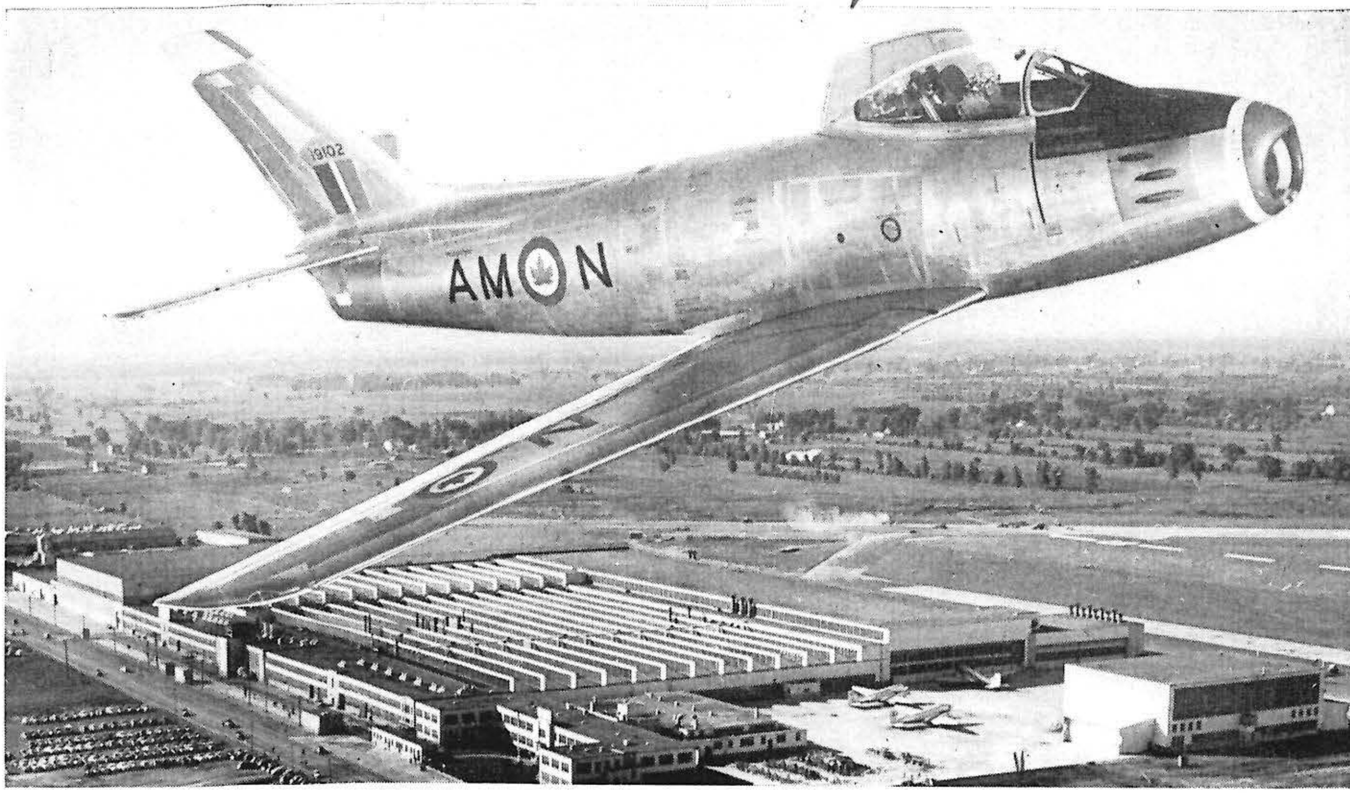


TOP AIRCRAFT PRODUCER DESTINY OF CANADAIR

WITH substantial new military orders in prospect, Canadair Limited promises to become one of the largest industrial operations in Canada and will soon attain front rank status in world aircraft production. Major current project is assembly-line output of Sabre F-86E fighters but two new ventures are now on the books.

As announced in the July issue of Canadian Aviation, Canadair will undertake the manufacture, on license from Lockheed, 450 to 500 T-33 jet trainers. This is a $100 millions undertaking. In addition, the company is to be awarded a substantial portion of a USAF contract to build a twin-engined crew trainer, the Beechcraft T-36A.

This crew trainer was opened to design competition and it is understood that the Canadair entry was right up with the leaders. At one stage, in fact, it looked like the winner. It was in recognition of this, and of the production facilities at Canadair, that the ultimate contract will be shared with the Canadian plant.

