

# FLY NORTH

Volume 12, Number 3:  
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## NEWSLETTER OF THE NORTHWESTERN ONTARIO AVIATION HERITAGE CENTRE

**Preserving and celebrating the diverse history of aviation in the northwest, through the collection and preservation of artifacts and stories of the persons and events that made this region unique in aviation history**

### NOAHC News -----

#### *A note from the President*

The NOAHC Board has been in recent discussions (email) about the reopening of the centre at 905 Victoria Ave. Although this community has not seen a spike in cases since the Phase 3 reopening by the province, other parts of the province and country have.

We will soon have the schools open and in time will see the impact of that on our Covid case numbers and whether the schools can stay open. The NOAHC Board members want to open the Centre, but most of the Board feel very cautious about the timing of opening.

Our decision is to complete our work to get the centre "ready" but to hold off opening until we confirm that our volunteers, our visitors, and our community will be safe.

It is anticipated that the first service that we will be able to open will be sales and membership renewals from the front counter.

A plastic shield has been installed at the front desk, several hand sanitizer stations are being set up and prior to the opening the Centre will be cleaned and sanitized for the safety of visitors and volunteers. Masks will be required for visitors and volunteers. The number of persons allowed in the Centre at any one time will depend on how well we can cope with social/physical distancing requirements and that has yet to be decided. Because of the potential for the virus to be spread through touching contaminated surfaces, the Flight Simulator will be off-limits as will be the interactive computer screens and the library. We are monitoring the situation at other museums and when we consider the time is right, the opening date will be announced to our NOAHC members via e-mail.

So that is our COVID story, thanks members for your patience!

You can reach us by leaving a message on the phone, 807 623-3522 or by email (preferred) at [noahc@tbaytel.net](mailto:noahc@tbaytel.net).

Elizabeth Wieben, President, for NOAHC Board

### Board Activities

Although the Centre has been closed for six months now work still goes on. The Board executive, for example, has been busy dealing with the financial issues that have arisen as a result of the closure. With the help of the federal government, our landlord has been able to provide rent relief and additional sources of funding are being explored. Two new exhibits will be ready for display when the Centre opens again. One will deal with the accident that claimed the life of the Fort William Aero Club's (FWAC) chief instructor and the other will provide information on the flying clubs that existed in the early days of aviation in the northwest. Denise Lyzun, who is creating the flying clubs display, is searching for material and pictures of the other clubs in the northwest, at places such as Kakabeka Falls, Dryden and Geraldton, for example. If you can help, please contact Denise at [noahc@tbaytel.net](mailto:noahc@tbaytel.net).



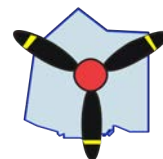
*FWAC flying display - 1938*



*FWAC aircraft*

### Inside this issue:

2. A Lakehead Aviator
3. Past and Future
4. Lifting Fuselage Designs



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## *A Lakehead Aviator: Lionel Stewardson*

Lionel Stewardson was born in Fort William in 1903. He attended and graduated from Fort William Collegiate sometime around 1922. His aviation career began in late June, 1929 when he took flying lessons with James Dickie at the Fort William Aero Club (FWAC). Instruction was in the club Gipsy Moth (CF-CAS) and he received his private pilot's licence in September of that year. He achieved his commercial rating in 1931 and in the same year began active service in the Canadian Non-Permanent Active Air Force (NPAAF), the Air



***Lionel Stewardson (r) and Bill Muzyka (l)  
at Camp Borden***

Force equivalent of the Army's Militia, being accepted into the navigation course at Camp Borden. Bill Muzyka, another flier from FWAC was also on the course and the two are seen wearing their flying suits in the accompanying photograph. The NPAAF did not involve full time employment and Lionel seems to have worked at the Aero Club at Bishopsfield as a general handyman, fixing aircraft and anything else that needed doing. On the basis of his experience working on the Club planes, he applied for an Air Engineering Certificate. In 1933 he received his engineer's certificate valid for work on the D.H 60, Gypsy Moth and the D.H. 82, Tiger Moth. He was also interested in undergoing a formal apprenticeship as a mechanic but does not appear to have followed through with it. In 1934, Lionel was discharged from the Air Force. He did not return to serve during WW2, perhaps because of his age, being that he was about 36 or so at the outbreak of hostilities. In 1933, Lionel bought a used Fairchild FC-2 with skis and floats as well as a spare engine, all at a price of \$1,500. Its registration was G-CARE. (The prefix 'G' is the British designation, which was used on Canadian aircraft until the introduction of the prefix 'CF') With it he operated a freight service, but it must have been a tough go in the "dirty 30's" as he sold the airplane to the Government of Manitoba in early 1935. At that point, he seems to have given up flying.

