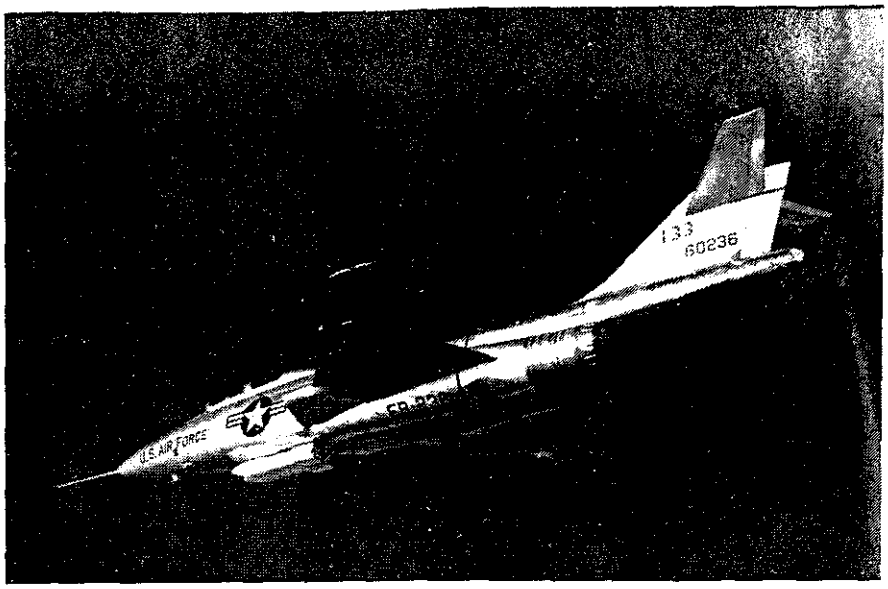
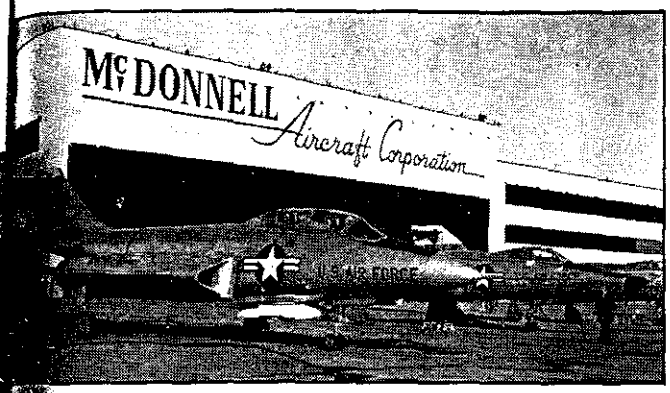
THIS AND THAT ON AIR DEFENCE

A CF-100 replacement and a counter-missile effort

By ***BRENT RAYCROFT***



F-101B Voodoo all-weather two-seat interceptor is shown carrying two MB-1 Genie air/air nuclear missiles. F-101B is powered by two Pratt & Whitney J-57's



Substantial bulk of Voodoo is evident when related to size of grounderew standing nearby. Voodoo in background at right is a photo-reconnaissance RF-101.

THE RCAF's aging CF-100 may yet be replaced in the Canadian air defence system. What are officially described as exploratory talks have taken place between Canadian and U.S. authorities on a plan whereby the RCAF would be supplied with some 60 McDonnell F-101 Voodoos. However, no decision by the cabinet is imminent. Negotiations on price and number of planes required have started but have not reached the Government level.

There is still no indication as yet whether the Government will decide to replace the CF-100 with another manned interceptor or entrust Canadian air defence to the two Bomarc missile bases to be built near North Bay, Ont., and Mont Laurier, Que.

Several months ago, the Government strongly suggested that it con sidered the Bomarc would provide sufficient air defence against manned bombers in the early 1960s.

