



Naming Ceremony of KB700 Ruhr Express, August 6, 1943. *Photo Courtesy Nanton Lancaster Society*

Last Month's Meeting

March Meeting

Topic: Canadian Lancaster Production in World War II

Speaker: Frank Harvey, President of the Aerospace Heritage Foundation of Canada

Reporter: Gord McNulty

CAHS Toronto Chapter President Howard Malone introduced Frank W. Harvey, of Mississauga, president of the Aerospace Heritage Foundation of Canada (AHFC) based in Toronto. The AHFC is a federally chartered non-profit organization with a special emphasis on the history of Avro Canada and Orenda Engines Ltd. at Malton. Before coming to Canada, Frank served as an apprentice with de Havilland Aircraft at Hatfield, England. Gaining experience in all phases of aircraft manufacturing and testing, Frank worked on aircraft from pre-war biplanes to modern jet fighters and commercial aircraft including the de Havilland Comet, the first jet airliner to fly and enter airline service in

the world.

At Avro Canada, Frank worked on both the CF-100 Canuck and CF-105 Arrow. He did repair and overhaul on the CF-100, and performed modifications on the CF-100 at various RCAF bases. He then worked in the Experimental Flight Test Department on the Arrow at Malton. When the Arrow was cancelled on Feb. 20, 1959, Frank was one of about 14,000 Avro and Orenda employees who lost their jobs.

Along with his father, he attempted a business venture which did not proceed. Frank returned to the Malton plant, which had been acquired by de Havilland Canada, in 1963. He worked on the Caribou, Buffalo and Turbo Beaver, then moved on to the Douglas DC-9 when Douglas Aircraft of Canada, which later became McDonnell Douglas Canada, began subcontracted production of wings and rear fuselage components for the DC-9 at Malton.

Frank completed assignments in various areas of manufacturing over the next few years. He was S.B.U. (Strategic Business Unit) Leader on the MD80/90 Leading Edge program, in control of both fabrication of parts and assembly

of components. Since retiring in 1992, Frank has been retained on numerous occasions as a manufacturing consultant on new projects by both McDonnell Douglas and Boeing. He also has experience on MD80 assembly and fabrication for the Xi'an Aircraft Company of Xi'an, China. He is also a member of the de Havilland Aeronautical Technical School Association.

Frank displayed many fascinating, irreplaceable slides of wartime production of the Avro Lancaster Mark X by Victory Aircraft Ltd. at its legendary Malton plant. Victory took over the plant from National Steel Car in 1942, then it became Avro Canada in 1945. The AHFC acquired the photos from Hawker Siddeley Canada, which wanted to get rid of them, and what a surprise they turned out to be. More than 600 original negatives were scanned and preserved for future generations. Frank showed about 230 of the most interesting shots for his presentation. The first few photos, from AHFC files, showed the prototype Lancaster X, KB700, the famous *Ruhr Express*, which first flew on 1 August, 1943. A large crowd attended the official naming ceremony on 6 August at Malton. Other RCAF aircraft that were built at Malton, including the Avro Anson II and the Westland Lysander, which was the first aircraft built at Malton when the plant was owned by National Steel Car, were in the background. The AHFC



The Sad End to the Ruhr Express. *Photo Courtesy Nanton Lancaster Society*

received several photos showing the arrival of KB700 in England on 15 Sept. Unfortunately, the *Ruhr Express* was lost on 2 January, 1945, on returning from a raid. It overshot the runway, hit a tractor and burned, but with no injuries to its crew.

Many photos illustrating the busy Victory workplace showed women performing various tasks, whether on the production line or in the office. The Victory employment office was on University Avenue, where recruits were interviewed, fingerprinted and given medical training. Most recruits didn't have any aircraft experience, so a training school had to be set up near the plant. Dormitory units were also built for some employees. Women proved to be as capable as men at riveting, welding, assembly and performing other skills as required. In late 1944, a fire broke out at the training school. That wasn't the only setback --- a train that carried workers to the plant every day crashed and the employees were photographed as they walked to work. Various photos showed work on the fuselage sections, cockpit sections, engine mounts, the jigs, delivery and installation of gun turrets, undercarriage supports, the engine shop, the presses, and more. The work stands were made of wood.

High-ranking RCAF officers regularly visited the production line. One photo showed Ernest Taylor, the chief test pilot. As production increased, Lancasters were parked all over the site. In fact, the wing span of the bombers proved to be too wide for the congested assembly bay, so the aircraft were rolled outside to the field, where the wingtips were installed later. Some photos showed pilots accepting various Lancasters. One Lanc was named *Malton Mike*. Its story is a mystery, in that the number of the aircraft isn't shown in the picture. An open house was held at the plant in September, 1944 and it attracted a huge crowd.



