

THE AIRBORNE SERVICES

Joint Defence

An overriding supranational air defence organization has been formed jointly by the U.S. and Canada to go into immediate action in the event of an air attack.

Until such an attack occurs, the new organization, ADCANUS (Air Defence, Canada and U.S.), will be on constant standby, complete and ready to swing into action on a moment's notice.

The combined operation is being headed by USAF Lt. General Earle Partridge, who will have as his deputy commander the RCAF's Air Marshal C. R. Slemon. On taking up his new duties at ADCANUS HQ at Colorado Springs, Colo. A/M Slemon will be succeeded as the RCAF's Chief of the Air Staff by Air Marshal Hugh L. Campbell.

The merger, it has been stressed, will mean no loss of identity for either air force, as each will continue to operate as before, in close co-operation with the other.

Purpose of ADCANUS is to achieve the most effective possible integration of the existing air defence systems in Canada, Alaska and the U.S.

NATO Training Ends

The final intakes of students under Canada's original NATO Aircrew Training Scheme have arrived in this

country and have begun their training at RCAF schools.

The scheme was designed to aid other NATO countries in the expansion of their air forces. The majority of the countries involved are now capable of handling their own training program to look after attrition requirements. The scheme has formed a part of Canada's Mutual Aid Program under which this country has, since 1950, provided military assistance to 12 of the other 14 NATO countries to a total value of approximately \$1,300,000,000.

The arrival of the final groups of trainees marks the end of the scheme through which the RCAF has trained more than 4,600 aircrew for 10 other NATO countries: Norway, Denmark, the Netherlands, Belgium, France, Portugal, Italy, Greece, Turkey, and the U.K. Cost of the training has been borne by Canada.

The RCAF will continue to train aircrew from some NATO countries under new and separate arrangements, involving partial payment by the countries involved. A three-year agreement calls for the RCAF to provide training annually for 55 aircrew from Denmark, 65 from Norway, and 30 from the Netherlands. An additional 360 German students will be trained, the first of whom will start this autumn.

Back To Flying

Squadron Leader Andy MacKenzie, who spent two years as a prisoner of the Chinese Communists during the Korean War, has been posted to his first RCAF flying job since his repatriation in December 1954. The transfer was effective in July, and had S/L MacKenzie shifted from the Personnel Administration Branch in Air Defence Command at St. Hubert, P.Q., to the position of Chief Operations Officer at RCAF Station Chatham.

MacKenzie, who was awarded the DFC during his Spitfire days in World War II, was shot down during the Korean War by Communist jet fighters on December 5th, 1952, and captured by ground forces. At the time he was flying as an exchange officer with the USAF's Sabre squadrons. He was not heard from until repatriated prisoners informed Canadian officials that he was a prisoner.

Nimble Bat IV

No. 419 All-Weather Fighter Squadron, the RCAF's fourth CF-100 squadron to leave Canada for NATO duty with No. 1 Air Division in Europe, made the trans-Atlantic flight early in August. Previously based at RCAF Station North Bay, Ont., the big interceptors of 419 Squadron made the crossing in Operation Nimble Bat IV.

Following the pattern laid by three previous Nimble Bats carried out last November, February and May, the aircraft crossed the Atlantic by way of Goose Bay, Labrador, Keflavik Air Base, Iceland, and from there to Baden-Soellingen. Air Transport Command, providing support for Nimble Bat IV, carried half the squadron's ground-crew from North Bay to their new German base. The other half needed will be drawn from Air Division personnel already there.

New CSO for AMC

The appointment of Air Commodore Wilfred W. Bean, OBE, as chief staff officer at Air Materiel Command Headquarters, RCAF Station Rockcliffe, Ottawa, has been announced by AFHQ.

Educated at the University of Western Ontario, A/C Bean joined the service in 1939 and was trained as a pilot. In the early years of World War II, he carried out coastal reconnaissance flights with the wartime No. 119 Squadron based at Vancouver and Yar-



TWO OF A KIND: USAF F-89, one of four from Griffiths AFB, N.Y., that spent a weekend of "cross-training" with RCAF CF-100 squadrons at St. Hubert recently, formates on a CF-100. The visit to Montreal was part of a program of air exercises in which Canadian and American jet teams visit each other to compare operational techniques and procedures.

mouth, N.S. He was posted overseas in 1941 and served first as a flight commander and later as officer commanding No. 415 torpedo-bomber squadron.

Postwar, he was secretary of the chiefs of staff committee in Ottawa from 1946 to 1948. After serving as director of air intelligence at AFHQ, A/C Bean was transferred to RCAF Station Centralia, Ont., as commanding officer. A/C Bean remained at Centralia until August 1954 when he was chosen as the RCAF's member of the directing staff at the National Defence College, Kingston, Ont., a post that he now relinquishes.

