

# New Life to the Aircraft Industry

The Canadian aircraft industry is a little like a pauper who has been living on day-to-day handouts and then wakes up one morning to find that he has been bequeathed a goodly inheritance. The industry is still slightly bewildered by its sudden good fortune and cautiously isn't saying much for fear that it might wake up and find the whole thing is just a dream.

**The Situation at Present:** The way the situation now stands, it appears that the industry has firm orders valued at considerably in excess of \$300,000,000. This sum in effect commits Canada to the building of an air force which will be surpassed only by the RAF and the USAF. But looking at it from the standpoint of percentage of the total force that is composed of modern operational aircraft in the case of each country, Canada will probably take first place.

The Department of National Defence has, for instance, announced the signing of one of the largest single military orders in Canadian history . . . that of \$100,000,000 worth of Sabres from Canadair Limited. The question that immediately arises is: How many airplanes does \$100,000,000 represent? If Canadair is actually getting an order for \$100,000,000, then it could represent 500 aircraft, for Canadair builds the airframes only and the engines are supplied to them by the Department of National Defence. Each airframe is valued at about \$200,000. Thus simple arithmetic gives us the figure of 500.

**More Money on Engines:** If this is so, then there will be another substantial sum to be spent on engines for the F-86s . . . almost as much as on the airframes. This additional sum would go to Avro Canada, provided the Orenda can be adapted successfully to the F-86. If it cannot, then the order will go to General Electric. In other words, if Canadair has actually got an order for \$100,000,000, then the Department is really buying about \$200,000,000 worth of F-86 aircraft, complete with engines. We are inclined to think, however, that the \$100,000,000 will be for complete aircraft, rather than just airframes, so that this sum



ABOVE, STABLEMATES, AND BELOW, DEFENCE MINISTER CLAXTON, THE MAN WHO HANDS OUT LOLLIPOPS TO THE AIRCRAFT INDUSTRY.



will be split between Canadair and, presumably, Avro.

Thus, depending on the interpretation put on the order for \$100,000,000 worth of airplanes, the RCAF should have a day fighter strength of some 300-500 F-86A aircraft within the next two years.

**Substantial Order:** And although there had been no official announcement at time of writing, it is accepted that Avro has received an equally substantial order for CF-100 all-weather fighters. There will also be an order to this same company for engines to power the CF-100 as well as the Sabre, and remember that each CF-100 has two engines, so that if 150 (a number that sounds just about right) of the Avro aircraft are ordered, then they will require 300 engines. The airframe of the Avro fighter alone will probably be much more expensive than the airframe of the F-86, without taking into account the cost of the extra engine. This extra cost of the airframe is due to the fact that the machine is much larger than the F-86, is far more heavily armed, and carries an abundance of electronic aids.

What this all adds up to is that with orders for CF-100 airframes and Orenda engines to power both the CF-100 and the F-86, Avro Canada will be getting by far the largest slice of the defence bonanza.

**Added Capacity:** To handle this increased output requirement, Avro is even now adding to its plant capacity by constructing extra bays on its factory at Malton, Ontario. It is understood that a peak production figure of 400 Orendas per month is this company's aim.

In view of this, it is quite possible that work on the C-102 Jetliner project will be somewhat delayed, because it is certain that Avro would be very hard pressed to produce this aircraft as well as the CF-100 and the Orenda engine. However, the second prototype of the Jetliner is to be completed as soon as possible.

**Several Hundred:** The third major aircraft manufacturing company, The de Havilland Aircraft, has not yet received any impressive aircraft orders, but rumor has it that this concern is soon to receive a contract to build "several hundred" Chipmunks. To make use of any such number of Chipmunks, the RCAF would have to return to the two-stage training system,

## THE AIRCRAFT INDUSTRY

### What it's doing . . . Its prospects

#### CANADAIR

- Has a contract to build 300-500 F-86A Sabre airframes.

- Will carry out overhaul and repair work on RCAF North Stars.

- Production of C-54 and C-47 spares for USAF aircraft.

