

the OBSERVAIR

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Canadian Aviation Historical Society

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CHAIRMAN'S MESSAGE

With the 2018 Olympics underway in Pyeongchang, South Korea I thought it was a good time to talk about the relationship between the RCAF and hockey.

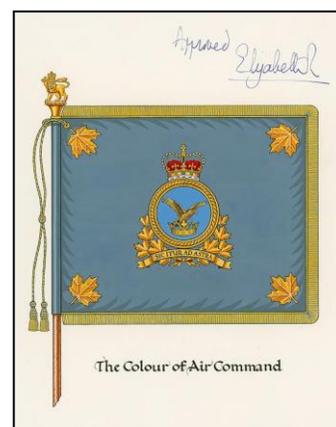
On Saturday, February 11th, at the start of the Toronto Maple Leafs vs. the Ottawa Senators hockey game, the Royal Canadian Air Force entrusted the former Air Command Colours to the guardianship of the Toronto Maple Leafs. The Colours were originally presented in 1982 and feature the Air Command badge at its centre. They will be visible to the public in a specially built display at Gate 6 of the Air Canada Centre in Toronto, Ontario. The new Command Colours feature the RCAF badge in the centre and outward pointing maple leaves.

The Toronto Maple Leafs were chosen for the guardianship due to their (and the City of Toronto's) long association with the RCAF. This began in 1917 when the Royal Flying Corps Canada was established in Toronto under the command of Lieutenant-Colonel Cuthbert G. Hoare (although training had been going on in Toronto prior to this at the Curtiss Aeroplanes and Motors Limited schools on Toronto Island and Long Branch, Ontario). Throughout the next 101 years the RCAF/CAF would continue to build on this relationship with the City of Toronto.

In 1927, First World War ace and Victoria Cross recipient Wing Command William George (Billy) Barker was appointed President of the Toronto Maple Leafs after he resigned from the RCAF in 1926. He was appointed by Constantine Falkland Cary (Conn) Smythe, who was the manager of the team at the time. Smythe had served with the Royal Flying Corps in 1917 as an Observer flying in R.E.8s before being shot down and taken prisoner. Barker died in 1930 while demonstrating a Fairchild KR-21 trainer for the Department of National Defence at Rockcliffe Airfield. He is buried in Toronto at Mount Pleasant Cemetery.

As a footnote, the Toronto Maple Leafs beat the Ottawa Senators 6-3 in Saturday's game. See page 7 for more hockey in my story on the RCAF Flyers' Olympic win in 1948.

Kyle Huth
Chairman / Editor



The Colour of Air Command
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The Observair is the newsletter of the Ottawa Chapter, Canadian Aviation Historical Society (CAHS), and is available with membership. Membership fees are payable in September. Any material for *The Observair* newsletter should be directed to the Editor: Kyle Huth. All matters relating to membership should be directed to the Secretary/
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PAST MEETING: Development, Flight Tests and Certification of The Canadair CL-600 Challenger



Jim Martin © Rod Digney

There were 46 members and their guests on hand on Thursday, 25 January 2018 to hear Jim Martin talk about the development, flight tests and certification of the Canadair CL-600 Challenger. Jim had served as a Flight Test Engineer on the initial Canadair CL-600 flight test program.

In the early 1970s, General Dynamics owned Canadair and was in desperate need for a new project to keep the company in business. The production of the CF-5 Freedom Fighter had ended and limited production of the CL-215 water bomber, CL-89 reconnaissance drone, and subcontractor work had seen the workforce reduced from 10,000 to 1400 employees.

Enter Bill Lear. Lear was a prolific inventor and business man who was involved in a number of engineering innovations. He galvanized the business jet world with the introduction of the Learjet 23 in 1963. In the late 1960s, he sold the Learjet company to Gates Rubber Company and came up with a concept for a new business jet that was to

incorporate the newly developed “supercritical” wing with new high bypass turbofan engines to produce an aeroplane with outstanding speed and range performance. He named it the LearStar 600, though lacked the resources to develop the design.

