



# Construction

## Aircraft Trade

Export of aircraft and parts by Canada to Britain during 1949 amounted in value to \$19,338,000, as compared with \$3,678,000 in 1938. Imports of aircraft and parts, excluding engines, by Canada from Britain for the same two periods amounted to \$2,874,000 and \$595,000 respectively.

For February of 1950, Canadian exports of aircraft and parts totalled \$577,000, which compares favorably with the figure of \$436,000 the previous year and \$70,000 in 1938. This brings the total for the first two months of 1950 to \$713,000, down from the \$757,000 shown for the first two months of the preceding year. The figure for 1938 was \$102,000 for the same period.

## Canadian Helicopter

The first helicopter to be built in Canada, the Intercity Airlines Company SG Mark VI-D, was demonstrated recently to RCAF government officials and the general public at Montreal Airport, Dorval, P.Q. The spectators were much impressed by the machine's manoeuvrability.

Sponsored and financed by Intercity, this helicopter is entirely a product of local Montreal industry. Canadian materials are used throughout, with the exception of the rotor blades and the engine. All other parts of the mechanism: gear boxes, drives and controls, airframe and landing gear, were built by Engineering Products of Canada Limited, a Montreal firm, to drawings and specifications prepared by the New York engineering firm of Bernard Sznycer and Selma Gottlieb, who supervised construction.

The demonstration aircraft is the second of its type to be built and represents the production model of the original prototype. The prototype took 19 months to build, but the production model was turned out in six months. A total of 42 Canadian companies collaborated in supplying raw materials.

Claimed features of the machine include complete lack of vibration, excellent control and stability, simple and sturdy construction, ease of maintenance, a carrying capacity of three

people with an economical 165 hp engine, and a price which is expected to be below that of comparable imported machines.

Says Intercity: "This helicopter, which has already undergone over 100 hours of testing, is only the forerunner of a series of large machines. One of them will be a twelve passenger, twin rotor, twin engined helicopter which is now in the final design stages. This particular aircraft will be built specifically for Canadian operating conditions and equipped with either wheels or pontoons. . . ."

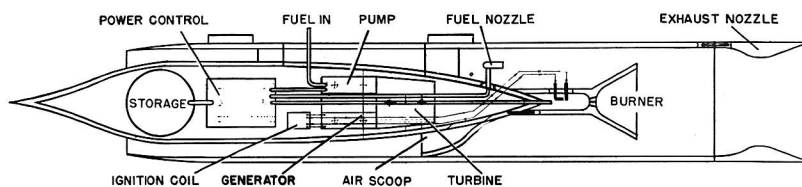
Pilot for the demonstration was A. R. Bott of Stamford, Connecticut, who has test flown eleven different types

\$1,996,180, despite an increase of \$551,882 in depreciation charged to costs in 1949. Substantially all of the increase in depreciation charges occurred at Canadair Limited, in consequence of the purchase by Canadair during the year of its main plant facilities, and the application thereto of liberalized Canadian federal tax depreciation allowances announced in 1949. Resultant tax savings were substantial.

In exercising its option to purchase its main plant facilities at Cartierville Airport, Canadair paid out \$3,384,671 (U.S. equivalent). Construction of the addition now under way is to cost about \$1,700,000 (U.S. equivalent) and is being financed from current Canadair funds.

## TCA DC-3 Replacement

The early replacement of TCA's



This schematic view of a ram jet engine (though it does not portray any existing model) gives some idea for a possible configuration of this type of powerplant. Air enters at the left, passing around the sharpened diffuser which houses the accessories required to run the engine.

Fuel, injected at the nozzle, burns in the vicinity of the burner section. Wright Aeronautical, which planned this drawing, recently put into use a new jet engine lab for development work on ram jets. Lab can simulate speeds up to 2,6000 mph.

of helicopter and has 300 hours of helicopter flight time.

## Canadair Year

Electric Boat Company, of which Canadair Limited is a subsidiary, entered 1950 with a backlog of unfilled orders estimated at \$45,780,000, according to the company's annual report issued recently. A large portion of this backlog is made up by the order for 100 F-86As which Canadair is currently building for the RCAF.

Sales in 1949 amounted to \$45,234,961 compared with \$54,558,099 in 1948. They included delivery of 26 Canadair Fours to BOAC and to CPA.

Profit from operations for 1949 increased by \$324,674 over the 1948 figure of \$1,671,506, to a total of

DC-3 fleet was brought up again before the Parliamentary Committee on Railways and Shipping recently. President Gordon R. McGregor told committee members that TCA had a replacement fund of about \$2,500,000 ready when suitable replacements were found.

The air line was keeping an eye on developments in turbo-jet, turbo-prop and reciprocating engine types of air liners which would fill TCA's requirements. The company now operates 27 DC-3 type aircraft.

## CF-100 Abroad

The Avro CF-100 was demonstrated outside Canada for the first time when it appeared in Washington, D.C., May

9, before high U.S. government officials and senior USAF officers. The C-102 also appeared in the American capitol. This was the Jetliner's second American appearance, the first being when it was demonstrated in New York during April, thus making it the first commercial jet transport to fly in the U.S.