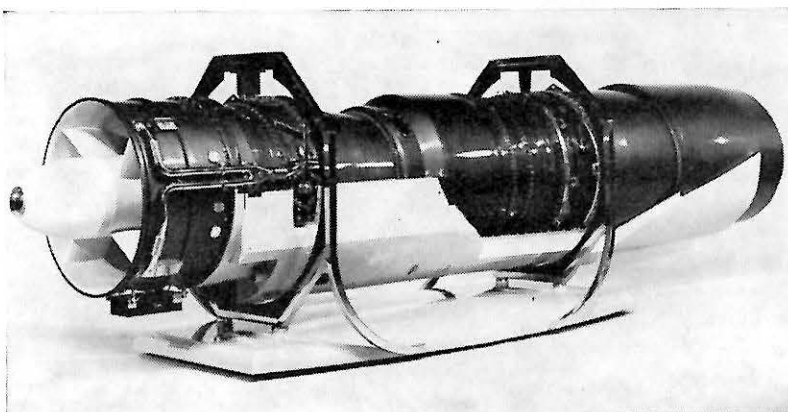
Postings & Careers

- New appointments for several senior RCAF officers have been announced by Air Force Headquarters. G/C B. E. Christmas, CD, commanding officer of No. 4 Fighter Wing, Baden-Soellingen, Germany, will replace G/C R. A. Ashman, CD, as senior personnel staff officer at Training Command Headquarters, Trenton, Ont. G/C Ashman has been appointed commanding officer of RCAF Station Bagotville, Quebec.

- G/C R. W. (Buck) McNair, DSO, DFC, CD, will succeed G/C Christmas as commanding officer of No. 4 Fighter Wing. Buck McNair became one of the RCAF's outstanding fighter pilots during the War, destroying 16 enemy aircraft. In 1942 he shot down eight enemy aircraft over Malta, four of them in one day. He bagged another eight before returning to Britain to command the RCAF's famous 421 "Red Indian" Fighter Squadron. He was awarded the DSO and the DFC, with two bars, for gallantry on operations.

- G/C R. S. Turnbull, DFC, AFC, DFM, CD, senior air staff officer at No. 1 Air Division Headquarters, Metz, France, will succeed G/C R. M. Cox, DFC, AFC, CD, as Director of Air Defence Operations at AFHQ. G/C Cox will take command of RCAF Station Trenton, Ont., from G/C G. G. Diamond, AFC, who has been assigned to the 4th Allied Tactical Air Force, Trier, Germany.

- G/C H. G. Colpitts, CD, now serving with the 4th ATAF, will return to Canada to assume command of RCAF Station St. Johns, P.Q., replacing G/C L. G. Archambault, whose appointment as commandant of the College Militaire Royal de St. Jean, was announced earlier.



An Iroquois Occasion

The first public showing of Orenda Engines Ltd. new Iroquois turbojet was held with some ceremony at Malton, Ont., late in July.

The showing revealed an engine (see picture) that, in spite of its power, is only about four feet in diameter, and in spite of the fact that the design incorporated an afterburner from the start, is only about 20 feet long.

But the most impressive fact about the Iroquois is its remarkable thrust to weight ratio, better than any other known jet engine under development anywhere in the world today.

In addressing the audience at the unveiling, Orenda President & General Manager Walter McLachlan said that the Iroquois gave "over" five pounds of thrust for each pound of engine weight. While it is not entirely clear whether this 5:1 ratio applies to the without afterburner condition, in either event the thrust weight ratio is most impressive.

Official thrust rating for the engine is given simply as "over 20,000 lbs. thrust in its early development stage", but unofficially, figures as high as 23,000 lbs. have been quoted. This high figure is borne out by Mr. McLachlan's statement that "the Iroquois will triple the power of the Orenda". Late marks of the Orenda give 7,600 lbs. th. With afterburner, thrust available would thus, in the 23,000 lb. case, approach 30,000 lbs.

With 23,000 lbs. of thrust and a thrust-weight ratio of over 5:1, the Iroquois would weigh about 4,600 lbs. With three times the power of the Orenda, the Iroquois weighs only about 90% more.

Statements by Air Marshal C. R. Slemon indicate that the Iroquois is designed to operate at altitudes of better than 70,000 ft.

Among the other notable features of the Iroquois, as cited by Orenda Engines:

- **Design Simplicity:** The Iroquois represents a new concept in structural design. Although a longer engine physically and tremendously more powerful, the Iroquois with afterburner is made up of fewer parts than the Orenda series of en-

gines.

- **New Materials:** In the Iroquois, Orenda has pioneered the development and use of new materials, and contributed to the development of others. Notable among them — titanium, the metal that offers the strength of steel for about one-third less weight, and new high temperature alloys.

- **New Manufacturing Techniques:** Simultaneously Orenda pioneered methods of handling new materials in the shop. In the field of titanium machining and welding particularly, Orenda says it has been eminently successful, and is thought to be leading the world in this field.

Each new material poses its problems. In welding, titanium for example, exposure to hydrogen, oxygen and nitrogen — all elements found in air — leads to embrittlement of the metal. To overcome this, Orenda investigated various methods of welding in an inert atmosphere, and does this now in a special device filled with inert gases such as helium and argon.

Design of the Iroquois began at Malton in September, 1953, with the objective being to design an engine capable of high performance in the supersonic ranges. Four months later a go-ahead was given to produce the first prototype engine.

In December, 1954, just 15 months after design work started on what was then known as the PS-13, the engine ran for the first time. Less than a year after the first running, manufacture began.



"Off hand, I'd say our thrust data had been underestimated."