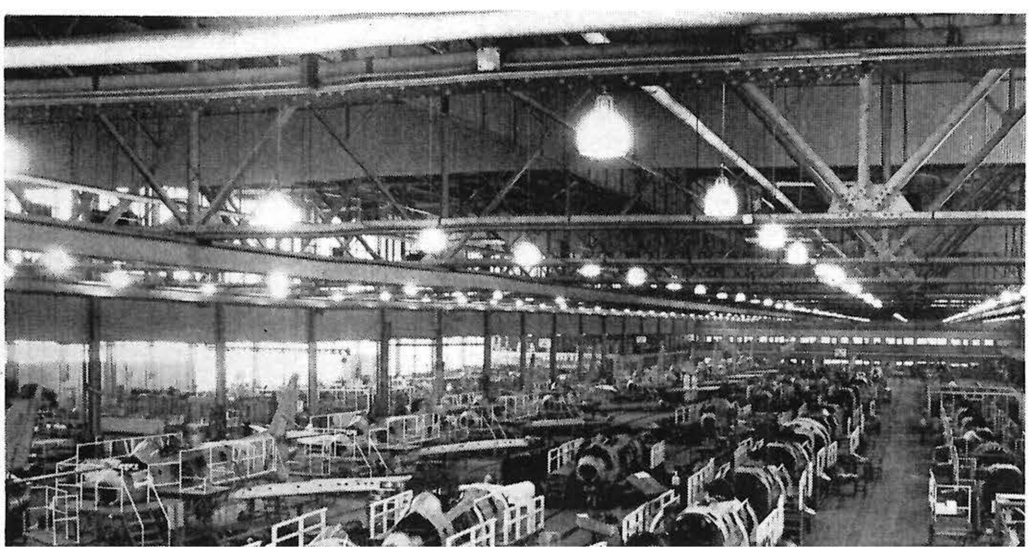
The T-36A will carry 12 students and will cruise at 300 mph, with 390 mph maximum. Power: Two Pratt & Whitney R-2,800 engines.

It is estimated that when these two projects are in full operation, employment at Canadair will top 15,000.

Today the Canadair plant at Cartierville sprawls over 40 acres of covered factory space, surrounded by another 60 acres available for expansion, plus a three-strip airfield. There are two manufacturing plants. The main plant, built in 1942, was constructed after a survey of the latest aircraft production layouts in North America. Plant No. 2, operated by the Noorduyn Company during World War II for the production of Harvard trainers, has been on lease from the Crown by Canadair since 1946.

All assembly operations on the Sabre, minor, major and final, are carried out at Plant No. 2. Plant No. 1 handles production operations and houses the machine tools, the huge presses and other equipment.

Construction of Plant No. 1 took



ABOVE—Sabre, now in quantity production at Canadair, in flight over the main plant at Cartierville, near Montreal.

LEFT—Sabres in assembly-line production at Canadair. Production lines in the plants extend for nearly two miles.

place in 1942. It was managed on behalf of the Crown by Canadian Vickers, an organization associated with aircraft building since 1923. The plant produced close to 400 PBY Canso Amphibians, the Canadian version of the Catalina, for the United States Navy and the Royal Canadian Air Force during World War II.

With the addition of nearly 215,000 sq. ft. of factory space, Canadair's over-all facilities have been increased to approximately 1,750,000 sq. ft. Assembly flow lines alone are longer than Canadair's two miles of airstrips. Present employment is nearly 6,000. At peak production during the war years, employment for the two plants rose to 21,000.

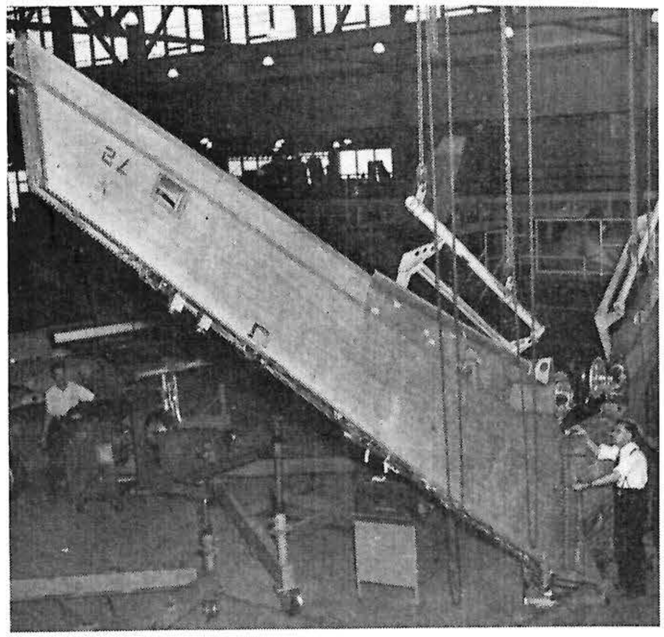
Canadair Limited was formed in 1944 to take over operation of the Crown plant on a management fee basis. Projects on hand were the completing of war orders and the designing and manufacture of a suitable four-engined long-range aircraft for the RCAF and TCA.