In 1976 Canadair acquired the rights to the LearStar 600 and in 1977 launched the CL-600 project with Federal Government backing (which had acquired Canadair in 1976). Due to proprietary issues with NASA, Canadair had to modify the “supercritical wing” into a “high technology wing.” They also gave the design a wide body fuselage (which Lear disliked and called “Fat Albert”), a T-Tail horizontal stabilizer, high bypass ratio Avco Lycoming ALF-502 engines, and advanced avionics.

The official roll out for the CL-600 Challenger was May 25, 1978. The Honourable Jean Chrétien, Minister of Finance was in attendance, and he would continue to be a big supporter of the CL-600 project.

Challenger 1001 made its first flight November 8, 1978, flown by Doug Adkins and Norm Ronaasen. The second flight took place the same day. The flight test program proceeded well, with the aircraft flying eight times in the first week. On the 13th flight, the aircraft suffered a failure in the left engine. On the 16th flight, there was again engine trouble (overheating).

After 25 flights test out of Cartierville (Montreal), Challenger 1001 was ferried to Mojave, California, on December 22 to continue the flight test program. The flight test program was carried out in Mojave with support of Flight Systems International, with Canadair pilots flying the aircraft. Challenger 1001 was soon joined in the desert by Challengers 1002, 1003, and 1004.

As the flight test program progressed, it showed that the flight controls, hydraulic system, and electrical system all worked very well. However, two major certification issues arose. The engines were shown to be prone to compressor stalls and bearing overheating resulting in a number of in-flight shutdowns. The engines were also underperforming in terms of both thrust and specific fuel consumption. This meant the Challenger couldn't meet the projected high altitude performance, cruising range or speed.

The Challenger was initially designed to have a stick shaker and a stick pusher to prevent aerodynamic stall. The Department of Transport (Transport Canada) would not certify the aircraft unless the wing aerodynamics were modified to have a natural aerodynamic stall.

Tragedy struck the flight test program on April 3, 1980, when Challenger 1001 crashed while performing stall tests and the pilot Norm Ronaasen lost his life in the crash. The crash was caused by the tail stall recovery parachute failing to detach from the aircraft.

After the accident, Challenger 1002 continued the stall tests and a satisfactory combination of natural aerodynamic characteristics and stall protection system characteristics met Transport Canada Civil Aviation (TCCA) requirements. However, the modifications to the wing caused significant performance penalties. A change in leadership at Transport Canada would later allow the original “high technology wing” to be used without modifications.

To address the reliability and performance concerns with the ALF 502 engines it was decided to replace them with the proven General Electric CF34-3A. Challenger 1003 was chosen to be the prototype CL-601 and 1003 received an extensive structural redesign of the aft fuselage. It was also renumbered to 3991, though the original serial number was retained on official aircraft documentation.

Challenger 1003/3991 made its first flight on April 10, 1982 with Doug Adkins and Jamie Sutherland at the controls. It went on to be used as the test bed for the CL-601, CL-604, and the development of active Bombardier electronic flight control technology subsequently used in the CSeries jets. Challenger 1003/3991 now resides in the Business Jet Exhibition at the Canada Aviation and Space Museum.



Challenger 1003/3991 upon arrival at the Canada Aviation and Space Museum in 2006.
© www.ingeniumcanada.org

The cost of developing and certifying the Challenger CL-600 was enormous. To this was added the cost of certifying the CL-601 with the CF34-3A engines and greatly increased operating weights (nearly all the certification flight tests had to be repeated). Thankfully, with the Federal Government's continued support, the aircraft went on to be a great financial success for Bombardier (who acquired Canadair in 1986). The latest Challenger model is still being built 40 years after first flight. To date (January 2018) there have been 1056+ Challengers built.

