



Sir Roy Dobson, Chairman of the Board.



Orenda-powered CF-100s coming off Avro Canada assembly lines.

Avro's Plan Gives New Look to

- Division into three companies modeled on Hawker-Siddeley Group
- New emphasis placed on design, development
- Way opened for further public investment

by Victor Koby

To the management of Canada's half-billion dollar aviation industry and the thousands of men and women who have become part of it, 1954 proved a turning point from which they may never have to look back.

There's a new balance in the industry between design-development and production.

Last year one company, A. V. Roe Canada Ltd., took a long permanent step into the future. It prepared to enter world markets as well as expanding its share of the Canadian market by building a new corporate base for the years ahead with design, development and industrial diversification.

► **Significance** — Up to 1954 the Canadian industry in the postwar years had established a name for itself as an efficient and low-cost producer of aircraft and engines. But as quantity defense orders began to taper off the future grew clouded.

The hard core of a national aircraft industry — design and development of world beating military and civil aircraft and engines —

seemed headed for oblivion. The Government had yet to make up its mind whether to back Canadian design and development on a continuing basis.

It was then that Avro Canada decided to take its own future in its hands. With private funds it would continue to gamble on its design projects with or without Ottawa's support. The Government began to take a more favorable view.

Other manufacturers at the same time began to think more of pushing their own experimental and design work. Throughout the industry a new demand and future was created for the valued technicians, engineers and technical dreamers who would come up with the new metals, electronic gear, airframes and engines.

This was balanced by a new small flow of RCAF and RCN production orders on an extended basis. This would help keep the industry financially solvent and keep the production know-how and skilled manpower so carefully built up.

► **Avro's Plan** — Starting this year A. V. Roe Canada Ltd., employer of 16,000, becomes the parent holding

company of a Canadian Avro group:

—Avro Aircraft Ltd. is created out of the aircraft division.

—Orenda Engines Ltd. is formed out of the gas turbine division.

—Canadian Steel Improvement Ltd., producer of light alloy precision forgings and castings has been purchased from the Hawker Siddeley Group.

• This paves the way for the Canadian investor to have a direct stake in the parent company at some future date.

• The decentralized structure will allow the addition of other companies in other aviation fields to the group.

Crawford Gordon, Jr., the parent company's 42-year-old president (see cover) sees the new Avro group as the only way to bring about profits as well as ideas.

Under the new setup each of the company's youthful new executives will have the freedom of action and responsibility to develop products, customers and markets. The net hoped for result: a healthy balance between research and production with the parent company giving guidance and financial support.

► **Research** — Fred T. Smye's vision in 1944, of a Canadian aircraft industry producing its own designs, was backed up by the faith of Sir Roy Dobson in providing the Hawker Siddeley Group's financial support (now over \$16 millions cash).



F. T. Smye, Vice-President and General Manager, Avro Aircraft Limited (right).



Industry

With the early co-operation of the Rt. Hon. C. D. Howe, the idea snow-balled into Canada's first jet engine, the Chinook to be followed by the Orenda. On the airframe side grew North America's first jet airliner to be followed by an all-weather Canadian fighter, the CF-100. Such design research is still foremost.

● **Flying Saucer** — There's a good possibility now of U.S. Air Force participation in Project "Y," Avro's famed "flying saucer" project.

This design, the dream of British-born designer John Frost, is for an aircraft which will take off vertically yet fly supersonically with ease. The oval-shaped airframe dispenses with normal flying control surfaces. Instead, control is given by change of direction of jet engine thrust.

Ottawa spent \$4 to \$5 millions on the project before giving it up as too expensive. But Avro continued the project in hope of being able to interest others. It's now reported that the USAF is showing considerable interest in the project.

● **Delta Wing** — High in Avro Aircraft's present forward thinking is the development project for a new delta-wing supersonic all-weather fighter as successor to the CF-100 Mark IV. Now the company has an order for two prototypes, which it's hoped will blossom into a full production order from the RCAF.

