



DECADE's achievement by the Canadian aircraft industry is represented by (top to bottom), the Canadair Sabre V powered by an Orenda turbojet, the Canadair T-33 powered by a Canadian Rolls-Royce Nene turbojet and the Avro CF-100 Mark III powered by two Orendas.

## Industry's 10-year record

It took the war to make Canadians realize the need for a domestic aircraft industry capable of designing and developing first-line aircraft and engines — now the sky is the limit.

Scott Young recently wrote in *Jet Age*: "One day in 1942 a Royal Canadian Air Force officer had a strange and frustrating duty to perform. The Japanese were poised in the Aleutians for a possible sweep down Canada's west coast. The RCAF was desperately short of planes to meet any such attack. Canadian squadrons at home and abroad were operating with second or third line planes or fretting on the ground with no planes at all. Yet this officer had to appear before an aircraft allotment conference of non-Canadians to plead for aircraft which had been built in Canada by Canadians — but, as was usual in Canada, under a license from the original manufacturer which gave Canada no jurisdiction over the finished product.

"He was beaten. The planes were assigned to Russia; Hurricanes, built at Fort William, Ont. Australia, he thought, probably would have been second choice.

"It turned out later that the

Canadian Government was able to keep these planes by simply refusing to let them be shipped out of the country in that dangerous time. But nevertheless, the lesson was there.

"The officer said later: 'Maybe they did need the planes more than we did. I don't know. But I do know that we needed them very badly. And I realized right then, walking out of that room and feeling every inch a failure, that until we didn't have to tip our hats to anyone to get aircraft when we needed them, we'd never have the air force a first-rate nation really deserves.'"

That was 1942.

### Production Record

Since Korea the Canadian industry has turned out 4,400 aircraft. What's more, 3,500 of them have been produced in the last five years.

Altogether the industry has built 18 different types in the last ten years. They range from small train-

ers to jet fighters, to four-engine commercial airliners, helicopters and one four-jet transport — the Avro Jetliner.

Currently the industry is building eight different aircraft and is getting ready to build three more.

Of even greater significance, five of the aircraft in production, or in design stage are 100% Canadian from drawing board to production line.

The others are of American or British design that have been largely Canadianized as a result of the new Canadian policy of self sufficiency.

### Power Plus

In the aero engine field the progress has been even more striking. Up to the end of World War II Canada had never produced aircraft engines.

Then the industry accomplished the impossible—first the manufacture of two types of piston engines for Canadian and world markets.

Then the production of a jet engine of foreign design. And finally the accomplishment of the impossible. In the period 1946 to 1955 Canadian industry designed, developed and produced more than 3,000 world competitive jet engines.

The net result in all this aeronautical activity in terms of dollars and cents is quite substantial. The last complete Dominion Bureau of Statistics' report gives the value of all factory shipments plus the revenue of air carriers as \$500 millions in one year. This puts the aviation industry among the top 10.

Another yardstick is employment and wages paid. In 10 years total employment in the industry has risen from 8,000 to 50,000, not even accounting for the thousands of suppliers and subcontractors. In terms of salaries and wages paid DBS places the industry third.

The Government's estimates for 1955-56 include \$1,775 millions for the Department of National Defense.

### To Future

Thor E. Stephenson, director of aircraft production for the department of Defense Production, said recently that the nation's declining production of military aircraft was not likely to drop below 70% of the level attained in the four years following the Korean War.

"The future level of the industry will stay reasonable—70% of past production," he said. "Seventy per cent is a pretty healthy position. Whether it goes above or below largely depends on the industry—on the quality of its products."

The impact of the various projects

and programs under way is felt in virtually every area of Canada.

There are eight prime contractors, Canadair, de Havilland, Avro Aircraft, Fleet Manufacturing, Canadian Car and Foundry, Orenda Engines, Rolls-Royce and Canadian Pratt & Whitney.

Although these main facilities are located east of Winnipeg a network of some 2,500 subcontractors and suppliers stretches almost from coast to coast supplying everything from lockwire and rivets to giant presses and heating ovens.