Beginning to Listen: But the fact that talks on a CF-100 replacement have been held with the U.S. Air Force tends to indicate that the Government is bending an ear to the RCAF view that Canada must have a new interceptor.

It now is considered possible that the Government might accept the Air Force opinion if it could buy a limited number of supersonic interceptors relatively cheaply. U.S. officials have hinted broadly that the price would suit Canadian taste.

Gen. Laurence Kuter, NORAD commander, said bluntly in Ottawa, Nov. 17, that the CF-100 should be replaced with another manned aircraft "at an early date." He recommended to the Canadian chiefs of staff that the RCAF be supplied with a new interceptor.

ICBM Defence: Meanwhile, it is gradually coming to light what a vital part Canada is playing in development of a defence against the intercontinental ballistic missile.

Some authorities feel, in fact, that Canada would be wise to scrap its plans for the Bomarc—no money has yet been committed except for preparation of the launching sites—and devote its air defence effort to helping provide a defence against the long-range rocket.

Much of the counter-missile research in this country is secret but enough information now is being made available by various sources to make it clear that Canada is in on the ground floor in some important aspects of counter-missile development.

This means the U.S. Army may subcontract to Canadian firms some components for its Nike-Zeus counter-missile system.

Best So Far: Dr. Herbert York, chief of research, U.S. defence department, said during a recent Ottawa visit that Nike-Zeus is the only feasible means found so far of destroying in flight intercontinental ballistic missiles.

Lt.-Gen. Arthur G. Trudeau, the U.S. Army's chief of research & development, has said he hopes Nike-Zeus will go into production soon to provide a defence against the missile in the early 1960s.

Some scientists say that the Bomarc will arrive on the scene too late in Canada—1962 if not later—to be of any real use and that the main threat

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Model Aviation in Canada

The Model Aeronautics Association of Canada is seeking financial support for its 1960 International Travelling Fund. The fund has been set up to send a radio control model team to Zurich, Switzerland; a free-flight power team to Cranfield, England; and a control line team to Budapest, Hungary.

Established in 1949, the Association is the body officially appointed by the RCFCA for the control, organization and promotion of model flying in this country. That Canadians have won renown among the two dozen or so nations that compete annually in World Championship events, is relatively unknown to few outside the aeromodelling fraternity.

The word "model" is a misnomer when applied to the majority of the aircraft flown by MAAC members, according to Barry V. Haisman, chairman of the Association's FAI committee. True scale models of large aircraft are so rarely seen on MAAC fields that they are a novelty. They do not call for the same creative originality nor do they possess the flight potential of the orthodox small aircraft.

Above, model flying goes on regardless of weather. Below, Barry V. Haisman launches a "Wakefield" (rubber driven) model in the 1959 international eliminators.

Generally, MAAC aircraft are built to specifications affecting power, areas, weights and loadings so that they may compete on equal bases. The FAI (international) class power model may not have an engine with a cylinder capacity exceeding 2.5 cc. Gliders are launched with towlines limited to 50 metres. Rubber driven models have a maximum motor weight of 50 grammes.

Similarly, speed models flown on lines extending from a handle held by the operator in the centre of the flight circle are limited by engine capacity, weight and line length.

Radio controlled models are less subject to design regulations and compete in classes based on the nature of the radio equipment employed, gaining points in competition for the quality of maneuvres through a pre-determined flight pattern. A new development in this sphere is pylon racing, Thompson Trophy style.

The whole activity is a sport, divided basically into three categories: freeflight; control line and radio control. The freeflight machines are autostable, with handicapping regulations that make it difficult to exceed three minutes' duration. The total flight time for several consecutive flights determines the contest score. The other two classes compete for sheer speed or for points.

MAAC headquarters, currently located in Montreal, maintains liaison through the ten zones into which the country is divided, each zone having a director responsible to the Association for affairs in his zone. Most members belong to a club, sometimes a specialist group and sometimes one that attempts to cater to all branches of the sport.