For anyone wishing to watch the National Film Board film that Jim mentioned (and I recommend you do), it is called *Challenger: An Industrial Romance* and it can be found here: https://www.nfb.ca/film/challenger_an_industrial_romance/

Kyle Huth



CANADA'S AVIATION HALL OF FAME TO INDUCT FOUR NEW MEMBERS

On Thursday, 7 June 2018, Canada's Aviation Hall of Fame will hold its gala dinner and 2018 induction ceremony in the Sunwest Aviation hanger at Calgary International Airport to induct John M. Bogie for his lifelong work in support of civil aviation in Canada, General (Retired) Paul D. Manson for his work in the RCAF/CAF and aerospace defence industry, John M. Maris for his contributions to Canadian aerospace, and Dr. Dwight Gregory Powell for his innovations in the fields of emergency medicine and aviation into Canada's Aviation Hall of Fame. For a more detailed biography of each inductee, please go to the Canada's Aviation Hall of Fame website: www.cahf.ca



Pubs & Mags

Airways (January 2018)

- 8 pp on flying the Bombardier CSeries with Swiss Airlines
- 3 pp by RS Grant on flying the de Havilland Canada DHC-3 Otter

Vertical Horizons: The History of Okanagan Helicopters by Douglas M. Grant (Harbour Publishing: 2017)

- Hardcover, 8" x 11", 256 pages including 24-page colour insert, \$39.95

Bush Hawk (Undaunted Belief): History of Found (Aircraft) by S.R. (Rick) Found (Coast Dog Press: 2017)

- Softcover, 21.5" x 21.5", 200 pages, 75 photos, \$29.00

The Lewis Letters: The Exploits of a 20th Century Aviator and Adventurer by Pam McKenzie (Friesen Press: 2017)

- Softcover, 8.5" x 8.5", 116 pages, \$18.95

First in Flight: Alexander Graham Bell and his Innovative Airplanes by Terrance W. MacDonald (Formac Publishing: 2017)

- Softcover, 8.25" x 9", 96 pages. \$24.95

Bill Clark



RAMBLING THROUGH RECORDS

Continuing with my theme from November and January, I am still taken with the subject of McKee Trophy “also rans,” described in various volumes of Department of National Defence and Transport Canada files in Library and Archives Canada (LAC). In some cases, winners were nominated several times before finally being honoured (Romeo Vachon and Frank McDougall come to mind). Other nominees were ultimately admitted to Canada’s Aviation Hall of Fame without McKee Trophy credentials (Alexander Lilly). And then there were those who, though nominated, received neither accolade. Yet their stories are still there to be told. So let us delve once more into that LAC treasure trove, RG. 24, Box 17797.

1951 was a remarkable year – thirteen nominees representing a wide range of activities. Brother Hormisdas was nominated as the founder of the Buckingham Gliding Club (now absorbed by the Gatineau Gliding Club); the nomination letter is actually much more detailed than a published profile (see <http://www.sac.ca/index.php/en/free-flight-magazine-2/2010s/2011/272-ff2011-01/file>). Squadron Leader Joseph Auguste Omer Levesque flew in the Second World War and had been the first RCAF pilot to see action in Korea (flying North American F-86 Sabres on exchange with the United States Air Force). Navigation expert Keith Greenaway, test pilot Al Lilly, bush pilot Francis Roy Brown and transport pilot Robert Bruce Middleton would eventually be admitted to Canada’s Aviation Hall of Fame. Ultimately, the 1951 McKee Trophy winner was Phil Garrett of de Havilland Canada (who would receive the trophy again in 1966).

For purposes of this foray, however, allow me to concentrate on Inspector Philip Barry Cox. The nomination itself was sponsored by a small Who’s Who of Canadian aviation – C.H. Wilson (Department of Transport), bush pioneer W.L. Brintell, J.C. Austin of Austin Airways, and former McKee Trophy winners Tom Reid and Dan McLean.

Born in Fredericton, New Brunswick, in 1909, Cox had joined the RCAF as a Provisional Pilot Officer in 1927. After three summers of instruction at Camp Borden, he was awarded his wings. He took a seaplane course at Vancouver early in 1930, and then went to Winnipeg Air Station where he was involved in forestry and photographic flying and crop dusting experiments. Cox resigned his RCAF commission in April 1932, joined the RCMP (Reg. No. 10982), and was a general Constable in Quebec and the eastern Arctic. When the RCMP organized its own Air Division in 1937, he was enrolled as one of its first pilots. The nomination declared, “His name became synonymous with the numerous coastal patrols flown in the vicinity of the Maritime Provinces which effectively curbed the rum running activities prevalent in that part of Canada.”

