

Robert Novell Year in Review 2016

Table of Contents

1. NASA's New Cargo Vehicle for The Space Station.....	3
2. Who Was First to Fly Around the World Solo?.....	8
3. The Aviator Who Wrote "The Little Prince"	13
4. Latin American Aviation History We All Should Know.....	18
5. Panagra....The Airline Pan Am Created.....	25
6. The Smithsonian and The Wright Brothers.....	29
7. The Night Stalker.....	32
8. When You Have No Alternates.....	40
9. The Birth of the “Skonk Works”	44
10. Who Conceived of Building the Spruce Goose?.....	48
11. Gone But Not Forgotten.....	54
12. Robert A. (Bob) Hoover Has Departed.....	57

Robert Novells' Third Dimension Blog

January 29, 2016

Good Morning and Welcome to the 3DB,

I hope everyone enjoyed the week and your work was not too taxing on the spirit. Today I want to talk about how a secret soviet project, the MIG-105, looks to have been resurrected by the Sierra Nevada Corporation and NASA.

You decide.....

MIG-105 and The Dream Chaser

The Dream Chaser traces its heritage to the BOR series or uncrewed orbital rocket plane of lifting bodies, which themselves were derived from a 1965 space plane concept, the Soviet MiG-105. The BOR-1 was first tested in 1969, launching to an altitude of 100 km as the Soviets sought to study various heat shields for a winged vehicle.

The Soviets continued a series of test flights leading up to the BOR-4 vehicle, and it began flying in 1980. Although they had discarded the BOR concept for their space plane (choosing instead the shuttle-derived Buran orbiter), Soviet engineers continued to use the vehicle as a means to test the Buran's thermal protection system.



(The Buran Orbiter)

In June 1982, a test flight of the BOR-4 vehicle captured the attention of America's intelligence community. Launched from the Kapustin Yar missile test range in Astrakhan Oblast, Russia, the BOR-4 splashed down in the Indian Ocean, where the Soviets recovered it. During this recovery, a Royal Australian Air Force P-3 Orion reconnaissance aircraft flew over the site and took photos of the space plane.

After the Australians shared these photos with the US Central Intelligence Agency, American spies turned to NASA's Langley Research Center in Virginia to better understand what they were seeing. Using the photos, the Langley engineers reconstructed the BOR-4 and began wind tunnel testing the vehicle. They found that its slanted wings gave the vehicle good stability, and its shape offered exceptional turning and gliding ability.

Now, let's talk about the Boeing lifting body.....

Boeing's X-20



The Dyna-Soar design contract was awarded to Boeing on Nov. 9, 1959, and on June 19, 1962, the Dyna-Soar was designated the X-20.

The Dyna-Soar, designed to be a 35.5-foot (10.8-meter) piloted reusable space vehicle, had a sharply swept delta 20.4-foot-span (62-meter-span) wing and a graphite and zirconia composite nose cap and used three retractable struts for landing. Eleven manned flights were to be launched from Cape Canaveral, Fla., starting in November 1964. Dyna-Soar's first orbital flight was tentatively scheduled for early 1965.

The X-20 reached the mockup stage. \$410 million had been spent on its development, and a cadre of astronauts was training to fly it. However, the U.S. government canceled the program on Dec. 10, 1963, because Dyna-Soar had no viable military mission and was too expensive for a research vehicle. Congress diverted the X-20 funding to the Manned Orbiting Laboratory, which used McDonnell-built Gemini capsules. The partially completed X-20 prototype and the mockup were scrapped as well as initial tooling set up for a production line for 10 space planes.

In 1961, the U.S. Air Force had contracted with McDonnell Aircraft to build six experimental aerodynamic/elastic structures environment test vehicles that roughly resembled the Dyna-Soar.

The scaled-down test vehicles were 5.7 feet (1.7 meters) long and used Douglas-built Thor or Thor-Delta boosters, which in turn used engines built by North American's Rocketdyne division. The program was very successful and demonstrated that winged reentry vehicles could traverse the upper atmosphere.

[Source Document](#)

Now, where did NASA go with the information they obtained from the BOR-4.....

HL-20 Model for Personnel Launch System Research: A Lifting-Body Concept

NASA's Langley Research Center in Hampton, Va., has been studying an enhanced lifting body candidate for manned orbital missions. This concept, designated the HL-20, has been designed for low operations cost, improved flight safety and conventional runway landings.

With increasing national interest in obtaining routine access to space, a number of Earth-to-orbit transportation systems are being studied. One, referred to as a Personnel Launch System (PLS), could utilize the HL-20 and an expendable launch system to provide manned access complementing the Space Shuttle.



(The HL-20 experimental aircraft: NASA)

The PLS mission is to transport people and small amounts of cargo to and from low-Earth orbit, i.e., a small space taxi system. Although not presently approved for development, the PLS is being designed as a complement to today's Space Shuttle and is being considered an addition to the manned launch capability of the United States for three main reasons:

- **ASSURED MANNED ACCESS TO SPACE**
In the era of Space Station Freedom and subsequent missions of the Space Exploration Initiative, it is imperative that the United States have an alternate means of getting people and valuable small cargo to low-Earth orbit and back should the Space Shuttle be unavailable.
- **ENHANCED CREW SAFETY**
Unlike the Space Shuttle, the PLS would not have main propulsion engines or large payload bay. By removing large payload-carrying requirements from personnel delivery missions, the PLS would be a small, compact vehicle. It is then more feasible to design an abort capability to safely recover the crew during critical phases of the launch and return from orbit.
- **AFFORDABLE COSTS**
As a small vehicle designed with available technologies, the PLS is forecasted to have a low development cost. Subsystem simplification and an aircraft approach to PLS ground and flight operations can also greatly lower the costs of operating PLS.

[Read More](#)

What about the Dream Chaser and the company behind this project....

Sierra Nevada Corporation

SNC's reusable Dream Chaser spacecraft is a multi-mission, commercial, lifting-body vehicle capable of transportation services to low-Earth orbit (LEO) destinations, including the International Space Station (ISS). SNC has developed one common Dream Chaser spacecraft airframe, which we call a Space Utility Vehicle (SUV) due to its mission flexibility. However, there are currently two Dream Chaser variants optimized specifically for either uncrewed or crewed missions, known as the Dream Chaser Cargo System and Dream Chaser Space System, respectively. Additional variants may be developed for future mission needs.

The Dream Chaser Spacecraft Airframe Features Include:

- Lifting-body spacecraft with the same outer mold line (shape)
- Capable of autonomous launch, flight and landing (does not require a pilot)
- High reusability
- Low 1.5 g atmospheric entry throughout the entire flight profile
- Gentle runway landing on any compatible commercial runway, both in the United States and internationally
- Immediate access to crew or cargo upon landing

- All non-toxic consumables, including propellants - a historic first!
- Ability to perform an ISS propulsive reboost when docked (lifts ISS to a higher orbital altitude)

About the Dream Chaser Variants

The Dream Chaser Cargo System is designed to deliver up to 5,500 kg of pressurized and unpressurized cargo to the ISS with the ability to conduct orbital disposal services and responsively return pressurized cargo at less than 1.5 g's to a gentle runway landing. This solution meets or exceeds NASA's current cargo transportation requirements. SNC has created an animated critical cargo mission overview video that demonstrates this capability viewable on our YouTube channel. The Dream Chaser Space System is designed to be optionally piloted and transport up to seven crew members and cargo to LEO destinations with a gentle return to a runway landing.

[Read More](#)

So, which came first? Soviet technology or US technology? You decide.....For additional reading click [HERE](#), [HERE](#), and [HERE](#).

Have a good weekend, enjoy time with family and friends, and remember to share your passion for aviation history with others.

Robert Novell

January 29, 2016

Robert Novells' Third Dimension Blog

January 12, 2016

Good Morning and Welcome Back,

Today is all about Wiley Post, the first person to fly around the world solo, and I think you will enjoy the story about an aviation pioneer who accomplished more in seven years than most do in a life time. So, let's begin with a few facts about his early life, followed by a quick video, and a few words from his brother. Then I will wrap it up with a few more facts, and a link to a book titled, "Wiley Post, His Winnie Mae, and the World's First Pressure Suit," that you can download and read at your leisure.

Enjoy.....

Wiley Hardeman Post



Wiley Hardeman Post was born near Grand Saline, Texas in 1898 and moved to Oklahoma five years later. He became enamored with planes as a youth and dreamed of becoming a pilot. His introduction to flying came when a barnstorming troop came to Oklahoma and he filled in for an injured skydiver. Post went to work in the oil fields to earn enough money to buy his own plane. His plans were nearly derailed when he lost an eye in a work-related accident. As a result, Post had trouble with depth-perception, but ultimately he trained himself to gauge distances accurately with one eye. He took the accident compensation, about \$1800, and bought his first airplane. In it he gave flying lessons, flew oilmen to their rigs, barnstormed on the weekends, and on June 27, 1927 he eloped from Sweetwater, Texas with Miss Mae Laine.

In 1928 Post became the personal pilot to F.C. Hall, an Oklahoma oilman. It was in Hall's plane the "Winnie Mae" that Post won the National Air Race from Los Angeles to Chicago in 1930; the first of many accomplishments in the famous aircraft. On June 23, 1931 he and Australian navigator, Harold Gatty, took off from Roosevelt Field in Long Island, with the goal of breaking the record for flying around the world. Eight days, fifteen hours and fifty-one minutes later, the pair touched down again at Roosevelt Field after circling the globe and smashing the previous record of 20 days and four hours. The pair became instant heroes. In July 1933, Post attempted another around-the-world record, only this time he flew solo. He equipped his plane with a Sperry gyroscope and a radio direction finder. He made the trip in seven days, eighteen hours and forty-nine minutes breaking his own record.

In 1934 Post designed his "Man from Mars" flying suit, the world's first practical pressure suit, and made an unofficial ascent to 49,000 feet. The suit facilitated his exploration of the stratosphere and helped pioneer high-altitude flight. Wiley Post predicted the development of aircraft that would provide supersonic transport and the possibility of space travel. He recognized the importance of biological rhythms and the effects of fatigue on pilot proficiency and was one of the first to conduct research in this area.

Post's final flight was with his friend, American humorist and aviation enthusiast, Will Rogers. Rogers had asked Post to fly him through Alaska so that he could gather new material for

his newspaper column. When Post and Rogers took off for Point Barrow, Alaska, on August 15, 1935, the plane's engine stalled and the aircraft plummeted into a lake.



During his lifetime, Post received the Distinguished Flying Cross in 1932 by an act of Congress and won the Collier Trophy in the same year. In 1934 he won the Gold Medal of Belgium and the Harmon trophy. He was given two, New York City ticker-tape parades and the keys to the City. He was honored twice at the White House by two Presidents – Herbert Hoover and Franklin Delano Roosevelt.

From his record-breaking flights to his innovations and explorations, Wiley Post made many vital contributions that advanced the science and theory of flight and made him one of the most celebrated pilots in aviation history.

[Source Document](#)

At this point I think the best way to recap Wiley's life is to let Wiley's Brother tell you of his brother's accomplishments:

Gordon Post Talks About His Brother Wiley

Many rewarding, and some unrewarding, experiences evolve from being the brother of a world-renowned figure. All close relations are extremely proud of the accomplishments and contributions of near and dear kin. Yet, none desire to bask in reflected glory.

