the nose portion without any damage. He figured that someday someone would want to look at her. That plane was part of him."

And there it all came to an end.

The wings and the fuselage of an aircraft that cost nearly \$15 million to build were sold to a Toronto scrap dealer for two cents a pound. That scrap dealer did well by Avro; he also got the Arrows when they met a similar fate.

The seats were sold to a local charter carrier. The gear boxes were installed in someone's power boat. The wheels... well, the wheels ended up on a farmer's utility wagon.

It was a sad day.