## Back in Business

Re-organization of Luscombe Airplane Corporation along the lines of a plan first proposed by Texas Engineering & Manufacturing Company, Inc., last December has been completed with the election of H. L. Howard, executive vice-president of TEMCO, as president.

Plans are already under way for reactivating production at the earliest possible moment at the Luscombe factory in Texas. These plans are said to include manufacture of liaison aircraft for U.S. and foreign governments, agricultural aircraft, personal aircraft, and spare parts for the 6,000 Silvaires now in service.

Luscombe's entry in the liaison field is a refined version of the T-8F-L

Observer. Production plans are also being rushed for the Silvaire Sprayer, a two-place agricultural aircraft developed specifically for aerial crop spraying. In the personal aircraft field, it is planned to reactivate production in the immediate future on two 2-place side-by-side models—an improved 90 hp. Silvaire Deluxe and a stripped Economy Silvaire. Luscombe hopes to be able to start deliveries in June or July.

## Strong As Steel

Titanium is a metal that has been around for a long time, and in fact is one of the most common of the elements. For the past couple of years people have been referring to it as a wonderful metal. There is good reason for regarding it as such. It is about as strong as conventional stainless steel and it keeps its strength at high temperatures. It has high resistance to salt water corrosion. Its atomic weight is 47.9, as compared to 55.85 for steel and 29.97 for aluminum.

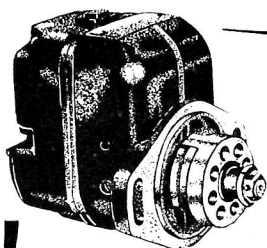
Naturally, these properties would indicate that titanium will play a prominent part in future aircraft construc-

tion, and especially in the development of gas turbines. Its melting point is 3240°F and in comparative tests it has been exposed to a 2200°F flame for 30 minutes with practically no visible effect.

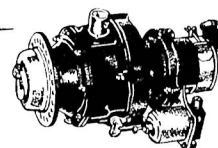
A recent issue of the "C-I-L Oval," house organ of Canadian Industries Limited, carries an article on the history and properties of titanium. The Oval says that it is a member of the carbon group, insoluble in water soluble in warm hydrochloric acid, the seventh most common metal and ninth most common element on earth, and 100 times as plentiful as copper, zinc, or lead.

Titanium is silvery white in color and in appearance resembles stainless steel. Says the Oval: "Its use in alloys may overshadow that of the pure form. It toughens other metals, adding tensile strength providing resistance in heat, improving the grain structure and ductility.

"... Mankind has known of the existence of titanium—named for the titans of Greek mythology, the incarnation of natural strength—for a long



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"The Rev. William George, a cleric of inquiring mind, was intrigued by the peculiar black sand he found at Menachan in Cornwall, England, and he named the mineral menachite in 1789. A few years later the German chemist, Klaproth, extracted the same element from an ore called rutile and gave it the modern name. In 1797 Klaproth studied the mineral ilmenite—which was identical with menachite—and this is the substance from which most of the present-day oxides are taken.

"The chemist's task is made the more interesting, and difficult, by the fact that while titanium is more abundant than the widely used metals, lead, copper, and zinc, its mode of occurrence is different. Titanium is widely dispersed while the less abundant metals are concentrated in segregated deposits—mineral veins and lodes—capable of relatively easy exploitation.

"Ilmenite, occurring as grains and masses and as a sand, and rutile are sources of titanium dioxide, the former being the cheaper and more plentiful. Important deposits found in the province of Quebec are the largest known in the world. . . Due to the size of Quebec's deposits, this province could become the titanium dioxide centre of the world and, as more skilful economic techniques of refining are developed, of the metal itself.

### Briefly

•The USN Bureau of Aeronautics has announced that it has completed a series of tests on a **new type aircraft engine fire detector**. The basic system consists of a continuous, repeating fire-sensing element connected to an indicator control unit. One of the greatest advantages of the new detector system is said to be its freedom from false alarms. Only excessively high temperatures will cause an alarm signal. There are no moving parts, hence an alarm from mechanical failure is impossible. Developed by Petcar Research Corporation, the system has been taken over by Walter Kidde & Company.

•The RCA One Sixteen transceiver has been chosen as standard equipment for all Beech Bonanza airplanes.

•The USAF is working on the idea of **wingtip gun turrets**, interchangeable with wingtip tanks. This would give more fuselage space for fuel or other uses.

•The USAF has taken delivery of its first **Consolidated Vultee T-29 navigation training plane**. The T-29 is a military modification of the Convair Model 240 transport, equipped for simultaneous in-flight training of as many as fourteen navigation students.

•**Fairchild Engine & Airplane Corporation** reports net profit of \$1,575,328 for 1949 on gross income of \$48,318,743.

•The 1950 **Hiller 360 helicopter** features a higher performance at an increased useful load. The CAA approved gross weight is now 2,400

pounds, raising the useful load from 815 pounds to 968 pounds. The Franklin engine, though normally rated at 178 hp, now develops 182 hp. Another model, the "Executive" has now been added to the Utility line. The new model is designed for executive and personnel transportation.

•The USAF is purchasing 1,250 new aircraft from 1950 aircraft procurement funds at a total estimated cost of \$1,297,500,000. About half of this will be spent on airframes and the remainder on engines, propellers, armament, etc.

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