Wiley Post, in a short span of seven years, rose from a laborer in the Oklahoma oil fields to a person of world prominence. He was acclaimed world hero by Presidents, the man on the street, and all who knew of his daring achievements in the field of aeronautical science.

Wiley was a barnstormer, speed flier, test pilot, globe conqueror, and a pioneer of pressurized flight. He was twenty years ahead of the field in his thinking with regard to advancement of aviation, and he envisioned the development of air transportation far beyond any dreams of his contemporaries.

At an early age he flew into eternity, accompanied by his close friend Will Rogers, who was known throughout the world as a great humanitarian, the sage of Oklahoma, world citizen, and one who had humble regard for the well being of his fellow man.

It is difficult for me to think of Wiley as a researcher, a pioneer in the field of science, and an explorer in the realm of space. Rather, I remember him as a companion on hot summer nights when we fished and slept on the banks of the Washhita River; during the golden-leafed autumn days when we stalked white-tailed deer in the Big Bend country of Texas; and on the windy wintry days when we hunted ducks on Lake Kickapoo.

This is the way I best remember him, for he was my brother

Gordon Post

Before I wrap it up with the link to the book I would like you to read, I want to talk about the first pressure suit in aviation.



Wiley was seeking to break high-altitude and speed records. Wiley, as well as others, knew that protection against low pressure was essential. Post's solution was a suit that could be pressurized by his airplane engine's supercharger.

First attempts at building a pressure suit failed since the suit became rigid and immobile when pressurized. Post discovered he couldn't move inside the inflated suit, much less work airplane controls. A later version succeeded with the suit constructed already in a sitting position. This allowed Wiley to place his hands on the airplane controls and his feet on the rudder bars. Moving his arms and legs was difficult, but not impossible. To provide visibility, a viewing port was part of the rigid helmet placed over Post's head.

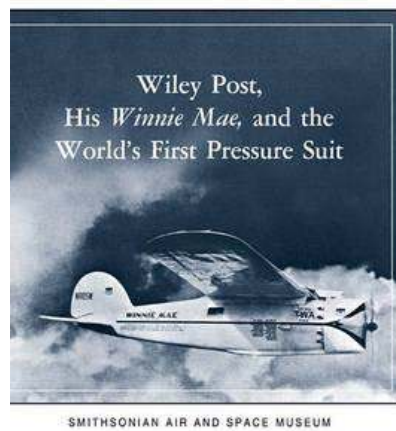
So, for the record, let's list a few of his many accomplishments:

1. First aviator to fly around the world solo.
2. Numerous speed records.
3. First aviator to discover the jet stream and harness its winds for his flights.
4. First aviator to forecast coast-to-coast flights using high altitude winds.
5. First aviator to forecast supersonic flight.
6. First aviator to study biorhythm cycles and bring the subject to the table for the scientific community.
7. First aviator to use a pressure suit for high altitude flight.

Wiley was man of distinction, an aviation pioneer, and a man of science. I hope you enjoyed this week's article and I hope that you will take some time to review the book which is linked below. Have a good weekend, keep your friends and family close, and fly safe/be safe.

Robert Novell

January 12, 2016



Robert Novells' Third Dimension Blog

March 4, 2016

Good Morning,

Welcome back to the 3DB and thanks for letting me share time with you this week. During the course of this year/last year I have not had a specific script to follow with the blogs. I have talked about airplanes, aviation history in the US, and abroad, as well as the aviation pioneers from Europe, South America, and elsewhere. This week I want to open a new window into the past and talk about a man whose skills as an aviator, and with a pen, are similar to those of Ernest Gann.

Antoine de Saint-Exupéry is the man I speak of and it is his life that we will talk about today. A few years ago I wrote a blog titled, "Jean Mermoz – France's Lindbergh," where I talked about the beginnings of the airline "Aéropostale." While my focus was primarily on the accomplishments of Jean Mermoz I did mention Saint-Exupéry and the fact that he and Mermoz were the best of friends; however, this week it is all about Antoine de Saint-Exupéry. The article that I am using for this was copied from the web and while I am not sure of its origins based on the facts, as I know them, it appears to be accurate. I have revised some of the wording to make it easier to read but the link below the article is available should you desire to consult the source. I will have a few closing comments and two videos for you to see - but for now let's get on with the story.

Enjoy.....



Antoine de Saint-Exupéry

French aviator, writer, and real life hero who looked at adventure, and danger, with a poet's eyes and sometimes from the viewpoint of a child. Saint-Exupéry's most famous work is *The Little Prince* (1943), which he also illustrated, has become one of the classics of children's literature of the 20th century.

"Grown-ups never understand anything for themselves, and it is tiresome for children to be always and forever explaining things to them."

The Little Prince

Antoine de Saint-Exupéry was born in Lyons, France into an old family of provincial nobility. His father was an insurance company executive, who died of a stroke in 1904, and his artistic talented widow, Marie de (Fonscolombe) Exupéry (1875-1972), then moved with her children to Le Mans in 1909. Saint-Exupéry spent his childhood years at the castle of Saint-Maurice-de-Rémens, surrounded by sisters, aunts, cousins, nurses, and *fräuleins*. He was educated at a Jesuit school in Montgré and Le Mans, and in Switzerland at a Catholic boarding school (1915-1917), run by the Marianist Fathers in Fribourg. After failing his final examination at a university preparatory school, he entered the École des Beaux-Arts to study architecture.

The turning point in Saint-Exupéry's life came in 1921 when he started his military service in the 2ND Regiment of Chasseurs, and was sent to Strasbourg for training as a pilot. He had flown, with a pilot, for the first time in 1912. On July 9, 1921, he made his first flight alone in a Sopwith (F-CTEE). During the next year Saint-Exupéry obtained his pilot's license, and was offered a transfer to the air force. However, when his fiancée's family objected, he settled in Paris where he took an office job and started to write.

The following years were unlucky. His engagement with Louise de Vilmorin broke off, and he had no success in his work and business. He had several jobs, including that of bookkeeper and automobile salesman, and Saint-Exupéry's first story, 'L'Aviateur', was published in 1926 in the literary magazine *Le Navire d'argent*.

Saint-Exupéry's true calling was then found in flying the mail for the commercial airline company Aéropostale. He flew the mail over North Africa for three years, escaping death several times, and in 1928 he became the director of the remote Camp Juby airfield in Rio de Oro, Sahara. His house was a wooden shack and he slept on a thin straw mattress. "I have never loved my house more than when I lived in the desert," he recalled.

In this isolation Saint-Exupéry learned to love the desert, and used its harsh beauty as the background for his books *The Little Prince* and *The Wisdom of the Sands* (1948). During these years Saint-Exupéry wrote his first novel, *Southern Mail* (1929), which celebrated the courage of the early pilots flying at the limits of safety to speed on the mail and win a commercial advantage over rail and steamship rivals.

In 1929 Saint-Exupéry moved to South America, where he was appointed director of the Aéropostale Argentina Company. Saint-Exupéry flew post through the Andes and it was this experience that formed the basis for his second novel, "*Night Flight*," which became an international bestseller, won the Prix Femina, and was adapted for screen in 1933, starring Clark Gable and Lionel Barrymore. In the story Rivière, the hard-bitten airport chief, has left behind all thoughts of retirement and sees the work of flying the mail as his fate.

"We don't ask to be eternal', he thought, ' what we ask is not to see acts and objects abruptly lose their meaning. The void surrounding us then suddenly yawns on every side."

Night Flight

Saint-Exupéry was married in 1931 to Consuelo Gómez Carillo, a widow, whose other literary friends included Maurice Maeterlinck and Gabriele D'Annunzio. "He wasn't like other people," she wrote later, in *Mémoires de la rose*, "but like a child or an angel who has fallen down from the sky." The marriage was stormy.

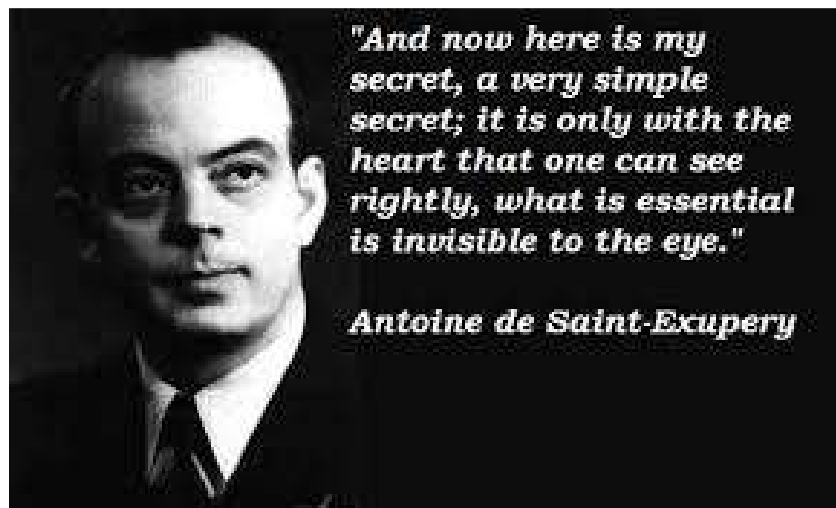
After the air mail business in Argentina was closed down, Saint-Exupéry started to fly mail between Casablanca and Port-Étienne and then he served as a test pilot for Air France and other airline companies. He wrote for *Paris-Soir*, covered the May Day events in Moscow in 1936, and wrote a series of articles on the Spanish Civil War. Saint-Exupéry lived a traveling, adventurous life: he persuaded Air-France to let him fly a Caudron Simoun (F-ANRY), and had an accident in 1935 in North Africa. He walked in the desert for days before being saved by a caravan. In 1937, he bought another Caudron Simoun, and was severely injured in Guatemala in a plane crash.

Encouraged by his friend, André Gide, Saint-Exupéry wrote during his convalescence a book about the pilot's profession. *Wind, Sand and Stars*, which appeared in 1939, won the French Academy's 1939 Grand Prix du Roman and the National Book Award in the United States. The director Jean Renoir (1894-1979) wanted to shoot the film and had conversations with the author, mostly about literary subjects which he recorded. At that time Renoir worked in Hollywood where everyone shot on sets. Renoir's idea was to make the film at the locations described in the text. The book had been successful in the U.S. but nobody wanted to produce its film version.

After the fall of France in World War II Saint-Exupéry joined the army, and made several daring flights into his occupied homeland. In June he went to live with his sister in the Unoccupied Zone of France, and then he escaped to the United States. Saint-Exupéry was criticized by his countrymen for not supporting de Gaulle's Free France forces in London. *Flight to Arras* (1942), published in New York, and depicts his hopeless flight over the enemy lines, when France was already beaten. The book was banned in France by the German authorities.

In 1943 he rejoined the French air force in North Africa. Also in Algiers he continued his lifelong habit of writing in the air but after a bad landing his commanding officer decided that he was too old to go on flying. However, after a pause he was allowed to rejoin his unit. In 1943 Saint-Exupéry published his best-known work, *The Little Prince* (1943), a children's fable for adults, which has been translated into over 150 languages.

It has been claimed that *The Little Prince* is the best-selling book after the *Bible* and Karl Marx's *Das Kapital*.



Saint-Exupéry dedicated the book to his friend Léon Werth. Its narrator is a pilot who has crash-landed in a desert and he meets a boy, who turns out to be a prince from another planet. The prince tells about his adventures on Earth and about his precious rose from his planet. He is disappointed when he discovers that roses are common on Earth. A desert fox convinces him that the prince should love his own rare rose and finding thus meaning to his life, the prince returns back home. The rare rose is usually interpreted as Consuelo his estranged wife.

