

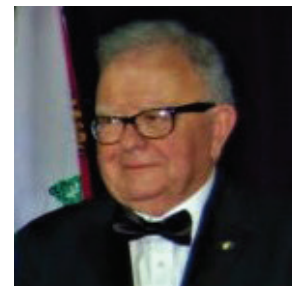
## November 19, 2020 CAHS Toronto Chapter Zoom Meeting

**Topic:** Buffalo and other Beasts of Burden

**Speaker:** Tom Appleton, Aviation Consultant

**Reporter:** Gord McNulty

Forty-seven members and guests of the Toronto Chapter and CAHS National tuned in for our second ZOOM meeting, focused on Tom Appleton's exceptional career at de Havilland Canada. John Bertram, Chapter 1st Vice President, presided at "Master Control" while Chapter President Sheldon Benner introduced everyone. Geoff Pyne, Chapter 2nd Vice President & Acting Secretary, introduced Tom. After interesting ventures in the aerial survey business, Tom joined de Havilland Canada as a pilot in 1966. He developed his skills as a test and demonstration pilot on several DHC types. In 25 years at de Havilland, he moved on to become Vice-President of Customer Support and later VP of Sales. During the subsequent Bombardier ownership, Tom was Executive VP of the Regional Aircraft Division from 1991 to 1996 among other things. Tom is also a past president of Canada's Aviation Hall of Fame and now leads a respected and successful aviation consultancy.



Speaker -Tom Appleton



Tom began his well-illustrated slide show by recalling he had an early passion for aviation and joined the air cadets in hope of getting a flying scholarship from the air force at age 16 or 17. However, the air force turned him down because of his glasses. Tom learned to fly at the Ottawa Flying Club, starting with the popular Fleet Canuck. The chief instructor then directed him to Spartan Air Services, which shared hangar space with the club. Spartan offered Tom a job as a navigator for the summer of 1961.

Tom basically "held the map for the pilot" on a Beech 18 and other aircraft. He was put on an Aztec the next summer and flew to the Arctic. He showed a shot of a Spartan Mosquito at Norman Wells in the Northwest Territories in 1962. The Mossie was finishing high-level photography for the government's huge task of mapping the Arctic. It could take pictures of the mountainous areas just west of Norman Wells, which had been notoriously difficult to photograph cloud-free. Tom was lucky enough to fly the Mosquito a couple of times, though unfortunately not on operations. Tom then moved to Canadian Aero Services, whose fleet included aircraft such as a Canso, the well-known CF-JJG, equipped with an electro magnetometer transmitter that involved a cable around the aircraft from the wingtip to the nose. Underneath the tail was a bomb-shaped "bird," hanging on a 500-foot cable dangling behind. They flew the

aircraft at 375 feet above ground. The Canso flew relatively slowly with all of the drag. As they went up a hill, the “bird” would swing underneath and forward, and drop down. In effect, they were flying the “bird” rather than the airplane. The crew couldn’t see it behind them, so they had to be very careful.

Tom made a career change in 1965. He was in the Yukon, playing poker with other pilots grounded by bad weather, when he noticed a Canadian aviation magazine with an advertisement by de Havilland Canada seeking test and demonstration pilots. Tom then met Dave Fairbanks, an American who came to Canada in 1941 before the Pearl Harbor attack. Fairbanks joined the RCAF, with a note of permission from his widowed mother. He was a natural pilot, instructor and an excellent leader. Fairbanks was eventually sent overseas, where he was one of very few pilots to receive three DFCs and two bars. Fairbanks was attached to the Royal Air Force and saw extensive combat flying the Hawker Tempest. Tom joined de Havilland in February, 1966, as the Twin Otter program ramped up. He was sent to the High Arctic to retrain pilots for a company that had the second Turbo Beaver delivered and had initially burned up a couple of engines. Tom did the repairs and was asked by the owner if he’d fly some trips as they were short of pilots. They were bringing fuel barrels to unload but the job involved landing at a place Tom had never been to before: the Melville Ice Cap. Upon landing, the tundra tires broke through the ice and they ended up on the nose of the aircraft. It was Tom’s first flying job for de Havilland! An Otter was sent to pick them up after what was Tom’s one and only time that he bent an airplane.

In August, Tom went to the Caribbean and Colombia for a Twin Otter sales tour. The small island of Saba had a runway only 1,300 feet long. Nearby St. Barts also had a challenging short runway. The regional airline, Winair, is still operating Twin Otters with a flawless safety record. Tom was then assigned to the first production Twin Otter, with a full interior, to visit the Farnborough Air Show to launch a four-month tour. The demonstrator, painted in Trans-Australia Airlines colours, looked good and created lots of interest. Tom was introduced to key people like John Cunningham, RAF night fighter ace who became de Havilland’s chief pilot and later an executive. Tom went on to Italy, North Africa and the Middle East. In mountainous Nepal, he experienced the short runway at the famous Lukla airstrip, with an elevation of 9,000 feet. The runway was as short as 1,300 feet. He went there a couple of times to see if they could get tourists in and out, but there wasn’t any way to expand the runway. Tom also recalled a two-or-three month water bombing competition with a Canadair CL-215 in Spain. The Twin Otter was equipped with an innovative fabric-bottomed tank created by Field Aviation. It could be sliced open by four knives, one on each axis, that would drop water in a solid block. However, after a few drops, the motors operating the knives would be jammed by sand and had to be disassembled. The CL-215 won the contract.