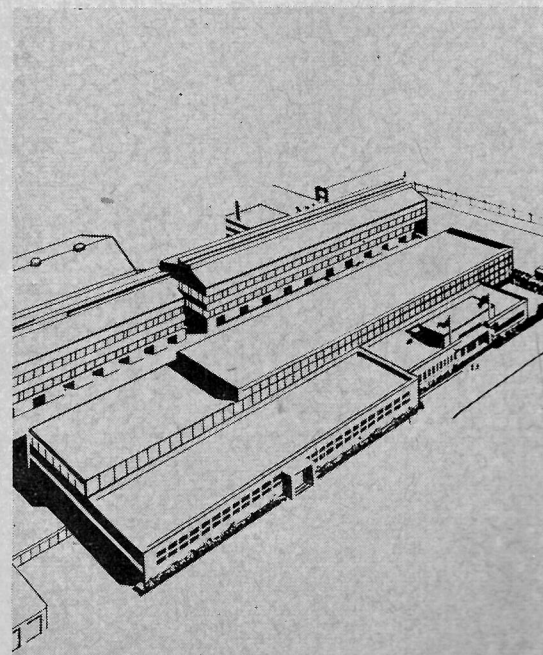
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W. R. McLachlan, Vice-President and General Manager, Orenda Engines Limited (right).



C. J. Luby, President and General Manager, Canadian Steel Improvement Limited (right).



AVRO GIVES NEW LOOK TO INDUSTRY

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Using the delta wing (Vulcan) planform but with a 60 degree sweep back set high on the fuselage, broad specifications include: power by two proven engines to test the prototype (possibly Pratt & Whitney's J-57), with hoped for standard equipment using the super-Orenda P.S. 13; range of more than 1,500 miles; straight and level speed in excess of 1,200 mph; guided missile armament.

● **Titanium Jet** — Orenda Engines Ltd. is devoting all energy to development of its high-titanium content twin-spool axial flow P.S. 13 jet engine. Expected to have a thrust of close to 20,000 lbs. it is already attracting interest of the U. S. industry and military. With \$4 millions spent on the project so far (no outside assistance) the engine is said to have reached the testing stage.

● **Forgings.** Canadian Steel Improvement Ltd. is one of the few complete producers of the forged blades used in today's jet engines. New fields to conquer lie in the steady development of radically new methods of working with and forging titanium jet blades and structural components. As such it plays a leading role in development of the P.S. 13 jet engine.

In the future lies the steady development of finding new uses for light metals and their alloys, new methods of working with them and building production methods to become a supplier to both U. S. and Canadian industries.

► **Production** — Backing up the research is proven production on the part of all the companies.

Currently under way is an order for 510 CF-100 Mark IVs for the RCAF with over 300 already produced. Most of the earlier 70 CF-100 Mark IIIs, are being converted to pilot trainers (see News section).

Well over 1,500 Orenda jet engines have been turned out for the CF-100 and Canadair-built Sabres. The engines are now in the final stage of development as the Orenda 14 for the Sabre VI and Orenda 11 for the CF-100 Mark IV.

The work of CSI Ltd. has included the production of several million jet engine blades for the Orenda as well as commercial forgings for Lucas-

Rotax, Canadian Flight Equipment and Canadian Arsenals.

► **Profit Future** — Behind the more breathtaking design and development work is steady pressure for both small and large developments to cut over-all aircraft production costs, increase earnings or extend engineering knowledge in preparation for possible expansion, such as:

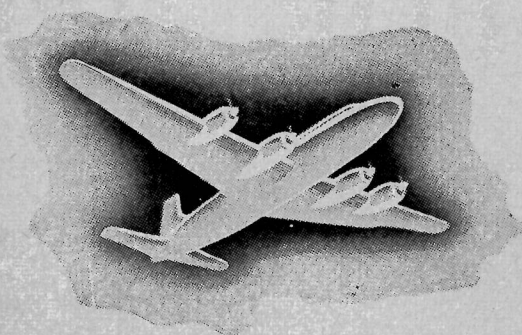
—Guided missile airframe designing.

—Electronics assembly, testing and study.

—Development of successful rocket wing tip pods and belly packs.

—Extensive thinking on a twin-jet or turboprop long-range executive aircraft with the engines to back it up.

—Actual expansion of CSI's forging and casting facilities this year to service all types of commercial and defense customers in Canada and the U. S. needing light alloy work.



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