On July 31, 1944 Saint-Exupéry took off from an airstrip in Sardinia on a flight over southern France. His plane disappeared. It is believed he was shot down over the Mediterranean, but perhaps there was an accident, or it was suicide. Saint-Exupéry left behind the unfinished manuscript of *La Citadelle* (Wisdom of the Sands) and some notebooks, which were published posthumously. "Freedom and constraint are two aspects of the same necessity, which is to be what one is and no other." (From *La Citadelle*, 1948) The book reflects Saint-Exupéry's increasing interest in politics, and his later ideals.

In 1998 a fisherman recovered Saint-Exupéry's bracelet from the sea about 150 kilometers west from Marseilles. His and Conzuela Gomez Castillo's name were recognized from it. However, later news revealed, that the bracelet was probably a forgery. Eventually, Saint-Exupéry Lockheed Lightning P-38 was found in May 2000.

[Source Document](#)

Sant-Exupery was indeed an accomplished author, like Gann and others, and I think you can see similarities between him, Lindbergh, and others. His book “The Little Prince” is available on the web for reading and most of his other books are available at Amazon. Take some time to get to know our friend Saint-Exupery because his writings will open a window to the past that has been forgotten, or ignored, by most Aviators of the 21st Century.

Below is a video of the movie “Night Flight” which is a little dated but worth your time. Enjoy your time with family and friends, and remember, "Job security, as a *Professional Pilot*, is a *Myth* in even in the *Best* of times."

Robert Novell

March 4, 2016

Robert Novells’ Third Dimension Blog

April 15, 2016

Good morning,

Welcome back to the 3DB and thanks for stopping by. This week I want to talk about the development of aviation in Latin America and remind all of you, who are already well versed in US aviation history, that our neighbors to the south also have a very interesting story to tell. So, this week I am going to let an expert from the National Air and Space Museum, Mr. Daniel Hagedorn - Adjunct Curator for Latin American Aviation, fill in all the blanks. This reprint of a lecture given by Mr. Hagedorn is a bit long but I think you will find it interesting to know that we had help during WWII from our friends down south.....well worth the read.

Enjoy.....

Post WWII Highlights In Latin American Aviation History

(By: Daniel Hagedorn)

It is a distinct pleasure and honor for me to speak to so distinguished an assembly on a subject that has been my personal passion for some thirty-five years now. During these next few minutes, I will bring you but a very brief glimpse of the very rich and eventful history of aviation in Latin America, with emphasis on the post-World War II period. Both military and naval aviation will be touched upon as well as the civilian and commercial sphere. Needless to say, it would take far longer than the few moments we will share today to convey the entire breadth of the subject. However, perhaps in these selected examples you will leave with a richer understanding of what has gone before.

It will probably come as something of a surprise to you to learn that a Latin American aeronaut actually flew before the Wright brothers. But way before someone rushes out to alert the "Washington Post," the aeronaut in question flew in a lighter-than-air dirigible of his own design, rather than a fixed wing, controllable, powered aircraft, which claim is still held by the immortal Wright brothers.

The airman in question was, of course, Alberto Santos-Dumont of Brazil. To this day, Dumont is heralded by his countrymen as "The Father of Aviation." In fact, Dumont made a number of spectacular flights in France as early as October 1901. On one of these he navigated a rather fragile dirigible over Paris and managed to circle the Eiffel Tower. Needless to say, the emotional French citizens below went wild and he became an instant celebrity both in Europe and at home.

Santos-Dumont was just the first of many intrepid citizens of Latin America to make historic flights. Others included Jorge Chavez, of Peru, the first man to fly over the Alps and Dagoberto Godoy, of Chile, the first man to fly over the Andes Cordillera from Chile to Argentina in December 1918. Many other "firsts" were chalked up by Latin American airmen, but were little noted by the international press at the time. In fact, aviation in Latin America progressed at a pace even more rapid than in other, more developed areas of the world. With its many geographic obstacles to commerce and communication, aviation was quickly recognized to be a much more rapid means of overcoming the challenges of distance and time than roads and railways could provide. Indeed, by the 1930's, air travel in Latin America was far more commonplace than here in the United States.

The various national governments were not slow to recognize the value of military aeronautics. Mexico acquired thirteen French-built Farman F.50 twin-engined heavy bombers in May of 1920 and used them to help quell an uprising by a native Indian group, as well as on some of the very earliest Mexican air-mail experiments. These were the first twin-engined heavy bombers in all Latin America.

The period between World War I and World War II saw the use of aircraft in two famous Latin American conflicts. These were the Gran Chaco War, bitterly contested between Bolivia and Paraguay and the little-known Leticia conflict between Colombia and Peru. In both instances, aircraft were actively involved, and in many cases were very influential in the outcome of an engagement. Besides these, many other minor clashes and internal conflicts saw the use of aircraft, too many to be recounted here. With the coming of World War II, however, Latin American air units participated for the first time in truly foreign theaters. Here is seen a lineup of the famous P-47D "Thunderbolts" that were used by the 1st Brazilian Fighter Squadron during 1944 and 1945 in Italy against German and Italian Fascist forces. The unit committed itself with great valor and gallantry, and was considered a full member of the U.S. 350th Fighter Group. The Squadron was unique in the Italian campaign in that it fought the entire period without any replacements. The unit lost several aircraft to hostile fire, and at least three Brazilians were captured and made P.O.W.s by the Germans for the duration. Equally little known is the fact that Mexico also fielded a fighter squadron during World War II. The 201 Escuadron, unlike its Brazilian counterparts, fought against the Japanese in the Pacific in the Philippines. Arriving somewhat later than the Brazilians, the unit nonetheless committed itself very well indeed and made a number of highly effective sorties in support of the advanced Allied forces, including several very long range fighter-bomber sweeps to distant Formosa. With the end of World War II, developments in jet aviation were taking place very rapidly, following hard on the heels of actual use of jet aircraft by the Germans during the war. In Argentina, where Juan Perón was in power at the time, the postwar trade boom enabled Argentina to acquire the very first jet aircraft of any kind in Latin America in the form of not fewer than 100 Gloster Meteor F.4 fighters acquired from Great Britain starting in May 1948.

Needless to say, the Argentine initiative in acquiring jet fighters at a time when all other Latin American air forces were equipped with World War II vintage propeller driven aircraft prompted acquisitions in some very unlikely places. In the Dominican Republic, during the regime of Trujillo, 25 de Havilland Vampire F.1 fighter-bombers were purchased second-hand from Sweden in 1955, making the Dominican Republic the first jet-equipped air force in the Caribbean.

Later, still on the subject of jet aviation, the Honduran Air Force became the first Central American air army to field supersonic fighters when it acquired at least 21 Dassault Super Mystere B2's in 1976. These airplanes are unique in all the world, as, before they were delivered from their former Israeli owners, they were re-engined with U.S.-built Pratt-Whitney J52 engines, this accounting for the extended exhaust area. Some of these aircraft are still in service in Honduras.

While jet fighters and fighter-bombers were one thing, jet bombers were another item all together. Venezuela tipped the balance of power in northern South America radically in April 1953. She acquired the first of a number of variants of the very capable English Electric Canberra light jet bombers. Subsequently, Argentina, Peru, Ecuador and Chile also acquired examples of the Canberra. Although some of these are still in service, the Canberra bears the distinction of being the only jet-propelled bomber to see service in Latin America.

With the change of government in Cuba in 1959, the stage was set for the introduction into Latin America of an entirely new element: Soviet-built military hardware. Shortly after taking power, indeed, the Cuban Revolutionary Air Force acquired the first of many variants from the famous "MIG" design bureau, for example the MiG-15UTI trainer version, one of the very first to reach Cuba. These were the first Soviet-built aircraft used in Latin America.

We cannot proceed on to another subject however, without mention of the very first jet-propelled aircraft actually designed and built in Latin America, the little-known FMA I.Ae27 "Pulqui I" and I.Ae33 "Pulqui II," the latter designed and constructed under the direction of the German Kurt tank, who also designed the famous Focke-Wulf Fw-190 fighter of World War II. Five of these very advanced aircraft were built for Perón's Argentine Air Force and the first flew on the 27 of June 1950.

While jets were being rapidly introduced into the post-World War II Latin American scene, authorities were quick to grasp the potential of the other new forces of aircraft. Although not the first helicopters in Latin America, Argentina acquired some Bell 47's in March 1948, the first to have a useful pay load and search-and-rescue capability.

Although only 194 famous Ford Tri-Motor transports were built, they helped make practical air transport of everyday people as we know it today a reality, and they rank among the most important aircraft of all time.

Of even greater importance in the development of civil air transport in Latin America, however, has been the famous Douglas DC-3 family. Avianca, the Colombian airline, which can lay claim to being the world's oldest continuously operating airline maintained a DC-3A which had been in continuous service for 25 years with the same airline!

Ironically, perhaps destined to outlive the Douglas DC-3 and Lockheed Constellation in active commercial service is the Curtiss C-46. Although developed after the DC-3 by several years, the rugged "Commando" is still in regular freight

service in Colombia and Bolivia. The C-46 will probably fly on as long as parts, pilots and fuel can still be found.

Latin American commercial aviation entered the jet age in 1959 and, once again, Argentina led the way. Aerolineas Argentinas acquired a number of the early de Havilland "Comet" jet airliners that year, but, unfortunately, they were plagued by a number of serious problems, and two crashed with fatal results.

The following year, however, Varig airlines of Brazil acquired the first Boeing 707 in Latin America which rendered excellent service for 19 years until it was replaced by more modern versions. The Boeing 707 is another of the truly great aircraft of all time, and is in a class by itself from a historical standpoint.

Now for some little-known firsts and lasts in aviation history. I'm sure that many of you are familiar with the immortal North American P-51D "Mustang" of World War II and Korean War fame. However, the very last P-51 "Mustang" in regular military service anywhere in the world was used in the Dominican Republic, where this type saw not less than forty-five years of continuous service, outlasting the deHavilland Vampires which were acquired to replace it! Many of the crewmen who serviced these airplanes never knew any other type, and can certainly lay claim to having been "experts" at their work.

The last propeller-driven fighter that will ever be able to claim aerial victories against propeller-driven aircraft of another nation is the Vought F4U-5 "Corsair." This event, of course, took place during the 1969 war between Honduras and neighboring El Salvador, at the hands of Honduran Major Soto.

The story goes that, when the first human mission to Mars returns, it will be number two in the landing pattern behind a Douglas DC-3 or C-47. If Basler Aviation of Oshkosh, Wisconsin, has its way, that may not be too far-fetched. Basler has now reconditioned and re-engined C-47's for the air forces of Guatemala, El Salvador, Colombia and Bolivia, and this is expected to add years to the service lives of these already veteran airplanes.

In recent years, Mexico, Argentina, Chile, and most notably Brazil have developed aviation industrial capability in their own right. In fact, the Brazilian-built Embraer T-27 "Tucano," has been so successful that it has even been acquired by the British Royal Air Force as its standard primary trainer, as well as by many other air arms. This is a world-class aircraft, and will be around for years to come.

Although the "Tucano" has been a great success, it was by no means the first Latin American aircraft to be built in series. Indeed, Mexico and Argentina were building aircraft in their own shops as early as World War I, and Brazil built many T-6 and PT-19 trainers during World War II. The Argentine-built DL-22 trainer, which looks very much like the T-6, was actually a totally Argentine design. It was built in substantial numbers starting in the 1940s.