During the war, the RCMP had the majority of its aircraft transferred to the RCAF, and the Air Division was virtually stood down. Cox rejoined the RCAF, serving in Canada and rising to the rank of Squadron Leader. When the RCMP Aviation Section was provisionally revived in 1946, he was appointed as its chief. There was much work to be done. Budgets were tight; it was his task to prove the potential of aviation in the policing field with limited resources. The pre-war de Havilland Dragonflies had been handed over to the air force, then to civilian companies. Cox had to rebuild the Aviation Section with a hodgepodge of types, some of them wartime leftovers. He was quick to adapt to the Noorduyt Norseman operated by the Aviation Section and took a United States Coast Guard helicopter course, becoming one of the earliest of Canadian “chopper” pilots. Again, the nomination letter speaks for his accomplishments:

From 1946 to 1950, Inspector P.B. Cox explored every possible use to which aircraft could be employed, which also included the use of helicopters. Hampered by the fact that the strength of the Section was remaining static and forced in many instances to employ equipment not completely suited to the task as an expedient by which to prove the feasibility of an operation, he continued his relentless search for the necessary facts and figures.

In 1951 his work had succeeded in having the provisional status removed and the Aviation Section became the RCMP’s Air Division.

Inspector Cox wrote no memoirs, but the July 1957 issue of the *RCMP Quarterly* carried a recollection titled “A Late Confession.” In June 1939 he had been detailed to fly Commissioner S.T. Wood from Moncton to Montreal and thence to Ottawa in one of the Dragonflies. With an incomplete briefing, he took a chance of the weather, and encountered conditions that at times forced him to 11,000 feet – the absolute maximum for the type. When he found the Megantic airport, he attributed it to pure luck. “I said a prayer of thankfulness and with a nonchalance I did not feel, pointed out the airport to the Commissioner, who was leaning over my shoulder. I wanted him to think that I was not at all surprised to be on course.”

Hugh Halliday



YOWza – Images of recent sightings at Ottawa’s Macdonald-Cartier International Airport (MCIA) (YOW)

This page is contributed and coordinated by CAHS Ottawa Chapter member Rod Digney



Prior to departure on 9 December 2017, Air Canada Boeing 767-375 (c/n 24084), C-FCAF, FIN 683, gets de-iced by Aero Mag trucks at the YOW de-icing pad.

© Will Clermont



Air Transat Boeing 737-8FN (c/n 37077), OK-TVM, returns to snowy Ottawa on 30 December 2017 after a trip to warmer southern climes. The Boeing is wet-leased from Czech carrier Travel Services for this winter’s holiday season.

© Will Clermont



Former FlyViking DHC-8-103 (c/n 017), LN-FVA, “Faravid,” had made an overnight stop at Ottawa on 30/31 January 2017 while enroute to Calgary. FlyViking was a short-lived Norwegian commuter airline that ceased operations on 12 January 2018.

© Sean Martin



Resplendent in its new Inuksuk livery, one of First Air’s five Aerospaiale/Aeritalia ATR 42-500 (c/n 510) turboprops, C-FTID, departs Ottawa for Churchill, MB, on 26 January 2018.

© Rod Digney



Dornier Alpha Jet A (c/n 141), C-GQTA, of Top Aces (formerly Discovery Air Defence Services) in the Ottawa MCIA Sky Service hangar. It is one of several aircraft normally based at CFB Bagotville, but deployed to YOW for training missions at CFB Petawawa.

© Rod Digney



Swift Air’s Boeing 737-4B7 (c/n 24874), N802TJ, seen being serviced on the FBO ramp at YOW on 10 October 2017. Based in Phoenix, AZ, Swift Air most often appears here as an NHL hockey charter, but on this occasion it was providing transport for the Roger Waters “Us + Them” concert tour.