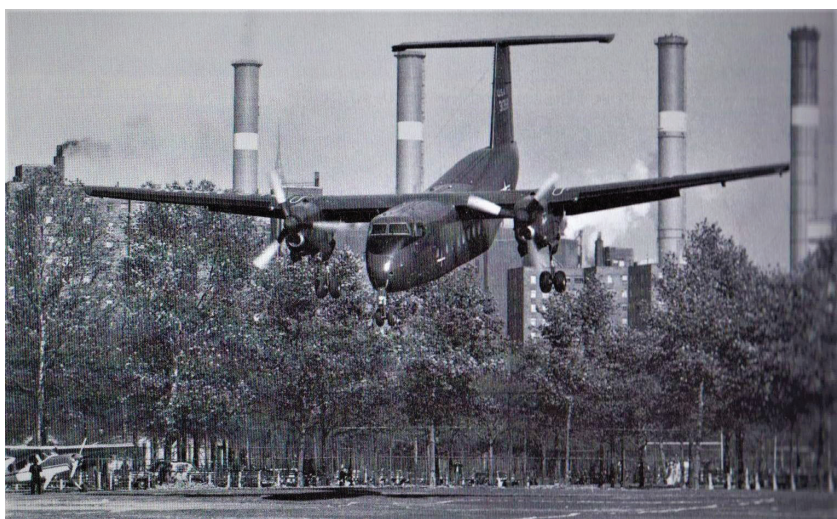
Winair DHC-6-300 Twin Otter Courtesy - Breidenstein.org.

Tom later spent a couple of months flying the Caribou in training pilots at Abu Dhabi. Moving on to the amazing DHC-5 Buffalo, first flown in 1964 with exceptional STOL capabilities, Tom recalled the “Metro 66”



evacuation demonstration in Manhattan in 1966. STOL aircraft like the Buffalo, Twin Otter, Helio Courier competed to display their capabilities. In a famous demonstration, Dave Fairbanks landed and took off the Buffalo on baseball diamonds on Governor's Island in the Hudson River. The Twin Otters operated on abandoned piers in the river. The U.S. Army, meanwhile, took both Buffalo prototypes to Vietnam for testing. It was very successful, but unfortunately the U.S. Air Force wasn't happy with the U.S. Army gaining additional lift capability. Defence Secretary Robert McNamara opted to restrict the army to a maximum payload of 12,500 pounds, thus eliminating the Buffalo. The army gave the Caribous that had served with distinction in combat to the air force. The USAF was short of pilots at the time and didn't realize the problems of flying Caribous in and out of difficult small airstrips in Vietnam. The accident rate increased rapidly and air force Caribou operations lasted only a year or two before they were pulled from service. The army, meanwhile, purchased a fleet of Chinook helicopters to do the job while the USAF moved to the Lockheed Hercules.

The DHC-7 (Dash Seven) quiet-STOL airliner made its first flight in 1975 and Tom became involved in the engineering side of aviation. DHC chief engineering test pilot Bob Fowler suggested that Tom take over the Buffalo as project test pilot and fly the Dash 7 as well. Tom flew with Bob in some challenging STOL test flights on the Dash 7. During a landing test, the stress on the aircraft was such that it approached a stall, the nose began to drop rapidly and Bob had to recover it safely while Tom attended to the flaps and landing gear. The test



Buffalo Demonstration Governor's Island Park New York City 1966.



U.S. Army Caribou at the DHC plant. (via Jack McNulty Collection).



The General Electric CT-64 Free Turbine Engines provided excellent power for the Buffalo's Missions.





DHC-5D Heavy Weight Buffalo.



Brazilian Air Force Buffalo on an interior airstrip *Photo Courtesy - JetPhotos.com.*



Brymon Airways DHC-7-110 G-BRYA making the first approach and landing at Heron Quay June 27 1982.

resulted in leading edge droops on the outboard wing section, although it did cause extra drag and the loss of five or six knots of windspeed. The General Electric CT-64 was the heart of the Buffalo program. It was an “absolutely fabulous” engine, though the original version was very complicated mechanically. Tom flew certification tests that demonstrated the excellent performance of the DHC-5D version in 1976, setting time-to-height records for turbine-powered aircraft. The D version had a 20 per cent increase in gross weight and upgraded engines that proved really successful. Tom delivered Buffalos to air forces in countries such as Peru and Brazil where the Buffalo readily adjusted to the demands of high-elevation airports and flying over jungles in the Amazon. Tom had a couple of flights in the ACLS Buffalo, an experimental aircraft with an air cushion landing system enabling landings on rough terrain, mud and water. It was complicated, however. Interest sagged when the Chinook helicopter matched the long range of the Buffalo.