Latin America obviously has many long coastal areas to patrol, and thus it is not surprising that amphibious aircraft have, for a long time, been important to a number of nations. Mexico's Navy can claim the distinction of being the last Latin American Air Arm to operate truly amphibious aircraft with "flying boat" type hulls in the form of Grumman HU-16 "Albatross" aircraft.

The military has not had an exclusive on the use of amphibious aircraft, however, and a number of airlines have operated such aircraft over the years. The Consolidated PBY "Catalina" is still in use with the Chilean operator ASPAR as a forest fire retardant aircraft and is maintained in excellent condition. The last Latin American military operator of the classic "Catalina," however, was the Paraguayan Air Force, which took pains to restore a PBY-5A which is now in the custody of the Argentine Naval Aviation Museum in excellent condition.

World politics resulted, as is illustrated by the Cuban Revolutionary Air Force MIG-21, in the introduction of world-class combat aircraft into Latin American military service. To date, only Cuba, Peru, and Nicaragua have acquired true combat aircraft of Russian design, but these have had a profound effect on neighboring nations.

An entirely different episode in the history of Latin American aviation took place in mid-1982, when Argentine forces attempted to seize the islands known to them as the Malvinas, known to the British as the Falklands. For the first time in history, a Latin American nation engaged in open warfare in the air with a traditional world power. The Argentine Air Force and Argentine Navy airmen who took part in this conflict performed very professionally, and were up to the highest world standards. The Argentine Air Force Douglas A-4P "Skyhawk" was one of the combatants and, in fact, has the silhouette of a ship stencilled on its forward fuselage in recognition of its claim during the war.

The hitherto little-known Argentine naval airmen made their presence known in electrifying fashion during the Malvinas conflict flying, among other types, their Dassault Super Etendard fighter-bombers which, equipped with Exocet missiles, laid claim to one of the earliest known instances in which a land-based aircraft actually

caused the sinking of a major surface vessel through the use of a missile stand-off weapon. Despite many handicaps the Super Etendard crews committed themselves very well indeed during the conflict.

The Argentine Navy Super Etendard claimed attacks on both HMS Sheffield and HMS Invincible. Despite many international claims to the contrary, the Argentines claimed the sinking of only the Sheffield and only damage to the Invincible, although the British have denied this.

Incredible as it may seem, while the state-of-the-art conflict was raging in the south Atlantic, the very last piston-engined bomber aircraft in Latin America was quietly retired from service by the Honduran Air Force. This Douglas B-26 "Invader" was the only one of its type used by Honduras, and had a past that was little short of spectacular. This story was told in a book co-authored by yours truly entitled *Foreign Invaders: The Douglas B-26 in Foreign and Covert Service* by Midland Publishing Company.

Along the same lines, the legendary North American T-6 also came to the end of the line in Latin American service. The T-6 was used, at one time or another, by every established Air Force in Latin America, and it is fair to say more Latin American military pilots have been trained, to date, on this type than on any other aircraft.

In a little-known footnote to the war between Great Britain and Argentina, several of the last North American F-86F "Sabres" that were still airworthy anywhere in the world were hastily returned to service by the Argentine Air Force with a view towards deploying them as a point-defense interceptors at coastal airfield, had the British attempted to attack the homeland.

On the other side of the Andes, the Chilean Air Force will almost certainly be the last air arm on earth to fly the trusty Hawker Hunter fighter-bomber. During exercises with carrier-borne aircraft of the United States Navy in recent years, these and other Chilean Air Force aircraft have, to say the very least, given a very good account of themselves, and have earned very high praise from their mock-combat adversaries in the U.S. Navy. In truth, it can be said that, in at least one known instance, the Chileans got the better of the U.S. Naval aviators, much to the embarrassment of the F-14 "Tomcat" pilots.

Today, although world-class supersonic aircraft are in service in a number of Latin American nations, the vast majority of them are French-built variants of the Mirage, with the exception of Cuba. Only Venezuela operates late-model General Dynamics F-16's and, aside from versions of the Northrop F-5 "Freedom Fighter" in use in

Mexico, Honduras, Venezuela, Brazil and Chile, these are the only modern fighters of U.S. design to be found in the entire region.

No discussion of aviation in Latin America should end without telling you that there is a growing historical aircraft restoration and interest groups fraternity growing in the region. Hopefully, these airmen will continue to preserve the great contributions made by Latin American airmen to the progress of aviation.

This very brief overview should have told you, by now, that I love airplanes and aviation. I truly believe that aviation has brought all Americans together, as perhaps no other force could possibly do. As mankind approaches the next century, with aviation a mere 100 years old for all practical purposes, one can only wonder what new adventures will await us in the future. Whatever it brings, aviation in this hemisphere will surely play a major role.

[Source Document](#)

Have a good weekend, keep family and friends close, and remember to enjoy the moment whether airborne or on the ground.

Robert Novell

April 15, 2016

Robert Novells' Third Dimension Blog

May 20, 2016

Good Morning,

Today I have an interesting story to tell you, along with a few facts, about how this bit of airline history unfolded. Panagra is the name of the airline and my story today tells about how this partnership airline opened up Latin, and South America, to the international community.

Panagra was a joint venture between Pan Am and W.R. Grace Company. Pan Am was responding to a request to provide service south in to Latin and South America but knew there would be difficulty trying to compete with W.R. Grace who controlled the west coast of South America, through their steamship routes, and were not about to let some outsider into their territory—especially an airline. Juan Trippe knew that unless he could get Grace on board there were be no landing rights given

to Pan Am for service into Grace's territory. Pan Am's negotiations with Grace culminated in the formation of Pan American-Grace Airways—Panagra—with fifty percent being owned by Grace and fifty percent by Pan Am.

Now that you know how it all came about let's talk about Panagra and at the conclusion of the article I will have some interesting facts that will reveal the rest of the story.

Enjoy.....

Panagra - The Pan Am Airline

(The Pan American – Grace Airways, Inc. History 1929-1967)

Panagra provided air transportation for passengers, mail, and cargo over a 4,251-mile network of routes throughout Panama, Colombia, Ecuador, Peru, Bolivia, Chile and Argentina. Panagra, thus, had accomplished a pioneering job second to none. Less than a year after its inception, it had linked the Americas from the United States to Argentina with a direct, regularly scheduled passenger, mail and freight service. The trip from New York to Buenos Aires by plane could now be made in eleven days which was less than half the time it took by steamer.

Panagra carried American aviation farther than it had ever been before. No other U. S. airline was operating over such great distances at that time; American aviation had barely begun to stretch its wings beyond its territorial boundaries with a few short routes through Central America and the Caribbean area.

Panagra was the first airline in South America to develop and apply airways weather forecasts – and professional meteorologists furnish today all company planes with complete reports on the weather en-route and at destination at all hours. It was the first to adopt the controllable pitch propeller, first to use the revolutionary constant speed propeller, first to deploy a fully equipped radar fleet, and first to introduce the DC-6, DC-6B, DC-7 and DC-8 to South America.

During its three and a half decades of serving the Americas, Panagra did more than carry passengers, freight, and mail. Time and again the airline's planes were sent on missions of mercy carrying a vial of precious lifesaving medicine to a dying man, an iron lung to a girl's stricken with polio, or a shipment of drugs to arrest the spread of an epidemic.

In 1961 in Chile, and in 1948 in Peru, when earthquakes literally shook cities to pieces Panagra placed its entire facilities at the disposal of the stricken nations airlifting tons of medical supplies and food to the disaster area and flying out the victims. Panagra was an important factor in the economic and industrial development of South America. By stimulating an increased flow of trade and travel within the Hemisphere, the airline helped draw South America closer economically and culturally to the United States.

From early 1943 until the merger with Braniff 25 years later there was only one Panagra aircraft lost in operations with no fatalities. A non-compete clause in the agreement between Pan American World Airways, Grace, and Panagra made Panama the northern end of Panagra's route system.

In those early days airports were unknown, radio facilities were nonexistent and meteorology, as we know it today, was unheard of. As routes were expanded and frequencies increased, the airline had to build its own airports, equip its own overhaul and maintenance shops and set up its radio and weather stations along the entire route.

The History began on September 13, 1928, when a tiny single-engined Peruvian Airway's Fairchild FC-2 monoplane with four passengers and a few letters took off from a racetrack in Lima and landed 550 mile away, in a soccer field in Talara, Peru. This was the inauspicious beginning of scheduled commercial air transportation along the west coast of South America and the start of Panagra (Pan American Grace Airways).

A few months later, with the backing of Pan American World Airways and W.R. Grace & Co, Peruvian Airways (founded by Harold B. Harris in 1928) became Panagra. Between 1929 and 1942, Harris held the positions of Vice-President and Chief Operations Officer.

On October 12, 1929, a Panagra tri-motored Ford took off from the airport in Buenos Aires, cruised at a normal altitude over the flat pampas, and after stopping to refuel at Mendoza, Argentina, crossed the formidable Cordillera of the Andes through the Up Sallata Pass at the then unheard of altitude of 18,000 feet. Eight and a half hour after leaving the Argentine capital, the little Panagra airplane landed at Santiago's Los Cerrillos Airport making the first commercial flight across the Andes.

By 1930 Panagra planes had shortened the distance between New York and Buenos Aires to seven days, and two American airmen had written another stirring chapter in the colorful history of aviation. One of these men was Lloyd R. "Dinty" Moore, a

Panagra pilot, who had made an "impossible" dawn to dusk flight between Peru and Panama to deliver the mail on schedule to another pilot who flew it from there to the U. S. The other pilot was Charles A. Lindbergh.

Scheduled airline service between the Americas was now an accomplished fact. Lindbergh and Moore had proven it could be done. Panagra planes were cruising up and down the Hemisphere on a once-a-week schedule. With incredible speed the service was further expanded. More planes were put into operation. New routes were inaugurated. Other cities in Ecuador, Peru and Bolivia were quickly linked with the main trunk line along the west coast of South America.

Just before Pearl Harbor, when war with the Axis was imminent, Panagra, with the assistance of the respective South American governments and at the request of our own State Department, first paralleled and then replaced the services of German controlled SEDTA in Ecuador and Lufthansa in Peru and Bolivia, This was designed to avert an economic and transportation crisis and remove the Nazi threat from this continent.

In 1942, due to the need to move heavy freight, in support of the war effort, Panagra converted a couple of its DC-3's into freighters. Panagra started the first all-cargo route of any American flag airline when it inaugurated a route between the Canal Zone in Panama and Lima. Following the war the pioneer U. S. airline was able to obtain the larger, faster four-engined aircraft needed to inaugurate night operations and eliminate overnight layovers on its route.

Panagra's DC-3's, 4's and 6's featured broad yellow stripes on the wings. These stripes were to help in locating a plane that went down in the rugged terrain. In the first 15 years of operations the safety record was comparable to US domestic operations under significantly more challenging conditions. From early 1943 until the merger with Braniff 25 years later there was only one Panagra aircraft lost in operations with no fatalities. Indeed as the Panagra pilots continued their careers with Braniff and other airlines after the merger, not one life was lost with a Panagra pilot up front!

By 1946, elapsed time between Panama and Buenos Aires had been shortened to less than 24 hours. With the entry of Braniff International into the Latin American market, Panagra's started to fly to Miami and New York in the 1950's. While this provided through plane service, north of Panama these were actually Pan American flights using Panagra planes and crews to Miami and National Airlines on up to New York.