© Will Clermont

2018 ROYAL CANADIAN AIR FORCE CF-18 DEMONSTRATION TEAM

The Royal Canadian Air Force CF-18 Demonstration Team Hornet will be painted to commemorate the 60th Anniversary of NORAD (North American Aerospace Defense Command) in 2018. The aircraft will be flown by Captain Stefan Porteous from 433 Tactical Fighter Squadron at 3 Wing Bagotville, Quebec. Following training in Comox, British Columbia, the CF-18 Demonstration Team will be performing in the following cities:

May		August	
5-6	Trenton, NJ, USA	4-5	Vanderhoof, BC
11-12	Colorado Springs, CO, USA	10-12	Abbotsford, BC
19-20	Redlands, CA, USA	18-19	Victoriaville, QC
26-27	Cannon AFB, NM, USA	25-26	Summerside, PEI
		29	Brantford, ON
June		September	
2-3	CFB Borden, ON	1-3	Toronto, ON
13	North Bay, ON	8-9	London, ON
16-17	St. Thomas, ON	15	Gatineau, QC
23-24	Wasaga Beach, ON	16	Ottawa, ON (Battle of Britain commemoration)
		22-24	Sacramento, CA, USA
July		29-30	Hillsboro, OR, USA
7	NAS Yeovilton, UK	October	
13-15	Royal International Air Tattoo, RAF Fairford, UK	6-7	Baltimore, MD, USA
21-22	CFB Cold Lake, AB	13-14	Chesterfield, MO, USA
25	Rocky Mountain House, AB		
28-29	Whitecourt, AB		

ROYAL CANADIAN AIR FORCE SNOWBIRDS 48th SEASON SCHEDULE

May		August	
5-6	Havelock, NC, USA	1	TBD
12-13	Colorado Springs, CO, USA	4-5	Vanderhoof, BC
19-20	Anderson, SC, USA	8	TBD
23	TBC	10-12	Abbotsford, BC
26-27	Wantagh, NY, USA	22	Atlantic City, NJ, USA
30	Port Hawkesbury, NS	25-26	Summerside, PEI
		29	Brantford, ON
June		September	
2-3	CFB Borden, ON	1-3	Toronto, ON
9-10	Niagara Falls, NY, USA	4*	Whitby, ON
13	TBD	8-9	Mont-Joli, QC
16-17	St. Thomas, ON	15	Gatineau, QC
20	TBD	16*	Ottawa, ON (Battle of Britain Commemoration)
23-24	Wasaga Beach, ON	19	Fort Erie, ON
27	Chambly, QC	22-23	NAS Oceana, VA, USA
		29-30	Hillsboro, OR, USA
July		October	
1**	Parliament Hill fly-past, Ottawa, ON	6-7	TBD
7-8	Southport, MB	13-14	Fort Worth, TX, USA
11	Flin Flon, MB	19***	Moose Jaw, SK (Home Closer for Military Families)
14-15	Regina, SK		
15	Moose Jaw, SK	Legend:	
18	Camrose, AB	* Non-aerobatic performance	
21-22	CFB Cold Lake, AB	** Fly-past	
25	Rocky Mountain House, AB	*** Not open to the general public	
28-29	Whitecourt, AB		

THE RCAF FLYERS WIN HOCKEY GOLD



The RCAF Flyers hockey team in action against Sweden's national men's hockey team at the 1948 Winter Olympic Games in St. Moritz, Switzerland.

© www.bac-lac.gc.ca

This month marks the 70th anniversary of the Royal Canadian Air Force Flyers' hockey team gold medal win at the 1948 Winter Olympic Games in St. Moritz, Switzerland.

In 1947, the International Olympic Committee had announced changes that disallowed the winners of the Allan Cup, who normally represented Canada in hockey, from being eligible to compete. Canada had won the hockey gold in 1920, 1924, 1928, and 1932; however, in 1936 the British had won the gold medal with a team stacked with Canadian or Canadian-raised players. There had been no Winter Olympic Games during the Second World War and the 1948 Games would be Canada's first chance to reclaim its hockey gold, and it looked like we would not be sending a team!