The prototype transport aircraft first flew in July, 1946. Following this inaugural flight, 20 pressurized aircraft were delivered to TCA and 24 unpressurized versions to the RCAF.

It was during this year that Canadair was acquired by Electric Boat Company of New York, one of the world's leading designers and builders of submarines. In the course of the next few years the company built 22 Canadair Fours for British Overseas Airways, aircraft which now comprise BOAC's Argonaut Fleet. Similar type aircraft were also built for Canadian Pacific Air Lines.

The placement of substantial military orders and the prospect of more justified the investment of some $2 millions in plant extension and equipment. An extension to plant No. 1, which added 215,000 sq. ft. of floor space, was made. This extension, 315 ft. wide by 700 ft. long, is the section of the plant which now houses the tools, dies, presses, jigs, etc., for the fabrication of aircraft parts.

Joining the Sabre wing panels to the centre section is one of the impressive stages of fighter production in the Canadair plant.



Housed in the two huge bays of the plant's new 215,000-ft. extension, Canadair's setup includes the machine shop, the sheet metal and tooling departments. Milling machines, lathes and grinders provide machine shop capacity to handle the production of any type of aircraft.

There are 64 milling machines of various types, ranging from three to 60 hp; 34 engine lathes from 10 in. in diameter to 48 in., and 28 turret lathes with a bar capacity from 12 in. down to one and a half in.; as well as thread cylindrical and surface grinders in assorted ranges.

The additional plant has made it possible to rearrange the manufacturing and assembly layout to the point where there is now room for added production. With rapid expansion of the Air Force in sight, it is highly probable the Government will call on Canadair's men and facilities to help speed up production and delivery of aircraft.

Top executives of Canadair represent many years of experience and know-how. John Jay Hopkins, chairman of the board and president of Canadair, has been associated with Electric Boat Company, the parent company of Canadair, for 15 years, as director and later as vice-president and president.

Directing the company's production is Montreal-born James Geoffrey Notman, executive vice-president and general manager. Mr. Notman joined the company in 1950. He brought with him from Dominion Engineering, one of Canada's top makers of heavy equipment, 28 years of manufacturing and management experience. During

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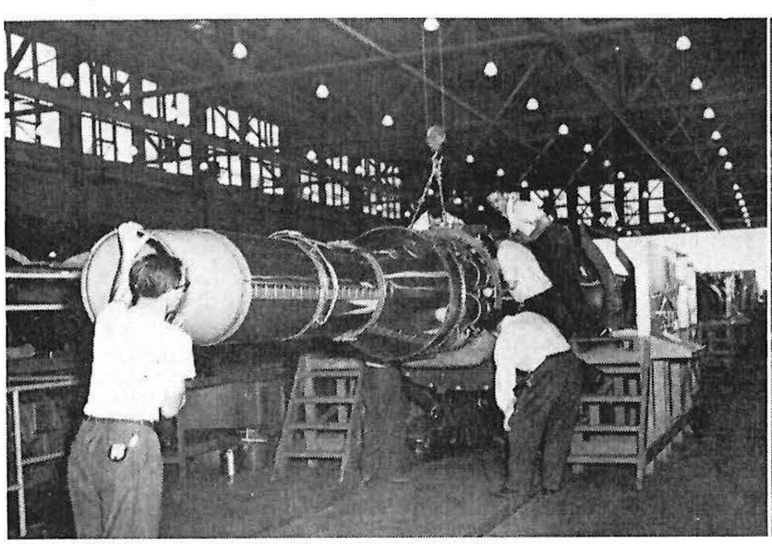
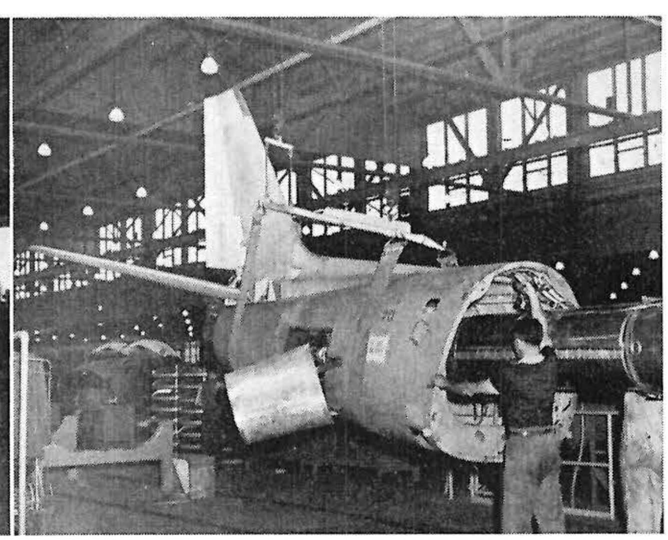
Attaching the tail cone to the Sabre's jet engine on the final assembly line in production of Sabres at Canadair.