By May 1960, Panagra had introduced DC-8, jets to cut travel time between New York and the Argentine capital to less than 12 hours flying time. In developing air routes where none previously existed, Panagra had to start from scratch.

Its intercontinental DC-8 jet service linked Buenos Aires, Santiago, Antofagasta, La Paz, Lima, Guayaquil, Quito, Cali and Panama City with Miami and New York. These 585-mile-an-hour jet planes accommodated 24 first class and 94 tourist class passengers in spacious and comfortable cabins that were equipped with bed sized berths, a Fiesta Lounge and a snack bar.

Braniff began negotiations to purchase Panagra during the Charles Beard administration. Negotiations were later renewed and in December of 1965, a deal was made for the purchase of W.R. Grace's 50% interest. The deal was concluded on March 17, 1966 when the remaining 50% interest held by Pan American World Airways was acquired. This time however, the offer for the airline was raised to \$30 million from the original \$8 million offer.

In July of 1966, the Civil Aeronautics Board approved the plan and President Lyndon Johnson allowed the merger to proceed. The merger and integration of Panagra's operations was completed on February 1, 1967. Braniff acquired Panagra's fleet including DC-7's, DC-8-31's and 55F's, as well as purchase orders for five long-range intercontinental McDonnell Douglas DC-8-62 aircraft.

Braniff went broke in 1982. Apparently someone thought it a good idea to start again, under Panagra name. So in 1996 operations were restarted from Fort Lauderdale, FL. using the Boeing 727. Panagra ceased operations (again) in 1999.

[Source Document](#)

An interesting story but let me add in a few facts that will tell the rest of the story:

1. By 1926 the Germans had started to fly into almost every South American Country. There was a real concern that they would operate through the Canal Zone and pose even a greater threat to U.S. National Security. The U.S. Government let it be known that they were ready to award mail routes to anyone that could fly Central American and South American routes. NYRBA—New York, Rio, and Buenos Aires— purchased four flying boats and had them in Rio, ready to initiate a service on the East Coast of South America. Richard Hoyt, Juan Trippe and their attorney, "Wild Bill" Donovan were scrambling around trying to get together a consortium to fly these routes, with a bunch of Yale men that were world war one pilots. The route bids went out. Trippe had no aircraft, no crews and bid \$2.35/mile. NYRBA had aircraft and crews, but when they went to negotiate landing rights, they ran into trouble with the local governments. Yes, the Secretary of State was a Yale man, as was the Post Master General who awarded the routes to Pan Am.

2. *SCADTA (Sociedad Colombo-Allemań De Transporte Aéreo — Colombian-German Air Transport Corporation) was the first commercial airline in the western hemisphere. It began operations in Colombia on October 19, 1920. It was the product of German businessmen, war surplus airplanes and personnel from the World War I Luftwaffe along with Colombian capital. By the end of 1920 SCADTA had an exclusive airmail contract with the Colombian government. The contract, which lasted eleven years, included the right to print and sell their own SCADTA airmail stamps. Interestingly, it was SCADTA's aggressive expansion throughout South and Central America during the 1920s that led to an appropriation by the U. S. Congress to provide funds for the Post office to subsidize domestic and foreign air transport expansion in 1925. This was the Kelley Bill, the Air Mail Act of 1925.*

3. *Pan American Airways secretly owned a major part of SCADTA which it had acquired during the early days of the depression with help from the U. S. Secretary of State. This ownership led to PAA ownership of 65% of AVIANCA which was formed from SCADTA when it was nationalized by the Colombian government of President Dr. Alfonso López in 1934.*

[Source Document](#)

Next week I will have another post on Panagra but it will be a narrative of a personal story by a pilot who was there, flew the routes, and lived the life of a Panagra pilot. Until then I wish the best to you and yours, take care, and be safe.

Robert Novell

May 20, 2016

Robert Novells' Third Dimension Blog

July 29, 2016

Good Morning and Happy Friday,

Today I want to revisit an event in aviation history that I have talked about before; however, while recently cleaning up some bookmarks in my research folder I rediscovered a different source on the topic so I want to present that for you today.

Enjoy.....

The Wright/Smithsonian Controversy

In early 1914, the Smithsonian Institution lent Glenn Curtiss the remains of the 1903 Langley Aerodrome. This was the manned aircraft that Samuel P. Langley, then the

Secretary of the Smithsonian, had tried to fly right before the Wright brothers made their first successful powered flights at Kitty Hawk in 1903. Actually, Langley had tried to fly the Aerodrome twice on 7 October and 8 December 1903 and failed both times. Curtiss rebuilt the Aerodrome, making significant changes to the airframe, wings, drive train, and controls. He then managed to make a few hop-flights off the surface of a lake near Hammondsport, NY. None of these lasted more than a few seconds nor could they be sustained for longer than a few hundred feet. Nonetheless, both Glenn Curtiss and the Smithsonian crowed that these flights proved that the Langley Aerodrome had been "capable" of flight in 1903. It was, they insisted, the first true aircraft.

Griffith Brewer, an English patent attorney and a friend of Orville's, was visiting the United States at the time. At Orville's request, he traveled to Hammondsport to see what was going on. He shot photos that documented the changes made to Langley's aircraft, then fired off a letter to the New York Times charging that the flights did not prove that the Langley Aerodrome was airworthy in its original configuration. This letter touched off a controversy that raged for almost thirty years, pitting Orville Wright against the Smithsonian Institution.

The reasons that Glenn Curtiss had made these test flights were purely commercial. He had lost the patent suit that the Wrights had filed against him; the courts had ruled not just that the control systems of Curtiss aircraft were derivative of the Wright's patented system, but also the Wright system was necessary for aerial navigation, period. It was the "pioneer patent" of the aircraft industry. By flying the Langley Aerodrome, Curtiss was attempting to show that another airplane could have successfully navigated the air before the Wrights. Therefore their patent was not entitled to the pioneer status the courts had given it.

The Smithsonian's interest in these flights was political. The reputation of the Smithsonian had suffered greatly in 1903 when Langley's Aerodrome failed to fly. This made it more difficult to obtain funding, which limited its growth and effectiveness as a scientific organization. The current Secretary, Charles Walcott, felt that the best way to repair this reputation was the show the Aerodrome could have flown; the time and money spent on it had not been wasted.

Walcott also had a vested interest in the Aerodrome; it's failure had affected his reputation as well. He had been involved with the project from its inception in 1898; it was Walcott that had found the backing Langley needed to build the aircraft. When he took over the Smithsonian from Langley in 1906, both the institution and its Secretary were tarnished in the eyes of many. Walcott immediately began to rebuild

his political effectiveness and that of the Smithsonian by rehabilitating the memory of Samuel Langley. He created a Langley Medal for outstanding contributions to aeronautics, erected a Langley memorial tablet to immortalize Langley's own contribution, even decreed a "Langley Day" to remember his many scientific triumphs.

In 1914, there was talk of creating a national aeronautics laboratory with an advisory council to direct research and encourage the growth of this new industry. Walcott wanted to re-open Langley's aeronautical workshop at the Smithsonian to serve this function, but the Smithsonian was just one of several organizations that were vying for this honor – and its attendant funding. When the opportunity came to rebuild and fly the Aerodrome, Walcott moved quickly to make it happen. A successful flight, properly presented in the press, would go a long way toward restoring the Smithsonian's reputation. This in turn might convince Congress that the Smithsonian would be a good place to conduct aeronautics research. Within days of concluding an agreement with Curtiss, he shipped the remains of the Aerodrome to Hammondsport.

Once Curtiss got his hands on the old aircraft, he discovered problems and weaknesses that affected its airworthiness. He chose not to launch it in its original condition and instead made changes that would enhance its performance, controllability, and structural integrity. The aircraft that flew in Hammondsport was, as Brewer had claimed, not the same that Langley had tried to launch in 1903. Curtiss and the Smithsonian, however, insisted it was close enough. No matter, the flights did not achieve their objectives – events marched past the Hammondsport trials. Congress created the National Advisory Council for Aeronautics (NACA) independent of the Smithsonian, and NACA created a patent pool, the Manufacturers Aircraft Association (MAA), that resolved Curtiss' patent dilemma.

The Smithsonian, however, could not back away from its conclusion that the Langley Aerodrome was the first man-carrying powered aircraft "capable of sustained flight." It published reports that repeated these claims in the Smithsonian Annual Reports beginning in 1914 through 1918. And in 1918, it displayed a newly-restored Langley Aerodrome in the Arts and Industries Building with a label that claimed it was the first aircraft "capable" of flight. As evidenced by books and magazines that were published during that time, the public began to believe that Langley was the "father of flight."

In 1921, Griffith Brewer gave a speech to the Royal Academy of Science in England that listed the changes to the Aerodrome that were necessary to make it fly and

exposed the deception. It was simultaneously published in America, and caused a great uproar in the aviation community. The uproar spread to the general public in 1925 when Orville announced that he would send the 1903 Wright Flyer to the Kensington Science Museum in England unless the Smithsonian recanted. He finally sent the Flyer in 1928 and published his reasons. "I believe my course in sending our Kitty Hawk machine to a foreign museum is the only way of correcting the history of the flying machine, which by false and misleading statements has been perverted by the Smithsonian Institution."

By this time, the Smithsonian had changed Secretaries again. Charles Abbot had taken over for Charles Walcott when the latter died. Abbott was a close personal friend of Langley and was every bit as mindful of Washington politics as Walcott. He tried to negotiate a truce with Orville in 1929, but balked when Orville demanded he publish a list of changes that had been made to the Aerodrome and to retract the statement that it was capable of flight in its 1903 configuration. Abbott told Orville that he could not do anything that would embarrass the Smithsonian or the late Walcott.

He balked again in 1934 when Charles Lindbergh tried to mediate the disagreement. But Abbot finally acceded in 1942 when Fred C. Kelly informed him that he was writing an "authorized" autobiography of the Wright brothers and had promised Orville that he would mend fences if he could. Kelly warned Abbott that this biography would have a section on the Wright/Smithsonian controversy. If the book went to press with the controversy unresolved, it would be a source of embarrassment for decades. Furthermore, Orville was an old man. If he died before amends could be made, the embarrassment would be permanent. It would be better to end the standoff, even if the Smithsonian had to admit it was wrong. In a Smithsonian Miscellaneous Report, issued in 1942, Abbott published the list of changes that Orville had asked for, admitted the 1914 test flights did not prove the Aerodrome was capable of flight in 1903, and apologized for the affair.

When Abbott next saw Orville, all seemed forgiven. At a special dinner honoring the Wright brothers in Washington DC on 17 December 1943, and with the approval of both Orville Wright and Charles Abbott, Secretary of Commerce Jesse Jones read an announcement from President Franklin D. Roosevelt that the Flyer would be returning to America and "the nation will welcome it back as the outstanding example of American genius."

[Source Document](#)

The above document had many links, which I removed, that expand on the facts presented. I would encourage you to click on the source document above and go to the original text and explore those links.

Have a good weekend, enjoy time with family and friends, and remember to stop by next week when we will talk about.....

Robert Novell

July 29, 2016

Robert Novells' Third Dimension Blog

August 26, 2016

Happy Friday and welcome to the 3DB. The original stealth airplane was called the *Night Stalker* and was built in the late sixties by Lockheed for the Army to use in Vietnam; however, before we talk about that airplane let me tell you what I know about the current airplane, which is very similar, being used around the world as its replacement.