With the Dash 7, Tom also flew steep approach testing at the Avon Stolport in Vail, Colorado, where the crew faced various hurdles to meet requirements of Transport Canada, the British C of A, and the FAA.

Brymon Airways flew Dash 7s from Aberdeen to Unst in





Brymon Airways DHC-7-110 Flown by Captain Harry Gees' taxiing in at Heron Quay June 27,1982.



the Shetlands for 16 years. Using a short 2,100-foot long runway, often in foul weather, Brymon flew oil rig workers --- 50 at a time --- for transfer to helicopters taking them to the rigs. The companies had lost crews in helicopters, including a Chinook that went down with about 30 passengers. They felt it safer to use a fixed-wing aircraft and then transfer to smaller helicopters to the rigs. Despite the horrible weather, Brymon had an accident-free record. The operation was shut down when the North Sea ran out of oil. In the summer of 1982, while Tom was VP of Customer Support, was contacted about the hijacking in Honduras of a Dash 7. The passengers included 16 American employees of the United Fruit Company. American special forces didn't know anything about the Dash 7. DHC, however, assisted by sending a repossessed Spantax Dash 7 that was sitting on the ramp at Downsview to Honduras with Transport Canada's permission. Tom was part of a four-member crew. Leaving Tampa, FL, in the afternoon, they faced a challenging flight over the Caribbean at night with most of the airports and radios shut down. It was a "long and quiet" flight through thunderstorms until they arrived at Tegucigalpa, where they landed with minimum lights. The crew were taken to a hotel, where the special forces were instructed how to open the Dash 7. Within half an hour, the hijackers were arrested. Only two passengers had minor injuries. The crew enjoyed the return trip with the Americans.

In June, 1982, Brymon conducted a STOL demonstration, landing a Dash 7 on a quay in the Thames River just east of London. Steeper-than-average trial landings were conducted and the program led to the development of London City Airport. Brymon operated from there for several years until the British pound collapsed. The airport was eventually sold to British Airways, who sold it to Irish businessman Dermot Desmond. In 2016, the airport was sold to a consortium including



DeHavilland Canada DHC-7-102 Dash-7 Tyrolean Airways AN2326392.

the Ontario Teachers Pension Fund. As Tom noted, London City Airport would not have happened without the Dash 7. Tom also described other high-altitude steep angle flying, operating on “a one way in, one way out” procedure. The Austrian-based airline, Tyrolean, was an example. Pilots had to take special training for these flights, some of which involved places where there wasn’t enough room for a go-around from about a quarter mile to the destination. Tom noted the Dash 7, however, was really manoeuvrable and capable of managing difficult conditions.



The NASA- DHC Augmentor Wing Buffalo powered by two Rolls Royce Spey Turboprops *Photo - DHC.*



Carrier Trials of the NASA Quiet Short Haul Research Buffalo powered by four Lycoming Turboprops.



Tom discussed the Augmentor Wing Buffalo, for research into using powered lift for STOL operations. It featured a special modified high wing, high tail and slotted flaps enabling the aircraft to fly at extremely low speeds for short landings and takeoffs. Rolls Royce Spey turbofan engines were installed in place of GE CT64s. Tom flew the aircraft once with Seth Grossmith, the NRC test pilot who flew most of the program. Boeing developed an alternative configuration, featuring four Lycoming turbofan engines on top of the wing, as a Quiet Short Haul Research (QSHR) Aircraft. As sophisticated as it was, the Augmentor Wing Buffalo didn't succeed as a commercial proposition. In the end, DHC would have had to finance what would have been a very expensive program on its own. It couldn't happen without the help of a military contract.



Prototype Dash 7, C-GNBX, was donated by DHC to the Canada Aviation and Space Museum in 1988. Unfortunately, sales of the Dash 7 in the U.S. market proved difficult when fuel prices rose in the 1973 energy crisis. Tom said the Dash 7 was technically a wonderful achievement. It was profitable at fuel prices of 30 cents a gallon, but steadily rising fuel prices made the four-engined aircraft much less economical. Remarkably enough, the first production Buffalo, RCAF 115451, is still flying today. Tom noted it was originally the ACLS Buffalo, rebuilt for air force service. Tom is hoping it will also find a home at the museum. Tom answered a number of questions for his superb presentation, enjoyed by everyone. We thank Tom on behalf of the Chapter executive and members.

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## Appendix

Successor to the Buffalo is the Airbus CC-295 “Kingfisher”



A Buffalo CC-115 patrolling with a Labrador Helicopter in B.C. *Photo Courtesy - DND.*