Montreal Model Flying Club for example, is a specialist freeflight group. It has eleven members with an average age of 28, paying membership fees of $12 per year. Most flying is done at Hawkesbury Airport, 60 miles from Montreal. Members often leave the city before dawn to trim models in good (i.e., minimum convection) air conditions. Numerous flights must be made to bring a freeflight model into top trim for contest work.

The members travel thousands of miles every year to contests in Eastern Canada and the U.S. They organize and compete in elimination contests, and invariably have one or more of their number winning team places.

In 1959 the MAAC sent two three-man teams to France and Belgium. Among the teams from 24 countries in France last year, Canada placed a close second to the United States.

F/L M. Sweetman and DRB technician Wm. Laforge check equipment for "Operation Lookout" before departure to Ascension Is. DRB/RCAF team is gathering data on ICBM re-entry.

to North America by then will be the intercontinental rocket.

The U.S. Army has spent $300 million already on Nike-Zeus. It is spending more than $1 million a year in Canada on programs associated with missile defence. Nearly all this work is being done at the Canadian Armament Research & Development Establishment (CARDE) at Valcartier, Que.

The U.S. is chiefly interested in Canadian research into detection and tracking of long-range missiles and discrimination between the actual warhead and decoys.

Inside Outer Space: At Valcartier, Canadian scientists are simulating outer space in huge vacuum tubes and determining what happens to objects travelling through space at hypervelocities.

In this field, the Valcartier facilities are unequalled anywhere in the world, Canadian and American authorities say. The U.S. Army would not be supporting the research program there if it had similar facilities of its own. Some Canadian companies such as Computing Devices of Canada have been involved in the research at Valcartier. This and similar companies soon may be sharing in production of components for an effective countermissile system.

Off To Ascension: A recent develop-

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Coming Events

March 6-9 — Gas Turbine Power & Hydraulic Conference, American Society of Mechanical Engineers, Rice Hotel, Houston, Texas.

April 14-24 — Los Angeles International Air & Space Exposition, Memorial Sports Arena, Los Angeles.

April 25 — AGARD Wind Tunnel & Model Testing Panel on Boundary Layer Research, London, England.

April 25 — Western COPA Dinner Meeting, Max Conrad, Speaker, A1 San Club, Calgary.

May 24-25 — CAI Annual General Meeting, Chateau Laurier, Ottawa.

June 5 - 9 — ASME Summer Annual Meeting & Aviation Conference, Statler Hilton, Dallas, Texas.

June 14-16 — 35th Meeting, Aviation Distributors & Manufacturers Assoc., Queen Elizabeth Hotel, Montreal.

the country as a whole, but with full consideration of the problems involved in areas of limited population.

The above is submitted on behalf of those who have dedicated their lives to make Canada's aviation picture what it is today.

Respectfully submitted,
AIR INDUSTRIES AND
TRANSPORT ASSOCIATION
OF CANADA
A. C. Morrison,
Executive Secretary

FLYING THE CARIBOU

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continued to gracefully float away our short landing.

"Take off the rest of that power," suggested Fowler.

It was a smooth airline type of arrival that most any TCA bus driver would have revelled in. As we slithered quietly to a halt on the ice, the de Havilland representative in the right hand seat came through with the welcome transmission:

"Want to try another one?"

The next and final circuit was vastly better. By allowing the nose to remain high after take-off, the air speed sneaked ahead only to 110. On downwind we kept it at 120 mph and a thousand feet. On cross-wind the coach suggested that if we really felt hot, we could use the magic 60 mph figure for an approach speed. We felt hot.

This time the power came off on the round-out. The technique was correct, the landing was smooth and solid STOL. As we taxied back to de Havilland, Fowler summed up the landing characteristics of the DHC Caribou when he said:

"The thing lands like a parachute."

ON AIR DEFENCE

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ment in the counter-missile field was the departure of a DRB-RCAF team early in January for remote Ascension Island in the south Atlantic.