The replacement airplane that is currently being used by DOD, and several three letter government agencies in certain areas of the world, has also been sold to Colombia, Mexico, Jordan, and a few other countries. This airplane is a modified Schweizer sailplane that has been fitted with a Lycoming TIO-540 and a three bladed propeller. I believe that the U.S. arranged for the folks with "Plan Colombia" to buy four of these but I am not aware of how successful the program was. What I do know is that an old friend, who was killed in a helicopter crash about five years ago, served as the instructor for the Colombianos and he loved this airplane and its night time capabilities.

The picture below is one of the Colombian airplanes that my friend flew and there is a brief overview of the airplane below the picture. This official designation for this craft is SA2-37B.



Designed from the outset as a covert day/night surveillance platform, the RG-8A Condor Schweizer SA2-37B does not look like a covert spy plane. However, its sophisticated suite of FLIR, EO and electronic sensors, large payload, long endurance and low acoustic signature, enable this unusual aircraft to provide a comprehensive surveillance capability at relatively low cost.

To enable the Schweizer SA2-37B to operate effectively it was designed to fly quietly, using minimum power to reduce noise and this works so effectively that above 2000 feet the aircraft is virtually undetectable from the ground. The reduced acoustic signature was achieved by a clever aerodynamic design which carefully matched the propeller, engines and various sound muffling devices. Powered by a Lycoming T10-540 engine rated at 250 hp, in quiet mode the engine can be throttled back to between 1,100 – 1,300 rpm, generating just 65 hp which is sufficient to keep the aircraft flying slowly.

The clever aerodynamics and engine efficiency also gives the aircraft an excellent endurance of 12 hours or a radius of operations of 200 nautical mile while remaining

on station for 7 hours. Generally the aircraft operates below 5000 feet, to give the optical sensors the best possible views, but it also has a 24,000 feet service ceiling and can undertake high level missions. The SA 2-37B can carry up to 510 pounds of sensors and associated equipment in a 70 cu ft payload bay in the fuselage. The payload bay was designed to accept modular systems enabling different sensors to be changed quickly.

Source Document

Now, The reason I wanted to start with the current version of a quiet airplane is to remind you that everything old is new again when our government has money to spend. I was told that the modifications and the R&D was a twenty million dollar plus program which does not include the basic airframe. I think someone reinvented the wheel when all they had to do was call 1-800-Lockheed.

OK, let's talk about the original quiet /acoustic stealth airplane used in Vietnam. Enjoy.....

Night Stalker

(U.S. soldiers in Vietnam heard rumors of ghosts; the Viet Cong chalked it up to bad luck.)



In 1966 the U.S. Navy sent a young Lieutenant by the name of Leslie J. Horn to South Vietnam to evaluate the use of night-vision devices in combat. Horn, a pilot and physicist, soon found himself in a patrol boat looking for Viet Cong in the canals and waterways of the Mekong Delta in the southern end of the country. With his Starlight scope, a handheld light amplifying device, he could see in the dark, but not through the thick foliage that lined the waterways.

One night, rounding a river bend, Horn had a surprise encounter with an armored junk. A fire fight erupted, and Horn began wondering if there wasn't a better way to locate the enemy. What about a spy in the sky, some kind of aircraft that could find the VC without being seen or heard? "Being a physicist," Horn recalls today, "I figured, Let's see, noise is energy, so how do you build a plane with low energy? I started running some equations, and what fell out was a glider." An airframe with a high lift-to-drag ratio wouldn't need much power, so the engine could be smaller and therefore quieter. He sent the Office of Naval Research a detailed proposal for a glider—a sailplane, technically—with a muffled engine and a propeller turning slowly enough to avoid generating a buzz from the blade tips. Crewed by fliers equipped with Starlight scopes, the result would be a night reconnaissance airplane that was very nearly silent.

Americans believe that if we invent gadget X, we can get result Y and change situation Z for the better. So it's no surprise that even before Horn had drawn up his proposal, others had visited the very same turf. The Department of Defense had been asking for new technologies to counter communist infiltration in Vietnam. Before being asked, the big thinkers at Lockheed Missiles & Space had started running analysis and brainstorming.

Lockheed Missiles & Space, based in Sunnyvale, California, had never built an airplane before. The division had produced the Polaris missile, designed for launch by nuclear submarines, and the first generation of spy satellites. But there was a war on, and Sunnyvale's advanced programs group decided to take on the problem of detecting the Viet Cong. The group began by analyzing the available sensors and their ranges, and then the ranges at which various aircraft could be heard by the enemy. They discovered the problem: The VC could always hear an aircraft coming before the crew on the aircraft could hear or see the VC. What was needed, the Lockheed guys decided, was a super-quiet airborne sensor platform. They studied balloons, sailplanes, and conventional airplanes with mufflers, but found them all lacking. Then Don Galbraith, head of advanced design, suggested a powered sailplane, one with a muffler and an oversize, slow-turning propeller. Halfway around the world from young Lieutenant Horn, and about half a year earlier, Lockheed Missiles & Space had reached the same conclusion.

Lockheed project manager Stanley Hall, the designer of several sailplanes and known in the national soaring community, was pulled off a satellite project to supervise the quiet airplane. DARPA, the Defense Advanced Research Projects Agency, tossed in a meager \$100,000 to build two proof-of-concept aircraft and sent Les Horn to be its representative at Lockheed. Horn arrived when construction was already under way; he thought he'd died and gone to R&D heaven. The tiny budget turned out to be an advantage. Because the project was so small, the military and corporate bureaucracies didn't bother with oversight. The team set up shop behind a plywood partition in the back of the Lockheed executive hangar at the San Jose airport. Engineers and mechanics came from all over Lockheed, including the famed Skunk Works, where the exotic U-2 and SR-71 spy planes had been designed and built. But this spy plane was going to be a different: simple, designed to fly low and slow, and built and tested on the cheap.

For the airframe, Hall chose a well-known commercial sailplane, the Schweizer 2-32. His team took an ordinary 100-horsepower Continental O-200 engine and mounted it behind and slightly above the cockpit, so it made a bulge in the top of the airframe, like a camel's hump. The propeller shaft ran above the canopy, outside the

airplane, to a vertical pylon attached to the nose. They tested several propellers and chose an eight-foot-diameter model with four wooden blades. To quiet the engine further, the Sunnyvale team lined the inside of the cowling with fiberglass batting and ran the exhaust through a muffler from a 1958 Buick. Instead of using noisy gears, they connected the engine to the propeller shaft with V-belts, similar to fan belts. Les Horn recalls that it was the “only aircraft flying that was powered by rubber bands.” But the engineering and workmanship were first-rate. The prototype aircraft were designated QT-2: “2” for two-seater, and “QT” for “Quiet Thruster,” officially, though everybody knew it also stood for “on the Q.T.” (on the sly). The first flight was set for August 15, 1967, at an isolated municipal airport in Tracy, California, about 50 miles from San Jose.

Being modified sailplanes, the QTs had a single main wheel mounted in the center of the belly, two tiny wheels under each wing tip to keep the tips from dragging, and a small nose wheel. When the test pilot, Quint Burden, started the engine, he taxied down the runway listing to port until, at around 15 knots (about 17 mph), he had enough speed to level the wings. After he took off, he circled the field, the big wooden propeller turning at a leisurely 800 rpm, about a third the speed of a normal prop for an engine of that size. “This was a really quiet airplane, I tell you,” recalls Hall, who was there for the test flights “We could fly it at 250 feet and barely hear it at all. At 800 feet it was completely silent” to ground observers. There had been a few studies of techniques for quieting airplanes, but for the most part the Lockheed team had to figure out acoustic stealth for itself. There was ground-level masking noise, to start with—crickets and frogs in the countryside, or the background sounds of a small town late at night, which Lockheed pegged at 50 decibels. Lockheed found the QT’s overall sound level was 70 decibels at 1,000 feet.

Then there was the QT’s acoustic signature, which was different from other aircraft. And it was so close to the threshold of hearing that it was perceived in very different ways. Hall thought it was “the gentle rushing sound of the ocean surf” while Burden, the test pilot, described it as an almost subliminal thub, thub, thub. Others were reminded of tires on a distant highway, the whirring of an electric fan, or a flock of birds overhead. The heart of acoustic stealth, the Lockheed guys discovered, is a widely observed but imperfectly understood relationship between detecting noise and perceiving and identifying its source. If you didn’t suspect an airplane was above you or notice that a few stars were being blocked and then reappearing, you might not be aware of anything at all—even if a QT-2 were only a couple hundred feet overhead. Further tests revealed the QT was best flown cautiously, straight and level. A yaw, or turn on the vertical axis, could develop into a larger yaw than

expected because the area around the nose pylon was so large it counteracted the stabilizing effect of the vertical tail. A banked turn could lead to a phenomenon called yaw-roll coupling; in a slow roll, which nobody ever tried, once upside down the wings would probably fall off. “It was a very tender aircraft,” says Les Horn, who notes that the original Schweizer has an 8-G rating, while the QT-2, weighed down by an engine and other gear, had a rating of barely 2.4 G. They needed a long runway for takeoff, then the airplanes could slowly climb to 5,000 feet and cruise at 110 knots. For minimum noise, though, the best speed was down around 70 knots, which was just one knot over the stall speed. In this so-called quiet mode, the craft required only 17 horsepower to stay aloft, according to the tests.

Toward the end of August 1967, the brass arrived at Tracy for a night demonstration. Asked to find the airplane, they peered upward and strained to hear something. Suddenly a bright light appeared directly above them, and the pilot boomed into his mike a single word, “Gotcha!”—amplified, of course, through strategically placed loudspeakers on the ground. Members of the delegation were suitably impressed. Further modifications were made—portholes in the sides to improve visibility for the backseat observers, a bigger vertical tail to offset the effect of the nose pylon, self-sealing fuel tanks, and military avionics. They received a couple of Starlight Scopes, and training began.

Then the QT-2PCs, as the new models were called, were disassembled, put on trailers, and loaded onto C-130s. They were flown to Soc Trang, in the Mekong delta, and the trailers were unloaded and wheeled into a secure hangar, with other trailers encircling them like covered wagons to keep them safe from prying eyes. It was January 1968, and as enemy activity picked up, sandbags were being stacked up around the base. Within a day the funky little airplanes were operational. Under the command of Horn, newly promoted to lieutenant commander, there were briefings in the late afternoon, first flights after sunset, refuelling around midnight, and second flights with a change of pilots until shortly before dawn. They got in 10 hours of flight time every night.

On January 30, 1968, communist forces launched a countrywide offensive during the Vietnamese new year, or TET. Soon enemy rockets and mortar shells were landing in Soc Trang. “I was supposed to get a little green card saying I was a noncombatant,” recalls a laconic Dale Ross Stith, a Lockheed avionics specialist. “What I actually got was an M-14 and 200 rounds.” With Soc Trang under fire, the QT-2s were flown to Vung Tau, which was a little more secure, and the missions continued.

The QT-2 test period in Vietnam in the early months of 1968 was the first use of stealth or low-detection technology in combat and was one of the first operational deployments of night-vision devices aboard aircraft. Night after night, the QT-2 crews peered into the Viet Cong world without the Viet Cong knowing it. Through their Starlight Scopes, the backseat observers saw—in crude, two-tone green and black—heavily loaded sampans traveling on darkened waterways, truck convoys bumping along on unpaved roads, and thousands of campfires twinkling beneath the jungle canopy. They saw VC sappers—demolition teams—with explosives climbing on a bridge along a major highway and onto ocean-going junks on a southern delta river. The observers radioed reports to the U.S. Military Assistance Command, Vietnam, but at that time MACV, for the most part, couldn't respond.