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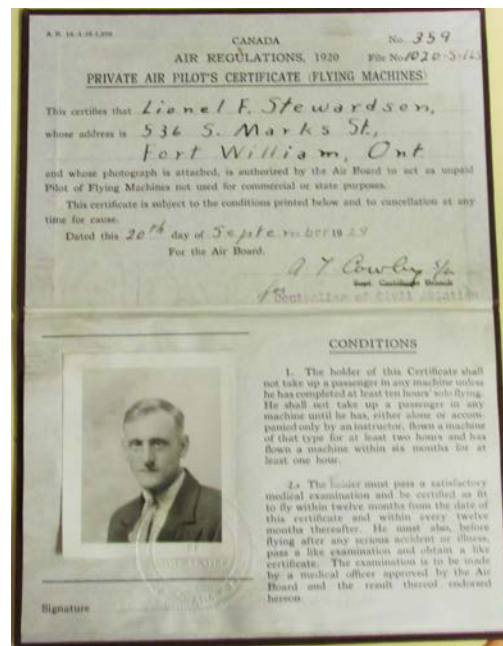
30's" as he sold the airplane to the Government of Manitoba in early 1935. At that point, he seems to have given up flying.

Instead he opened a garage on the corner of Leith and May Street in 1936 and operated SKS Garage with his brother Bill Stewardson, and a cousin by the name of Kleinendorst, hence the name SKS. They later relocated across from City Hall on Donald and Archibald. In 1973, they shut down the business. Lionel's brother Bill, eventually went to work for de Havilland in Toronto and had a part to play in the establishment of the Bomarc missile program. Lionel remained in Thunder Bay and worked for Klomp-Wakefield Dairy as a mechanic for 11 years, before retiring in 1984.

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Lionel Stewardson died in Thunder Bay on June 5, 1992 at the age of 88.

NOAHC appreciates the donation by the Stewardson family of artifacts, pictures and documents related to Lionel's aviation activities.



***Lionel Stewardson's private pilot's  
licence, issued September 20, 1929***



***Lionel Stewardson's flying helmet and goggles***

***Research and text by David Bryan***

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NOAHC continues to host a monthly bingo at the Superior Shores Gaming Association on Memorial Avenue. The returns from these events make an important contribution to the Centre's revenue.

**Jay Caldwell**  
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## Past and Future

Part of NOAHC's mandate is to celebrate the diverse history of aviation in the northwest and that is what *Fly North* usually does. Sometimes past history is brought into the present when, for example, the restoration of an aircraft associated with the area makes news or when the Centre receives the donation of a recently discovered artifact of local interest. The story on page 4 of this issue takes that one step further extending an aircraft design associated with Thunder Bay into the future. The design was the lifting fuselage concept of Vincent Burnelli, which Can-Car planned to incorporate in one of its aircraft designs. The concept has been re-evaluated recently by Larry Pope and the results of his efforts will take Burnelli's ideas well into the future.



*An early Burnelli lifting fuselage design.  
Compare with the futuristic designs on page 4*



*NEAM via Larry Pope*

*The CBY-3 Loadmaster designed by Vincent Burnelli  
for Canadian Car and Foundry*

## *Aircraft of the future inspired by Vincent Burnelli's Lifting Fuselage designs*

Vincent Burnelli was an American aircraft designer who introduced the concept of the lifting fuselage to aviation through the aircraft he designed in the 1920s and '30s. Unlike the tubular fuselages of conventional aircraft his designs incorporated an aerofoil shaped fuselage, which contributed to lift and therefore reduced take-off and landing speeds and distances. His link to Thunder Bay is through the two aircraft he designed for Can-Car in the late 1930s and early 1940s. The first only reached the mock-up stage and the other, the CBY-3 Loadmaster, did not go into production, although it spent time as a freighter in Canada, south America and the United States. It is



currently being restored at the New England Aviation Museum. Burnelli's designs ranged from biplanes to bombers with his final project before he died in 1964 being an SST. NASA produced a similar design,, but not until almost 40 years later and then took it no further.