In September 1947, RCAF senior medical officer Squadron Leader (S/L) Alexander "Sandy" Watson obtained support from the Defence Minister, the Air Marshal, the Chief of the Air Staff, and the Canadian Amateur Hockey Association for his idea of forming an RCAF hockey team to represent Canada at the Olympics.

S/L Watson and team coach Sergeant Frank Boucher (nephew of Ottawa Senators' great Frank Boucher) immediately held tryouts and put together a team of the best amateur hockey players in the RCAF. Unfortunately this team proved to be disappointing, losing in exhibition games to teams from McGill University, and the Canadian Army. Not to be deterred, S/L Watson and Sgt. Boucher widened their search for the top amateur players in Canada.

The new team would consist of the best amateur hockey players serving in the RCAF, called up from the RCAF Reserve, re-enrolled former RCAF and Canadian Army members, civilians recruited specifically for their hockey skills, and two former members of the Royal Canadian Navy who joined as civilian volunteers. The Flyers starting goalie couldn't go and a last minute civilian replacement, Murray Dowey, was found and sworn in to the RCAF hours before the team was due to depart for Europe.

Arriving overseas, the Flyers put up with poor food and accommodations as they played exhibition games in England and on the Continent to raise money to fund their trip to the Olympics.

The Flyers played their first Olympic game on January 20, 1948 against the Swedish team, whom they beat 3-1. On the third day of the Olympics, the Flyers won against the defending British gold medal team 3-0 in a blizzard. The Flyers continued their winning streak, beating the Poles (15-0), the Italians (21-1), and the Americans (12-3). They tied the Canadian-coached Czech team 0-0. Game 7 saw the Flyers defeat the Austrian team 12-0. The gold medal game was to be the Flyers vs. the Swiss team. Despite poor ice conditions, refereeing bias, and hostile crowds (reportedly throwing snowballs at the Canadian players), the RCAF Flyers beat the Swiss team 3-0 and recaptured the gold medal in hockey for Canada!

Prime Minister William Lyon Mackenzie King telegraphed his congratulations and when the Flyers arrived back in Ottawa they were paraded through the streets. The team was officially disbanded April 11, 1948. The RCAF Flyers were inducted into the Canadian Armed Forces Sports Hall of Fame in 1971 and the Canadian Olympic Hall of Fame in 2008.

Kyle Huth



RESEARCH CORNER

Please consider submitting your own research interest to the Editor [for inclusion in future issues](#) of the *Observair* Research Corner. Maybe you might be interested in joining the Research and Projects (*aka* Prayer) Group? We usually meet the second Tuesday of each month at 7:00 pm in the Board Room of the Canada Aviation and Space Museum. Please contact John Henderson if you are interested in attending.

NEXT MEETING OF THE OTTAWA CHAPTER CANADIAN AVIATION HISTORICAL SOCIETY



Drones: Democratizing Aviation. The Canadian UAV industry past, present and future.

The Canadian UAV industry has roots stretching back to the Canadair CL-89 program. Today, the industry has grown to a 1000 companies, and has doubled in size every two years over the past decade. The presentation will describe the recent growth in the Canadian UAV industry, its characteristics and what is anticipated to happen over the next few years.

Mark Aruja

Mark Aruja is the Chairman of Unmanned Systems Canada, a national not-for-profit association established in 2003 which promotes the interests of the unmanned systems community. Mark is a 32 year veteran of the Canadian Forces and spent 12 years working at Thales. He was the first Commandant of the Canadian Forces Experimentation Centre which undertook the first comprehensive UAV trials.

LOCATION: M. Bélanger Theatre, Canada Aviation and Space Museum, Rockcliffe

DATE/TIME: Thursday, 22 February 2018 – 1930 Hours

LANDING FEES: \$1.00

Meetings include guest speakers, films, slide shows, coffee and donuts

Visitors and guests are always welcome