#### AVRO CANADA

- To produce probably 150 CF-100 type aircraft in several operational versions.

- To produce Orenda jet engines for both CF-100 and F-86A airframes . . . this could amount to nearly 1,000 units.

- Continue to carry out overhaul repair and conversion of Lancasters for maritime and photographic duties.

#### DE HAVILLAND

- Overhauling, modifying and preparing for service 50 Lancasters and 100 Mustangs which have been in storage.

- Prospect of an order for "several hundred" Chipmunks.

- Prospects good for sale of substantial numbers of Beavers to the USAF now that "Buy America Act" is to be withdrawn.

- Jet engine overhaul work will probably increase with renewed RCAF activity.

- Overhaul and repair of Vampires to continue.

#### CANADIAN CAR & FOUNDRY

- Preparing for service 100 Harvards which have been in storage.

- Acceleration of the program of overhaul and repair of Harvards already in service.

#### FAIREY AVIATION

- Preparing some 75 Grumman Avengers for service with the RCN.

- Overhauling and repairing Sea-fires, Fireflies, Sea Furies.

- Possibility of sub-contract work.

#### MACDONALD BROS.

- Overhaul and repair of Beech Expeditors, Norseman, Austers.

- Possibility of sub-contract work.

#### NORTHWEST INDUSTRIES

- Overhaul and repair of Dakotas.

- Possibility of sub-contract work.

#### ENGINE COMPANIES

- Such engine companies as Canadian Pratt & Whitney, Canadian Wright, British Aeroplane Engines, and Rolls-Royce, will have more work to handle as a result of greater military activity, and consequently the need for more engine overhauls and repairs.

a step that seems quite logical in view of plans to accelerate and expand pilot training, for the air forces of other nations as well as of Canada.

The single stage system of training, in which the student starts right in on Harvard type aircraft and is allowed 30 hours in which to solo, is used by the U.S. and Canada. While it turns out an excellent type of pilot, it is slow and expensive, in that wastage is not discovered until training is fairly far advanced. Then, too, it is good only as long as the Air Force is able to skim the cream of the current crop of the country's youth. In wartime, when the standards have to be lowered more than somewhat, and there is not time for lengthy pre-training tests to see if the applicant is psychologically suited for piloting an airplane, this single-stage system would be a colossal bottleneck.

**The Lukewarm War:** Because we are now on a semi-war basis (though we are not technically at war with anybody), it follows that the RCAF should start to plan for a return to the two stage system of training. Training in Canada has already started for about 50 student pilots of France, Belgium, the Netherlands, Norway, and Italy; in addition the RCAF is to train about 100 pilots for the RAF during 1951. Besides these, of course, training will continue of pilots for the RCAF. The needs of the latter alone will be quite impressive. To operate the CF-100s and F-86s will require about 800 pilots within the next two years. Then Transport Command will likely be enlarged, and an increase in the number of maritime squadrons is certainly planned.

All of which adds up to a need for more pilots in a great hurry, which in turn indicates that a return to the two stage system of training is quite logical.

**Out of Storage:** The de Havilland Aircraft is now bringing out of storage, overhauling, and modifying Lancasters under sub-contract to Avro Canada. The contract is understood to cover some 50 aircraft and really represents a continuation of a job which Avro has been doing for several years. The aircraft are to be used for maritime duties (coastal patrol, etc.) De Havilland is also preparing for service use the 100 Mustangs recently purchased from the USAF, which had them in storage.

Still concerning de Havilland, it is interesting to note the effect of the



international situation and general plans for defence expenditures on the value of de Havilland stocks on the Toronto Stock Exchange. There has been a steady rise in the bid and ask figures: on July 31 these were respectively, \$28 and \$30.50. By August 2 they had changed but slightly to \$29 and \$30.50. The asking price remained unchanged for several days, though the bids rose slowly. By August 11 the bid and ask had reached \$32 and \$35; August 14, \$33 and \$35; August 15-21, \$33 and \$35; August 28, \$33.125 and \$36; August 29, \$35 and \$36. Trading throughout the month was light, however.