Next stage after attachment of tail cone, the rear fuselage section is fitted. It is detachable for servicing engine.



the FAI, BOAC, BEA, and there is a comprehensive list of the Commonwealth and Foreign air lines which operate to the U. K. together with air charter companies of the U. K. and Commonwealth.

There is a full list of all the civil airports in the U. K. giving length of runways and conditions of usage, and a list of Air Transport licence holders and other holders of civil licences. There are lists of institutions, clubs, and societies, with flying and gliding clubs in the U. K. and Commonwealth, and all aviation periodicals of the Commonwealth countries. Two hundred and fifty pages are devoted to the names and addresses of all firms in or associated with the aircraft industry. This year's list is enhanced in value as it includes the industries of the Commonwealth countries outside Great Britain of which Canada is the largest, with five aircraft constructors, and 47 ancillary firms who occupy between them five pages — Geoffrey Dorman.

DESTINY OF CANADAIR TOP INDUSTRY RATING

(Continued from page 15)

the war years Mr. Notman was on loan to the Dept. of Munitions and Supply as a consulting specialist and co-ordinator of ordnance.

Robert A. Neale, vice-president, manufacturing, is a production expert and specialist in business management. Mr. Neale's manufacturing experience includes production of a number of leading United States aircraft, including the B-17 and B-29. Over 18 years with Boeing Aircraft Company, he was director and operations manager of 11 of the company's plants on the Pacific Coast from 1943-47.

Responsible for design and research development at Canadair is William K. Ebel, vice-president, engineering.

A graduate of Heidelburg College and Case Institute of Technology, Mr. Ebel also holds doctorates in engineering and science. For 25 years he was with the Glenn L. Martin Company, becoming their vice-president of engineering in 1941, and was later director of engineering for Curtis-Wright. Mr. Ebel is responsible for the design of many types of aircraft, ranging from the 83-ton Mars flying boat to jet aircraft, and has also worked on the design of guided missiles.

Peter H. Redpath, vice-president sales, combines practical flying experience with a solid background in administration. A veteran transport pilot, Mr. Redpath was 13 years with Trans-World Airways in various flying and administrative capacities. Also an expert on navigation, he has written several books on the subject. In 1946 Mr. Redpath became vice-president of operations for the Swedish Air Line (ABA) and later vice-president of the combined Scandinavian Air Lines System (SAS).

SOLVE MANY PROBLEMS DEVELOPING ORENDA

(Continued from page 48)

Consequently, a survey was made of the physical properties of the batches of material from which the failed blades had been made and these were compared with the properties of batches which did not produce any failures. This threw little light on the situation.

Since the experimental engines had been used for a variety of tests a survey of the running history of all engines was made by plotting the operating time in each 100 rpm. speed range. It was not possible to draw any conclusions from a comparison of histories of engines which had failed blades and those which had not. The study was narrowed down to a comparison of histories 10 hours, five hours and one hour prior to failure with the idea of establishing speed ranges which caused failure. This also proved abortive.

As more failures occurred they were tentatively identified from the nodal pattern surveys as being caused by either second torsional mode or the first complex mode both of which occurred within the running range, but it was still not possible to explain how some engines could run several hundred hours without failure and others would fail in less than 100 hours even when the known scatter of the endurance properties of the material was taken into account. Failed blades were carefully examined for manufacturing flaws and inconsistencies such as variations in thickness and trailing edge radius without result.

As soon as it was apparent that the failures were not isolated ones a decision was made to study the problem using strain-gauge techniques. This involved the development of a slip-ring unit to transmit the minute strain gauge signals from the rotor at high speeds without electrical distortion. Several months of laboratory work and engine testing were required before an adequate slip-ring unit,