FM400 York at Victory Aircraft. *Photo courtesy Nanton Lancaster Society*

The photos included several rare shots of the sole Avro York, serial FM400, built by Victory Aircraft. A surprising number of shots showed the York in flight. As described by Kenneth Molson and H.A. Taylor in *Canadian Aircraft since 1909*, the York was a British wartime conversion of the Lancaster to transport use and had a large square-section fuselage suspended below a Lancaster wing. The Lancaster powerplants and undercarriage remained. In 1943, Victory received an order for 50 aircraft. The first 25 were to be divided between TCA and the RCAF with the balance for future allocation. TCA then decided that the York's large rectangular fuselage would introduce an unacceptable icing hazard on the North Atlantic route and in addition would be unsuitable for pressurization if later required. So the airline decided to introduce the Lancaster XPP passenger plane instead and the York program was cancelled.

FM400, however, was completed and first flown at Malton on 14 November, 1944, by Ernest Taylor, co-pilot Don Rogers and flight engineer W. Duncan. It was delivered to the RAF in January 1945. Don was shown in one celebratory photo after the first flight. Frank

recalled that management and supervisory staff enjoyed a long tradition of special occasion alcohol at the plant. The custom ended when McDonnell Douglas took over. The York was taken over by Ferry Command and later registered in Britain as G-ALBX. It was lost in a hard landing during the Berlin Air Lift in June 1949 after completing 467 trips to the city as a tanker. Frank noted that it was also the only York built with a level floor. In all of the Yorks built in Britain, the floor followed the curvature of the fuselage. However, TCA decided that would be too difficult for the stewardesses pushing the trolleys, so the airline chose a level floor.



Lancaster XPP. *Photo Courtesy Nanton Lancaster Society*

Several photos illustrated Lancaster XPPs, which featured numerous modifications to the standard Lancaster bomber. The XPPs were

stripped of all armament, armour plate and other military equipment and had fairings over the turret openings. Other modifications included a streamlined nose with a mail compartment, bomb doors replaced by fairings, de-icing boots on the wings, tailplane, and fins, two long-range fuel tanks in the bomb bay, dual controls, and more. Five passenger seats with individual windows were provided on each side. Frank indicated that the speed of the Lancaster XPP was comparable to the Douglas DC-4. In their book, Molson and Taylor state the average trans-Atlantic crossing time for the XPP appears to have been about 13 hours, 25 minutes, but under favourable conditions faster flights were frequent. The maximum speed for the XPP was listed as 310 mph at 12,000 feet; cruising speed 275 mph at 11,000 feet. In comparison, the maximum speed for the Lancaster X was listed at 272 mph at 15,850 feet; cruising speed 200 mph at 15,850 feet approx. The XPPs continued in service for TCA after the war on the Atlantic route until they were replaced by the Canadair North Star in April 1947.



Avro Lincoln FM300 at Victory Aircraft. *Photo Courtesy Douglas Aircraft*

Frank also showed a photo, provided by Douglas Aircraft, of the only Avro Lincoln ever built at the plant. The Lincoln was pictured as the engines were running up. A development of the Lancaster, the Lincoln had a new nose section, a stretched rear centre section of the fuselage, slightly enlarged rudders, and a new and larger outer wing with more powerful Merlin

engines and other upgrades. The RCAF intended to acquire 200 Lincolns to equip the heavy bomber squadrons forming the RCAF contribution to the Tiger Force, a joint Commonwealth effort in the war against Japan. However, the program was cancelled after the Japanese surrender on 15 August, 1945. The first and only Lincoln, FM300, was completed and flown for the first time on 25 October, 1945, by Ernest Taylor and crew. Molson and Taylor state that “this may in fact have been its only flight.”

Frank fielded numerous questions. He said that a total of approximately 430 Lancasters were built. At the peak of production, Avro was completing one aircraft a day. The sometimes overlooked history of the Lancaster XPP is a fascinating part of the story. Carl Mills, the authority on the Silver Dart who was our speaker at the February meeting, has done extensive research on the Lancaster XPP. He is an excellent contact for anyone who is interested in learning more on the subject.

Howard Malone expressed his thanks to Frank for a presentation which richly illustrated a significant part of Canada’s aviation history during the war years. The photos were remarkable and many had never been seen by Chapter members before. Frank’s presentation underlined once again how this story resonates with many people in Toronto and area, who are proud of the many accomplishments at Malton. Chapter Secretary-Treasurer Bob Winson presented a gift to Frank on behalf of the Chapter directors, members and guests.