

Carleton University impacted by Avro

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One of the things Carleton Aerospace certainly got right from the start was bringing in promising researchers to build the program. One of the early arrivals was Herb Saravanamuttoo.

Born in Glasgow, Scotland, Saravanamuttoo came to Canada in 1955 to work for Orenda Engines on the Avro Arrow project — a made-in-Canada fighter jet with the promise of reaching a speed of Mach 2 at an altitude of 50,000 feet. The legendary plane was supposed to serve the Royal Canadian Air Force for decades to come.

Saravanamuttoo, a gas turbine engine specialist, was working on the Iroquois engine in an Orenda computer lab on Feb. 20, 1959, a date seared into his memory. The plant's public address system didn't broadcast in the lab, so after hearing a muffled announcement from a loudspeaker in the corridor, he stepped out of the lab to ask a colleague what was happening.

"You're fired," the man replied.

Saravanamuttoo was among the 14,000 people let go when the Avro Arrow program was killed — a day that has gone down in Canadian aerospace infamy.

Unlike the plane, whose plans were destroyed along with all existing airframes and engines, Saravanamuttoo rebounded quickly. He spent a couple years with Orenda's nuclear group before starting on industrial gas turbines, then went back to the U.K. and earned his PhD at the University of Bristol while working with Rolls-Royce on the engine for the Concorde supersonic passenger jet, using knowledge and expertise from his Avro experience.

Saravanamuttoo was happily settled down with no intention of returning to Canada, but his wife had a friend at Carleton, and Saravanamuttoo flippantly asked the friend: "Any jobs there?" Two days later, he got a call from Don George, who had succeeded John Ruptash as dean of Engineering. In 1970, he joined Carleton's engineering faculty.

Throughout his tenure in academia, Saravanamuttoo has always maintained close ties to the aerospace industry. He has served as a director and longtime associate of Ottawa-based critical machinery company GasTOPS, founded by his former grad student Bernie MacIsaac and currently run by another of his former students, David Muir, two of the many Carleton grads who have worked at GasTOPS over the years.

Saravanamuttoo has conducted research at the NRC with his grad students — "back then, the NRC had equipment but not a lot of bodies; we had a lot of bodies but not much equipment" — and developed and delivered a short course on gas turbine engines for a who's who of multinational clients, including Rolls-Royce, Airbus, Pratt & Whitney Canada, Siemens, Caterpillar and Honeywell.

These courses, delivered around the world, have helped enhance Carleton's global reputation. They "extend the work of the departments and faculty," then vice-president (Academic) James Downey wrote in a 1979 memo, "into their academic, scientific and professional communities."

Along with fellow Carleton Prof. Paul Straznicky, Saravanamuttoo is also a co-author of the definitive textbook on gas turbine engines: *Gas Turbine Theory*, originally published in 1951, is now in its sixth edition, with a seventh on the way. "The gas turbine is unquestionably one of the most important inventions of the 20th century," declares the introduction, "and it has changed our lives in many ways."

"I keep telling my students that stuff like fluid dynamics and thermodynamics stays the same forever," says Saravanamuttoo. "The basics always stay the same."

During a sabbatical away from his post at Carleton, where he chaired the aerospace program for 10 years, Saravanamuttoo worked with the British Royal Navy on engines for ships that sailed in the Falklands War. One of his students took *Gas Turbine Theory* to sea on HMS Sheffield, which sank in battle. "So there's a copy of my book at the bottom of the Atlantic," says Saravanamuttoo.

Despite officially retiring in 1998, he remains a professor emeritus and continues to teach at Carleton. "The basic game plan is that I keep lecturing until I drop dead. I do it because I like it — I came to the university because I wanted to teach."

And because he understands the importance of passing on knowledge, a lesson learned the hard way when the Avro Arrow was grounded forever.