To determine how the subcontractors and suppliers will be affected by current design and manufacturing orders here is a rundown of what's ahead for the eight prime contractors:

**Canadair Ltd.**, Montreal, has recently won a major export order from the South American Government for \$10 millions worth of Sabre VI (total 37) plus spares.

In addition the company has just received an RCAF order for a batch of new T-33 jet trainers. Canadair is also in continuing production for the RCAF on the Sabre VIs.

By far the largest project on hand is the redesigning of the Bristol Britannia as an antisubmarine maritime reconnaissance aircraft for the RCAF. This huge aircraft is having a sizeable impact on suppliers of both shop equipment and aircraft equipment and assemblies. The order for these aircraft was recently extended from 13 to 37.

Of a more confidential nature is Canadair's guided missile work which may expand into the production stage in the not too distant future.

**Avro Aircraft**, Malton, Ont., is still in limited (10 a month) production of the CF-100 Mark IVB all-weather jet interceptor for the RCAF with the Mark Vs soon to roll off.

But ahead is the biggest project the company has yet undertaken—the production of the delta-wing supersonic fighter, the CF-105, to succeed the CF-100. This has passed out of the design into the development stage, calling for a complete retooling of Avro's giant aircraft plant.

The Canadian Government has already placed an order for an initial production batch which will eliminate any prototype stage by testing the aircraft as they come off the production line. If further modifications are needed they will be made in stages of production.

**De Havilland** is currently engaged in more programs than it has ever

had at one time. These include civil Otter and Beaver production for commercial airline and air charter operators; Otters for the U. S. Army, U. S. Air Force and U. S. Navy; Chipmunk training planes for the RCAF.

Production will also get under way this fall on an order for the Canadian Navy for the twin-engine Grumman CS2F-1 which DH is producing in Canada under license. The first firm order is for 25 of these aircraft, but it's expected this will be extended to 100.

Still at the development stage is a twin-engine version of the Otter, a larger air-freighter for rough-country operation.

There again, of a secret nature, is considerable development engineering on guided missiles.

**Canadian Car & Foundry**, Fort William, which has recently become part of A. V. Roe Canada, has recently completed a T-34 trainer order for the U. S. Air Force and RCAF. It is still engaged in production of parts for this aircraft and the Harvard trainer which is in use all over the world.

On a subcontract to de Havilland, Can-Car is producing the wings for the Grumman CS2F-1.

**Orenda Engines**, Malton, Ont., is still engaged in quantity production of the Orenda 14 turbojet engine for the Canadair Sabre VI and the Orenda 12 for the CF-100 Mark IV. The recent South African order for 37 Sabre VIs will extend Orenda

production, which is expected to go on for some time to come.

Off the drawing board already and at the experimental stage is a new 20,000-lb.-plus-thrust jet engine, the P.S. 13, which has already been ordered by the Canadian Government for the CF-105 supersonic fighter of Avro Aircraft. This partly titanium engine is also attracting considerable interest from the U. S. military.

However, it's thought, should the engine be bought by the U. S. services it would probably be produced under license in the U. S.

Meanwhile production tool planning is going ahead on the engine, calling on the resources of much of the Canadian toolmaking and machine-tool industries.

**Rolls-Royce**, Montreal, is engaged in both manufacture and overhaul of the Nene jet engine for the Canadian-built T33s and is currently expanding its tool facilities to be able to produce more powerful jet engines and possibly turboprop engines in North America.

**Canadian Pratt & Whitney**, outside Montreal, is in a steady production of Wasps, geared Wasps for the de Havilland Otter and Wright Cyclones for the de Havilland Grumman CS2F-1.

**Fleet Manufacturing**, Fort Erie, is in production on the Helio Courier four-place executive aircraft and has under development the Doman LZ-5 helicopter.



BEAVER in New Guinea. Winter-clad natives tramp down the 20-ft.-high kunai grass for take-off in a scene from "Walk into Paradise," a new Australian (Southern International Ltd.).