Despite measurable advantages over conventional aircraft in such attributes as shorter take-off and landing requirements, fuel economy, safety and freight handling, lifting fuselage designs, such as the Loadmaster, did not meet with success.

It could not compete in cost with the surplus of cheap transports after WWII, while



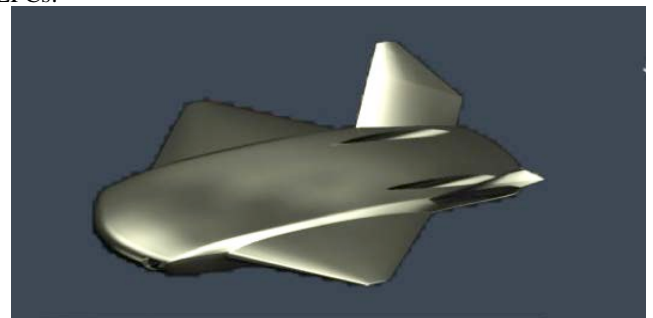
### *Vincent Burnelli's lifting fuselage SST*

aviation companies and airlines were unwilling to invest in new projects even when they offered certain advantages over existing designs. Thus, despite successful freight trials, Can-Car found no market for the Loadmaster and only one was ever built.

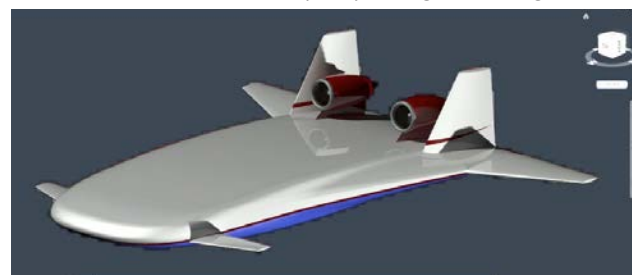
Nevertheless, aeronautical engineers, always in pursuit of increased efficiency, continued to experiment with designs that would increase lift and reduce drag. This led to the development of Blended Wing Designs (BWD) in which there is no clear dividing line between fuselage and wings, thereby reducing drag and, if coupled with an aerofoil shaped body, also increasing lift. Initial issues with the problem of pressurizing a non-cylindrical body have been overcome with NASA's development of a carbon fibre, foam and epoxy composite capable of holding pressure at high altitude. For many, BWD aircraft represent the future of flight. At the same time there are engineers who would like to take the process even further and have re-assessed Lifting Fuselage Configurations (LFC). Studies at the University of Toronto, for example, have shown that aircraft designed with LFC can out-perform BWD aircraft, leading some designers to suggest that it is time to reconsider the ideas originally proposed by Burnelli. One of these is Larry Pope, a Texan, who has long promoted lifting fuselage designs. He has researched Burnelli's earlier designs and contributed to the restoration of the Loadmaster. More recently, however, he has taken Burnelli's SST concept as a starting point and, after discussion and encouragement from individuals at Northrop Grumman and NASA, developed three designs, two airliners and a military transport/bomber, all pictured here. How far these might be developed remains to be seen, but in the words of Larry on LFCs.

***"The only thing holding back this superior design is the will to make the changes. We've been flying the same design for over 100 years with tiny changes to improve flight performance and safety by small increments. The biggest change was from propellers to jets. Isn't it time we made the other big change. It is time to change the body from a log with wings to a wing with wings. It's a good change. Lets do it."***

### *Larry Pope's RC model of Burnelli's SST*



### *Airliner with Boundary Layer Ingestion engines*



***Military, stealth capable transport/bomber with fully embedded engines and frontal in-body air intakes***

***All photographs courtesy Larry Pope***

***Airliner with conventional raised engines***