The British island is near the end of the U.S. Cape Canaveral missile range and the Canadian team will try to determine the feasibility of using infra-red wave lengths to detect the long-range rockets as they re-enter the earth's atmosphere.

Two RCAF CF-100's based at Ascension will be used to carry the infra-red equipment to more than 40,000 feet. The equipment was designed at Valcartier. The CF-100's are being used because they are big enough to carry the equipment, can reach the desired altitude and can land on Ascension's short runway.

RETURN OF THE AUTOGYRO

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rotor is cut off and the rotor then auto-rotates in a true autogyro manner. In so doing it contributes some 40% of the total lift which keeps the aircraft airborne.

There is little doubt that the relatively uncomplicated autogyro would be an almost ideal aircraft if some method could be devised to give it true vertical take-off capability—and it is along these lines that many experimenters are proceeding. Since gearing the engine to the rotor immediately brings the same complications faced by the helicopter designer, there seems to be more promise in finding some method of driving the blades around by ram jet or similar means.

In the Rotodyne, air is ducted from the engines up through the pylon and through the rotor blades and is discharged at the tips where it burns fuel to give it added velocity. This arrangement is, however, difficult to achieve with a light aircraft and some kind of stored power is indicated. Some experimenters, notably Avian Industries Ltd., of Georgetown, Ont., are attempting to achieve this result by charging an air bottle from the engine, and then discharging the air through the rotor tips for a period which, although relatively short, is adequate to ensure a truly vertical take-off to a safe height before normal flight is assumed. There appears to be a good possibility of success with this method but much development work remains to be done.

However, there seems little doubt that the autogyro is due for a new lease on life. A truly simple helicopter for the average small plane operator still seems a long way off. Perhaps the successful jump-start autogyro will appear first. If it does, it is just conceivable that it might be the "everyman's airplane" that designers have been promising for the last fifty years.

Letters to the Editor

Hot Off The Wire

JUST FINISHED READING YOUR JANUARY EDITORIAL RE NEW POLICY ON GROUP B AND C CHARTERS. REGRET I CANNOT AGREE WITH YOU. I CONSIDER THIS IS THE BEST THING THAT HAS HAPPENED TO AVIATION SINCE THE WRIGHT BROTHERS. YOUR LAST PARAGRAPH ALSO ALL WET AS DOT WILL STILL CONTROL OPERATING CERTIFICATES, PERSONNEL LICENSING, AND MAINTENANCE STANDARDS. THIS WILL MAKE MORE COMPETITION RESULTING IN BETTER SERVICE AND EQUIPMENT FOR THE PUBLIC. OTTAWA PERFECT EXAMPLE. WHEN I RENTED SPACE IN MY HANGAR TO COMMERCIAL FLYING SCHOOL GREAT PANIC ABOUT FLYING CLUB BEING PUT OUT OF BUSINESS ETC. ETC. NOW COMMERCIAL SCHOOL DOING AS MANY FLYING HOURS AS THE FLYING CLUB AND FLYING CLUB HAS INCREASED ITS FLYING HOURS CONSIDERABLY AND IMPROVED ITS EQUIPMENT. THIS PIE WAS NOT CUT INTO SMALLER PIECES BUT MORE THAN DOUBLED ITS SIZE. THERE IS NO DOUBT THAT SOME OF THE GOVERNMENT GRANTED MONOPOLY HOLDERS OF THE PAST WILL NOT LIKE THIS NEW POLICY AS MORE EFFORT WILL BE REQUIRED TO MEET THE COMPETITION. OUR FAMILY BUSINESS IN LAST FIFTY YEARS HAS NO GOVERNMENT MONOPOLY PROTECTION AND HAS BEEN SUBJECT TO EXTENSIVE COMPETITION BUT STILL NOT ONLY SURVIVES BUT THRIVES. AVIATION WILL DO THE SAME.

MARGARET CARSON

OTTAWA