The U.S. military simply didn't have the capability to fight at night. But the potential was clear enough to James McMillan, science advisor to General William Westmoreland, the commander of U.S. forces in Vietnam. McMillan summoned Les Horn to Saigon and, giving him almost no time to prepare, told him to brief Westmoreland on the project. When Horn walked into the briefing room, "it was like a Time magazine centerfold," he remembers, with not only Westmoreland but the U.S. ambassador, the chairman of the Joint Chiefs of Staff, and others. McMillan introduced Horn as the project officer for what he felt was his most significant science achievement in Vietnam. Horn started his briefing, knees shaking, with a grease pencil and a board. Before the briefing was over, Westmoreland was standing with him at the board, sketching surveillance missions that he wanted to run. The prototype quiet spy plane had passed its test, and now it was time to develop its successor.

Back in California, Lockheed had already used its own funds to build what it called the Q-Star. A radiator from a Chevrolet Corvette sat in the nose, and the thing was even more peculiar-looking than the QT-2. The radiator cooled an exceptionally quiet marine Wankel rotary engine. When Curtiss-Wright, which owned the rights to the Wankel engine, decided against manufacturing an air-cooled version for aviation, the Q-Star became a footnote. Lockheed agreed to Stanley Hall's proposal to develop the more conventional aircraft that became the YO-3A. ("Y" indicated pre-production; "O" stood for observation; and the meaning of "A" was unclear, possibly indicating later "B" and "C" models that were hoped for but that never materialized.) The YO-3A had a 220-horsepower Continental engine mounted in the nose and an ordinary propeller shaft in the traditional location but driven at low rpm by quiet rubber belts. It had retractable landing gear mounted inboard on the wings. The observer sat in the front under a large bubble canopy and the pilot in the back. The engine compartment had several kinds of acoustic insulation and a muffler

mounted on the starboard side of the fuselage. It had a brand-new sensor package, including a laser target designator that was not compatible with anything the military services had at the time. But what really set the YO-3A apart from its predecessor was that, at \$11 million dollars, the program was big enough to trigger every kind of corporate and military oversight, procurement headache, and interservice backstabbing imaginable. “We could have done better,” says Stanley Hall, nominally in charge of airframe design, in reality a man whose design decisions were overruled by higher-ranking executives. The YO-3As were not only much heavier than the QT-2s (3,700 pounds versus 2,500 pounds) but also a lot noisier, with a quiet cruising altitude of 1,500 instead of 800 feet.

With U.S. forces already starting to withdraw from the war, and funding levels falling, only 11 YO-3As were built. Nine were sent to Vietnam in early 1970. They were flown and maintained by the Army in Hue Phu Bai (where a few Marines flew them too) and Long Thanh North, a big base east of Saigon. The little nocturnal spy planes, nicknamed Yo-Yos, no longer enjoyed an advocate as high up the command ladder as Westmoreland, who was long gone. There was no effort to see what airborne stealth reconnaissance could achieve if given the right resources. And yet the Yo-Yos did their job well.

Much credit goes to the sensor package, which had leapfrogged several generations of technology from the QT-2’s primitive night vision scopes. Never mind the laser target designator, which didn’t work reliably and was seldom used. Protruding from the fuselage beneath the front seat was an ocular, or eyeball. It was like a periscope but controlled by a joystick, and gimballed, so that the horizon always looked horizontal in the viewer. Equipped with a light amplifier for night vision, along with an infrared viewer that sensed heat, it provided a view as clear as daytime of the nighttime scene below. The infrared viewer moved in tandem with an infrared illuminator, a kind of searchlight mounted in the belly, aft of the other optics. Mark Kizaric was a YO-3A observer.

A few months out of high school and a self-described pimple-faced kid, he became adept at using the ocular and manipulating the joystick. “After a while you’d get in a zone where you didn’t even think of yourself as being up in an aircraft,” he recalls. “You kinda lost contact with the real world. It was more like a video game. You’re just, you know, going along, you’re acquiring targets, noting positions, calling in artillery.

“Most of the time we worked with artillery,” says Kizaric, who is now an engineer in Wisconsin. “One especially strong memory is of a very large sampan moving

down a river, 30 to 40 feet in length and riding very low in the water at about three or four o'clock in the morning where nobody's supposed to be. We directed artillery fire, and though I'll acknowledge a level of skill on my part, [there was] also an awful lot of luck. I happened to get a direct artillery hit. The sampan had to be loaded from stem to stern with ammunition, because there was a blinding flash that, even outside the ocular, lit up the whole night sky. I lifted my head away and there was this brilliant orange flash. A few seconds later I put my eye back in the ocular and the sampan had literally vanished."

On other nights and missions, the Yo-Yos worked with the helicopter gunships of the 1st Air Cavalry. "We would go well ahead of the choppers and acquire the targets, because we were silent," says Kizaric. "We would find, you know, people sitting around campfires, hot truck exhaust, something like that. We could literally see, in some cases, people moving around on the ground. We would note the position, call in the Cobra gunships, and lock onto the target with our ocular and illuminate the target. When people on the ground heard the choppers come in, all the fires go out and they start scrambling. But it was too late then. We had them on the IRI—the infrared illuminator. The gunships had a screen that could also pick up the infrared illuminator, and so they would home in and open fire.

"The YO-3 was a wonderful aircraft, when it worked," Kizaric says. Unfortunately, the Yo-Yos didn't always work. Fuel management glitches led to a few crash landings; one unexplained crash killed the pilot and observer. Though Lockheed fixed some of the fuel problems, morale dropped at the Long Thanh North base, and with it the number of flights per week. The Army discontinued the Yo-Yo flights in August 1971, and the military's quiet spy plane program ended five years and many evolutionary changes after it began. How stealthy were the quiet planes? Where they flew, enemy radar was rare.

They were seen by the enemy from time to time, usually when the aircraft made silhouettes against cloud layers backlit by a full moon. On moonless nights, the little planes were functionally invisible as well as practically inaudible. None of the unarmed spy planes was ever shot down, and on a few occasions, the pilots flew less than a hundred feet above and beside enemy truck convoys at night, just to see if they could get away with it. They did. They left behind some minor folklore: captured VC who wondered how U.S. artillery had tracked them in the dark, and U.S. soldiers who thought they'd seen ghosts when a silent shadow appeared directly overhead.

After the Vietnam war, the Louisiana Department of Wildlife and Fisheries acquired some of the YO-3As, using them for several years to catch poachers. Most of the aircraft were bought by the FBI, which used them for about a decade for surveillance. Today NASA owns one YO-3A, currently mothballed, for making acoustic measurements of other aircraft. Most are in museums, and one is in a private collection awaiting restoration.

The two original QT-2s were sent to the U.S. Naval Test Pilot School at Patuxent River, Maryland. The school had already bought some Schweizer 2-32 sailplanes and designated them X-26As, to appear to be experimental, even though they were not, in order to get around complicated procurement regulations. The QT-2s were redesignated X-26Bs, and their strange front pylons turned out to have a practical use after all, giving student pilots a chance to learn at very low speeds about yaw-roll coupling, which also affects supersonic jets.

The airplanes have a few direct descendants. Schweizer Aircraft of Elmira, New York, has produced its own quiet reconnaissance aircraft line. The Coast Guard, the CIA, the U.S. Air Force, and the governments of Mexico and Colombia have used Schweizer's single-engine RG-8 and pusher-puller twin-tail RU-38 to spot drug smugglers at night, and to electronically eavesdrop and monitor ground events without being detected.

But Schweizer's quiet planes don't fit the modern definition of stealth, which has come to refer to radar instead of sound. Compared to the manned and unmanned reconnaissance aircraft of today, the QT-2s and YO-3As were primitive. Evolution has passed them by, and they seem like some exotic, long-extinct species. Their claim to history is not their effect on the Vietnam war, which was slight, but their early role in the developing stealth field and their exploitation of the physics of sound. Other means were found to accomplish the quiet birds' purpose, and in wars fought today, U.S. military forces own the night.

[Source Document](#)

Enjoy the video below and have a good weekend, but if you have to work don't feel bad – so do I; however, we all need to take time to remember that those who will follow in our footsteps will follow our example – Don't compromise your professional standards and I will do the same.

Robert Novell

August 26, 2016

Robert Novells' Third Dimension Blog

September 2, 2016

Good Morning,

I hope the week was good for everyone and the weekend will provide a little rest from the weekday grind. What I have today is a story, passed to me by a friend, that deals with professionalism as a safety issue. I hope you enjoy this as much as I did and thanks for letting the 3DB be a part of your week.

Zero/Zero

by **Charles Svoboda**

It happened sometime in 1965, in Germany . I was a copilot, so I knew, everything there was to know about flying, and I was frustrated by pilots like my aircraft commander. He was one of those by-the-numbers types, no class, no imagination, no "feel" for flying. You have to be able to feel an airplane. So what if your altitude is a little off, or if the glideslope indicator is off a hair? If it feels okay then it is okay. That's what I believed.

Every time he let me make an approach, even in VFR conditions, he demanded perfection. Not the slightest deviation was permitted. "If you can't do it when there is no pressure, you surely can't do it when the pucker factor increases," he would say. When he shot an approach, it was as if all the instruments were frozen - perfection, but no class.

Then came that routine flight from the Azores to Germany . The weather was okay; we had 45,000 pounds of fuel and enough cargo to bring the weight of our C-124 Globemaster up to 180,000 pounds, 5,000 pounds below the max allowable. It would be an easy, routine flight all the way.

Halfway to the European mainland, the weather started getting bad. I kept getting updates by high frequency radio. Our destination, a fighter base, went zero/zero. Our two alternates followed shortly thereafter. All of France was down. We held for two

hours, and the weather got worse. Somewhere I heard a fighter pilot declare an emergency because of minimum fuel. He shot two approaches and saw nothing. On the third try, he flamed out and had to eject.



We made a precision radar approach; there was nothing but fuzzy fog at minimums. The sun was setting. Now I started to sweat a little. I turned on the instrument lights. When I looked out to where the wings should be, I couldn't even see the navigation lights 85 feet from my eyes. I could barely make out a dull glow from the exhaust stacks of the closest engine, and then only on climb power.

When we reduced power to maximum endurance, that friendly glow faded. The pilot asked the engineer where we stood on fuel. The reply was, "I don't know--- we're so low that the book says the gauges are unreliable below this point. The navigator became a little frantic. We didn't carry parachutes on regular MAC flights, so we couldn't follow the fighter pilot's example. We would land or crash with the airplane.

The pilot then asked me which of the two nearby fighter bases had the widest runway. I looked it up and we declared an emergency as we headed for that field.

The pilot then began his briefing. "This will be for real. No missed approach. We'll make an ILS and get precision radar to keep us honest. Copilot, we'll use half flaps. That will put the approach speed a little higher, but the pitch angle will be almost level, requiring less attitude change in the flare."

Why hadn't I thought of that? Where was my "feel" and "class" now? The briefing continued, "I'll lock on the gauges. You get ready to take over and complete the landing if you see the runway - that way there will be less room for trouble with me trying to transition from instruments to visual with only a second or two before touchdown."