**Ready for Service:** Canadian Car & Foundry, at Cartierville Airport, near Montreal, has no military construction contracts, but for the past several years has had a continuing contract to overhaul Harvard aircraft. Recently it was revealed that additional numbers of these aircraft, totalling about 100, were to be brought out of storage. It will be the job of Canadian Car to ready these for service use.

And why, you ask, would the RCAF be taking on an additional 100 Harvards if it is planning to buy numbers of Chipmunks for primary trainers? Well, in the first place it would be some time before the Air Force could revert to two stage training on a large scale. And, additionally, once it does, it will still require Harvards or some other similar aircraft in which to give advance training. There will certainly be lots of use obtained from the Harvards for some time to come.

**Other Work:** On the east coast, Fairey Aviation is carrying out work for the RCN preparing some 75 Grumman Avengers for service with Naval Aviation, besides overhauling and repairing the Navy's Seafires and Fireflies. On the prairies MacDonald Bros. Aircraft continues overhaul and repair work for the RCAF on such types as Beechcraft Expeditors, Norseman, and Auster AOP aircraft. In Alberta Northwest Industries has a contract to overhaul and modify several Dakotas. All of these last four named companies will likely get sub-contracts to supply parts to the major contractors, or at least will get the overflow of overhaul work which the manufacturing firms have been carrying out but will no longer be able to handle.

## Rain, Rain, Go Away



It looks as if FC-10 Aircraft Rain Repellent, developed during wartime by the National Research Council, will in the not too distant future be considered a necessity on all aircraft. FC-10, now manufactured in Canada by Dow Corning Products, Fibreglas Canada Limited, has been in experimental and practical use for several years, so that Dow Corning has built up a large stock of service reports from various air lines and aircraft manufacturing concerns. The general agreement concerning the advantages of FC-10 as voiced in these reports, would indicate that the rain repellent is even more effective than initial cautious statements on the product first predicted.

For instance, there is a report from the Boeing Airplane Company. The tests covered by this report were carried out on a C-46, on which the repellent had been applied thirty days earlier. During the period intervening between the application of the repellent and the actual test, the aircraft was parked outside. Special observers, who went on the test flights for the sole purpose of judging the effects of FC-10, reported:

(Heavy Rain) . . . "Visibility through treated portion was 3-5 miles with no apparent optical distortion. Visibility through untreated portion was less than 300 feet with considerable optical distortion. During ground warm-up and taxi a parked airplane 300 ft. away was not visible through the untreated

portion but through the treated portion the airplane was clearly seen with even the turning of the propellers visible.

"During a simulated approach and landing the runway was just a blur through the untreated portion, but good visibility was possible through the treated portion with the entire runway and adjacent buildings clearly defined."

FC-10 is apparently a rarity in that it is a highly useful aid and at the same time has no drawbacks to detract from its usefulness. It can, for instance be applied by a uniform technique requiring no special skill on all types of glass or plastics of all shapes, sizes, or degree of curvature . . . indoor or out . . . rain or shine . . . at all temperatures from -40°F. to 135°F. Dry flight or dormant periods do not injure the film (which, incidentally, largely removes scratches from transparent plastics, with even deep scratches being much less visible after treatment). After use or dormancy cause treated windows to become dirty, they may be repolished a number of times before a new application is necessary.

Vision is said to be markedly improved for some time during light icing conditions, though the repellent does not shed ice. On the other hand, normal de-icing by heat or alcohol may be used without damaging the repellent properties of the film, which is further unaffected by ultra-violet radiation at high altitude. Recently the NRC said that harder waxes now permitted its use in the tropics. All the materials used in its formation are non-corrosive, non-irritating, free from chlorides, and do not damage paints, dopes, or fabrics.

The accompanying photograph shows NRC's Dr. D. F. Stedman, who developed FC-10, spraying water on the nose window of a Mitchell. Effectiveness of the repellent is sharply illustrated by the difference in visibility through treated portion of window (right) and untreated portion (left).