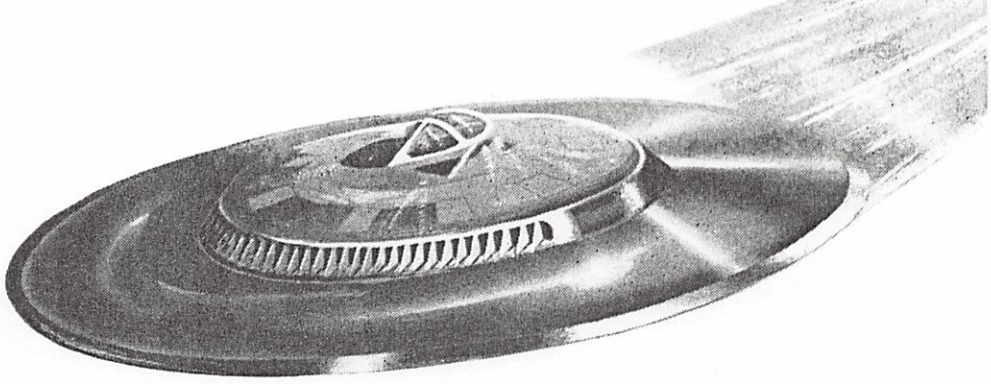
PROJECT "Y"

Avro Aircraft's Frost Takes a Flyer into the Future



Now under the sponsorship of the USAF, work continues at Malton on Project "Y", the brainchild of John C. M. Frost, Chief Design Engineer (Special Projects Group) for Avro Aircraft Limited.

The fact of Project Y's existence first leaked out early in 1953, at the height of the "flying saucer" craze, an unfortunate coincidence that resulted in the aircraft being immediately labelled a "flying saucer".

It was not until late in 1954 that any Canadian made any official reference to the project, and then only to admit that while it did exist, the Canadian Government had withdrawn support about a year previous after expending some $400,000. The USAF began picking up the tab some time shortly thereafter.

The accompanying drawing was released a few months ago by the USAF with the comment that it could illustrate a disc-shaped vertical-rising aircraft such as was being developed under contract to the USAF by Avro Aircraft.

Project Y is, according to most accounts, oval shaped, measuring about 40 ft. in its greatest dimension. Its powerplant is a large vertically-shafted gas turbine, the jet efflux of which is distributed to the perimeter of the aircraft by a spoke-like arrangement of ducts (180, according to some reports). The ducts, or in any event, the duct nozzles, are rectangular in shape and the bottom side of each is fitted with a hinged flap. This flap is controlled by the pilot and can be moved from a position in line with the bottom of the duct, down through an arc of some 31°.

The thinking behind this design is based on the frequently mentioned "Coanda Effect", the discovery of Monsieur Henri Coanda, a Rumanian engineer, now resident in France. Very simply, M. Coanda's discovery was that a jet of gas coming from a rectangular nozzle can be deflected, not only by a flap placed in the jet, but also by one placed below it. This discovery neatly does away with the problem of developing a material which would deflect hot jet efflux and at the same time resist the corrosive burning effects of the jet gases.

However, the deflecting action of the underflap is effective only down to 31° from a position parallel to the bottom of the duct. Thus, for take-off, the flaps would be set in this position for maximum vertical lift. For hovering, the same position would be used, but the thrust would be reduced to a level just sufficient to counteract the effects of gravity.

Horizontal flight would be effected by closing off all the ducts except those on the side opposite to the direction in which it was desired to travel, at the same time moving the flaps up to the neutral position. The so-called saucer would then become, to all intents and purposes, just another jet propelled airplane, albeit an oddly shaped one.

to all-through jet training. When this happens, some Canadian company will receive a very healthy contract.

Research & development on the Velvet Glove guided missile is still being carried on, on behalf of CARDE, though it now appears that this Canadian-design missile will never go into production. The government recently announced that it had been decided to produce the Sperry Swallow missile for the RCAF. However, Canadair is participating in this program by fabricating the missile airframes (Avro is in overall charge of the project; Canadian Westinghouse is making the guidance systems).

Spares continue to bring a very substantial income to Canadair. In 1954, parts worth over $27,000,000 were shipped to 75 customers—commercial and military—in 50 different countries. These include parts for C-47/DC-3 types, C-54/DC-4M's, Sabres, and Silver Stars. Last year, shipments of spares were worth $17,000,000. Total new spares business placed in 1955 was $22,486,000 and the unfilled backlog of orders at the end of the year was $14,753.00.

Canadair is also doing work in the atomic energy field, and building component parts for a swing reactor which will have one specific purpose: to determine the potential of irradiated nuclear fuels for other reactors.

The most recent highlight of what seems to be a more or less continuous plant expansion program was the opening of a new engineering building which houses most of Canadair's growing test development facilities.

Employment at the Cartierville firm is gradually building up again, having risen during the past year from 7,000 to about 8,500.

Canadian Car & Foundry

MAIN ACTIVITY at the Fort William plant of Canadian Car & Foundry Co.'s Aircraft Division has for the past year been the production of major airframe components under subcontract to The de Havilland Aircraft of Canada Ltd.

These components include CS2F wings and nacelles, of which there are 42 sets on order at present; and 102 sets of Otter wings and empennages. In addition, production of spares for Harvard T-6 and T-34 Mentor aircraft keeps a considerable number of hands busy. Harvard spares especially are in good demand, since CanCar holds world rights for the type. It seems superfluous to comment on recent production of complete Harvards by this firm, but for the record, Cancar has in the last few months completed the assembly, from parts on hand, of fifteen Harvards which had been ordered in a straight commercial deal by the Egyptian Government. All have now been shipped to Egypt.

In terms of complexity and dollar-earning power, the CS2F-1 program is the most important project currently in progress. In spite of this complexity, CanCar has met all target dates. The firm received the first shipment of tooling technical assistance in August of 1954 and by November of 1955 had: (1) Established production of center and outer panels; (2) Built 9,169 tools in its own shops and obtained 3,945 from subcontractors; (3) Maintained originally planned tool and production program despite the fact that they called for an extremely tight schedule; (4) Shipped the first panels within