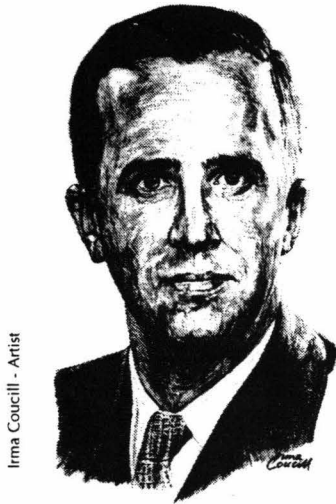


Paul Bernard Dilworth



Irma Couchill - Artist

Paul B. Dilworth was born on January 31, 1915 in Toronto, Ontario. He attended Appleby College in Oakville, Ontario and later enrolled at the University of Toronto, graduating in mechanical engineering with a Bachelor of Applied Science degree in 1939. After graduation he joined the engine laboratories of the National Research Council (NRC) in Ottawa where he was assigned to work on aero-engine technology.

In 1942, the RCAF was seeking to find ways of relieving Canada of total dependence on the United States and the United Kingdom for the supply of aircraft and engines. Senior members of the National Research Council's aerodynamics and engine laboratories visited the United Kingdom to carry out a survey of aeronautical research activities in that country. The resulting report made

reference to the pioneering work being carried out by Wing Commander Frank Whittle at Power Jets Ltd., on a new type of gas turbine (jet) engine for aircraft propulsion.

As a result of this report and ensuing meetings and technical exchanges between senior RCAF and Canadian government officials and those of the British Ministry of Aircraft Production, it was decided to implement further study on the subject. These further studies would determine how Canada might assist in Britain's wartime jet engine development and how Canada might eventually develop and manufacture that type of engine.

Dilworth and his senior colleague Ken Tupper, who at the time was head of the NRC Hydraulic Laboratories, were assigned to carry out an extensive survey of all jet engine research, development and manufacturing being carried out in the UK, including work by suppliers and the government establishments. They worked under the aegis of the senior representative of the Canadian Department of Munitions and Supply in the UK, Charles A. Banks. The final report by Banks, Tupper and Dilworth laid the foundation for Canada's entry into the design, development and manufacturing of gas turbine (jet) engines. From this foundation stemmed the subsequent entry and rapid rise of the development of this technology in Canada, which was later to become one of the world leaders in the design and development of jet engines.

One of the recommendations of what became known as the "Banks Report", was that a cold-weather ground test facility be established in Canada staffed for experimental operations on gas turbines. This was implemented and on its completion in Winnipeg, Manitoba in late 1943, Dilworth was put in charge of engine testing at the station. The first engine to arrive at the facility was a Rolls Royce W2B, based on the Whittle design. That engine had been flown to Canada by a USAAF Transport Command aircraft via Dakar and Brazil to Edmonton, Alberta. It arrived at the cold-weather test station in Winnipeg by Canadian National Railway Express just before Christmas 1943. This was the first time that the characteristic whine of a jet engine had been heard in Canada.

Testing continued on that and other engines and the station was eventually transferred to a new Crown Corporation, Turbo Research Ltd., on September 1, 1944. Paul Dilworth became manager of the



cold-weather test station until it ceased operations in May 1946. In the meantime, Turbo Research Ltd. had established a new facility at Leaside, Toronto, Ontario. The mandate was to perform research and development work on gas turbine engines. Design studies on jet engines for military aircraft had commenced in January 1945.

In the early part of 1946 the Canadian government had decided to encourage private industry to take over the Turbo Research Ltd. operation, which was then purchased by the newly formed company A.V. Roe Canada (Avro) at Malton, Ontario. Dilworth was appointed Manager and Chief Engineer of the Gas Turbine Division of Avro, which later became Orenda Engines Ltd.

A number of engine designs were studied, including both centrifugal and axial flow and the first jet engine to be built by the new division was the axial flow Chinook, rated at 2,600lb. thrust. This was the 'tooth-cutting' project for the Gas Turbine Division, which ran successfully in March of 1948.

In the summer of 1946 Avro had received a contract to develop an engine of 6,500lb. thrust to power the new Avro CF100 twin-engine fighter aircraft. This was certainly a daunting task for a neophyte organization, but the resulting Orenda engine, which had its first test run in February of 1949, became one of the most powerful engines of its era. It was used in the CF100 and the Canadair CF86 Sabre jet fighters, taking the latter to world speed records. Almost 4000 Orenda engines were produced at Malton between 1949 and 1956. These engines saw service in the air forces of Canada, the Netherlands, Belgium, South Africa, West Germany and Pakistan.

Dilworth left A.V. Roe Canada Ltd. in 1952 to establish the engineering consulting firm of Paul Dilworth & Company, which later became Dilworth Secord and Meagher Associates Ltd. (DSMA). That company became a major international design and development company for large-scale supersonic and subsonic aeronautical aviation wind tunnels and for full-scale automotive environmental test facilities. It also engineered the TRIUMF Cyclotron for the University of British Columbia and contributed to the design of several 120-inch astronomical telescopes. As a contractor to Atomic Energy of Canada (AECL), it undertook a number of design projects relating to the on power fuelling system of the CANDU nuclear reactor, and engineered a major safety system for the AECL Heavy Water Production Plant at Sydney, Nova Scotia. The firm was also instrumental in bringing the Manipulator Arm project for the NASA Space Shuttle to Canada, and participated in its development as a sub-contractor to the prime contractor, SPAR Aerospace.

Paul Dilworth will best be remembered for his influence and inspirational leadership in the pioneering days of jet engine development that were instrumental in establishing Canada as one of the leading nations in aero-engine design, development and manufacture. Under his guidance the famous Orenda engine became one of the most successful engineering projects undertaken in Canada. Paul was awarded Fellowships in the Canadian Aeronautics and Space Institute and the Canadian Society of Mechanical Engineers.

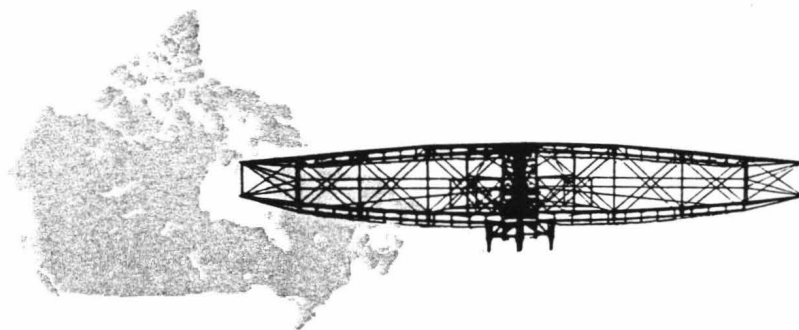
Paul Bernard Dilworth was inducted into Canada's Aviation Hall of Fame in 2000 with the following citation:



"His constant search for perfection in all of his aeronautical endeavors and his pioneering leadership in the field of aero-engineering development have been of lasting benefit to Canadian aviation."

27th Annual Induction Dinner

Saturday, May 13, 2000



**Canada's Aviation
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