Hey, he's even going to take advantage of his copilot, I thought. He's not so stupid, after all. "Until we get the runway, you call off every 100 feet above touchdown; until we get down to 100 feet, use the pressure altimeter. Then switch to the radar altimeter for the last 100 feet, and call off every 25 feet. Keep me honest on the airspeed, also. Engineer, when we touch down, I'll cut the mixtures with the master control lever, and you cut all of the mags. Are there any questions? Let's go!"

All of a sudden, this unfeeling, by the numbers robot was making a lot of sense. Maybe he really was a pilot and maybe I had something more to learn about flying. We made a short procedure turn to save gas. Radar helped us to get to the outer marker. Half a mile away, we performed the Before Landing Checklist; gear down, flaps 20 degrees. The course deviation indicator was locked in the middle, with the glide slope indicator beginning its trip down from the top of the case.

When the GSI centered, the pilot called for a small power reduction, lowered the nose slightly, and all of the instruments, except the altimeter, froze.

My Lord, that man had a feel for that airplane! He thought something, and the airplane, all 135,000 pounds of it, did what he thought. "Five hundred feet," I called out, "400 feet ... 300 feet ... 200 feet, MATS minimums ... 100 feet, Air Force minimums; I'm switching to the radar altimeter ... 75 feet nothing in sight ... 50 feet, still nothing ... 25 feet, airspeed 100 knots."

The nose of the aircraft rotated just a couple of degrees, and the airspeed started down. The pilot then casually said, "Hang on, we're landing." "Airspeed 90 knots....10 feet, here we go!" The pilot reached up and cut the mixtures with the master control lever, without taking his eyes off the instruments. He told the engineer to cut all the mags to reduce the chance of fire.

CONTACT! I could barely feel it. As smooth a landing as I have ever known, and I couldn't even tell if we were on the runway, because we could only see the occasional blur of a light streaking by. "Copilot, verify hydraulic boost is on, I'll need it for brakes and steering." I complied. "Hydraulic boost pump is on, pressure is up." The brakes came on slowly---we didn't want to skid this big beast now. I looked over at the pilot. He was still on the instruments, steering to keep the course deviation indicator in the center, and that is exactly where it stayed.

"Airspeed, 50 knots." We might make it yet. "Airspeed, 25 knots." We'll make it if we don't run off a cliff. Then I heard a strange sound. I could hear the whir of the gyros, the buzz of the inverters, and a low frequency thumping. Nothing else. The

thumping was my pulse, and I couldn't hear anyone breathing. We had made it! We were standing still!

The aircraft commander was still all pilot. "After-landing checklist, get all those motors, radar and unnecessary radios off while we still have batteries. Copilot, tell them that we have arrived, to send a follow me truck out to the runway because we can't even see the edges." I left the VHF on and thanked GCA for the approach.

The guys in the tower didn't believe we were there. They had walked outside and couldn't hear or see anything. We assured them that we were there, somewhere on the localizer centerline, with about half a mile showing on the DME. We waited about 20 minutes for the truck. Not being in our customary hurry, just getting our breath back and letting our pulses diminish to a reasonable rate.

Then I felt it. The cockpit shuddered as if the nose gear had run over a bump. I told the loadmaster to go out the crew entrance to see what happened. He dropped the door (which is immediately in front of the nose gear), and it hit something with a loud, metallic bang. He came on the interphone and said "Sir, you'll never believe this. The follow-me truck couldn't see us and ran smack into our nose tire with his bumper, but he bounced off, and nothing is hurt."

The pilot then told the tower that we were parking the bird right where it was and that we would come in via the truck. It took a few minutes to get our clothing and to button up the airplane. I climbed out and saw the nose tires straddling the runway centerline. A few feet away was the truck with its embarrassed driver.

Total damage---one dent in the hood of the follow me truck where the hatch had opened onto it. Then I remembered the story from Fate Is the Hunter. When Gann was an airline copilot making a simple night range approach, his captain kept lighting matches in front of his eyes. It scarred and infuriated Gann. When they landed, the captain said that Gann was ready to upgrade to captain. If he could handle a night-range approach with all of that harassment, then he could handle anything.

At last I understood what true professionalism is. Being a pilot isn't all seat-of-the-pants flying and glory. It's self-discipline, practice, study, analysis and preparation. It's precision. If you can't keep the gauges where you want them with everything free and easy, how can you keep them there when everything goes wrong.

Hell of a story and this is one of those stories you read twice. Enjoy your week, take care/fly safe, and join me again next Friday when we will talk about ?????

Robert Novell

September 2, 2016

Robert Novells' Third Dimension Blog

October 7, 2016

Good Morning and welcome to the 3DB. I hope everyone had a good week and are ready for the brief respite that we call the weekend. So, did I misspell Skunk in "Skonk Works?" No, this was the original name given to Kelly Johnson's mysterious division of Lockheed and the story behind this name is best told by Lockheed.

The Name Skunk Works And It's Origin

It was the wartime year of 1943 when Kelly Johnson brought together a hand-picked team of Lockheed Aircraft Corporation engineers and manufacturing people to rapidly and secretly complete the XP-80 project. Because the war effort was in full swing there was no space available at the Lockheed facility for Johnson's effort. Consequently, Johnson's organization operated out of a rented circus tent next to a manufacturing plant that produced a strong odor, which permeated the tent.

Each member of Johnson's team was cautioned that design and production of the new XP-80 must be carried out in strict secrecy. No one was to discuss the project outside the small organization, and team members were even warned to be careful how they answered the phones.

A team engineer named Irv Culver was a fan of Al Capp's newspaper comic strip, "Li'l Abner," in which there was a running joke about a mysterious and malodorous place deep in the forest called the "Skonk Works." There, a strong beverage was brewed from skunks, old shoes and other strange ingredients.

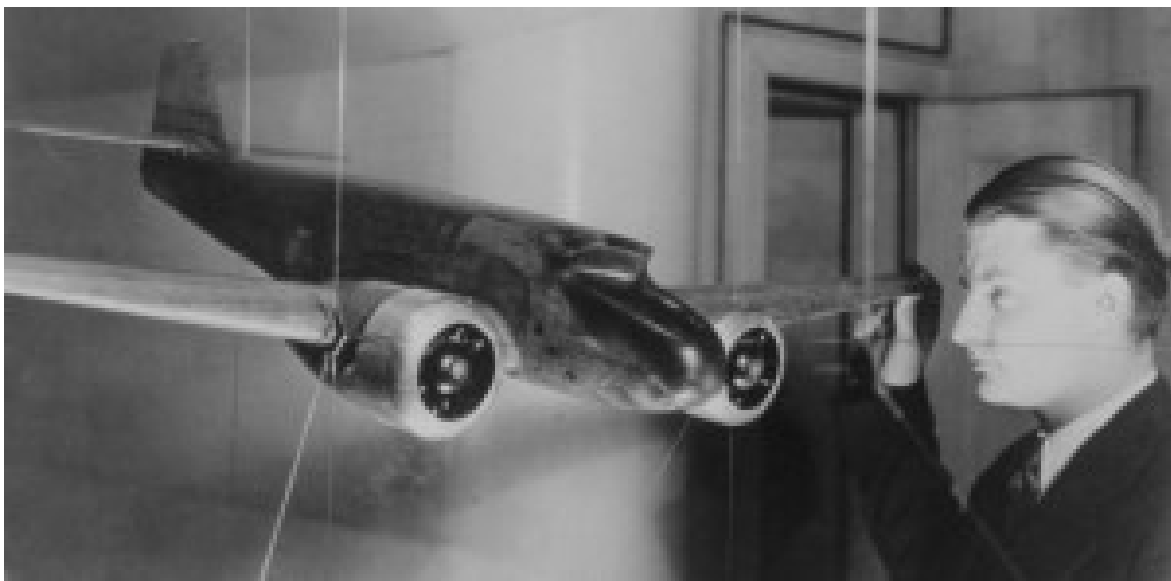
One day, Culver's phone rang and he answered it by saying "**Skonk Works, inside man Culver speaking.**" Fellow employees quickly adopted the name for their mysterious division of Lockheed. "Skonk Works" became "Skunk Works."

The once informal nickname is now the registered trademark of the company: Skunk Works®.

[Source Document](#)

Now that you know the rest of the story let's talk about the man who made the Skunk Works a success.

Clarence “Kelly” Johnson



In the summer of 1938, a twenty-eight-year-old farm boy from the Upper Peninsula of Michigan found himself holed up in a London hotel room. He had just seventy-two hours to design a new aircraft, one that the British Air Ministry needed to prepare for a war that looked more likely with each passing day

The young engineer's name was Clarence Johnson, but ever since he'd trounced a local bully in grade school, he went by the more defiant nickname: "Kelly," which suited his fierce and pugnacious personality.

Shortly after being hired by Lockheed six years earlier, Johnson had walked into his new boss's office, pointed to the company's promising new aircraft, the Electra, revealed a critical instability and then proceeded to correct the errors to the company's amazement.

He lived by the motto “Be quick, be quiet, be on time.” So, while in London to finalize the sale of the new Hudson bomber, the British Air Ministry requested numerous design changes, and Johnson took on the challenge over three nearly sleepless days.

Although amazed by the new design’s precision, Air Ministry officials asked if they could entrust the future of their air force to someone so young. In their wisdom, Lockheed officials said they had complete faith in Clarence “Kelly” Johnson.

In time, it proved to be one of the most important decisions in the company’s history.

To this day, Kelly Johnson’s resume of accomplishments reads like a list of the most iconic airplanes in aviation history.

During World War II, he designed the speedy P-38 Lightning, which pummeled destroyers and intercepted enemy fighters and bombers from Berlin to Tokyo; late in the war his team developed America’s first operational jet fighter, the P-80, in less than six months. Then he delivered the immortal Constellation, which revolutionized commercial aviation. By 1955, Johnson and his secret division of engineers—dubbed Skunk Works—launched the world’s first dedicated spy plane, the U-2, just nine months after receiving an official contract.

Imperious, passionate, and demanding, Johnson was just as likely to deliver a kick to someone’s pants as a compliment to his face. In the pursuit of breakthrough designs, he tolerated errors—with the caveat that they were made just once. He asked only for hard work, good communication, and unwavering honesty. Despite his volatile approach, Johnson earned unparalleled loyalty from his highly skilled team.

His favorite maxim? KISS—Keep It Simple, Stupid.

And thus, revolutionary aircraft after revolutionary aircraft—including perhaps Johnson’s greatest achievement, the SR-71 Blackbird, still the world’s fastest aircraft fifty years after its first flight—rolled off the Lockheed line under Johnson’s watch.

As Tony LaVier, Lockheed’s former chief test pilot and a frequent Kelly arm-wrestling opponent, said, it was Johnson’s planes that “kept us out of World War III.

[Source Document](#)

Now, let’s look at how Kelly Johnson got his start at Lockheed.....

Johnson's Hunch Becomes a Lockheed Signature

After more than 70 tests, Clarence L. "Kelly" Johnson pulled the model airplane with the 55-inch wingspan out of the wind tunnel at the University of Michigan for the final time. It was 1933, and the 23-year-old aviation engineering wunderkind had sensed months earlier that there was a problem with the design of the sleek plane. Now he had proof he could share with the Lockheed Aircraft Corporation engineering team in Burbank, Calif.

The stakes couldn't have been higher. As the first all-metal Lockheed airplane and the first to be outfitted with twin engines, the model represented a dramatic leap forward in aircraft technology. In fact, it represented the future of Lockheed itself. The company had been bought out of receivership the previous year during the depths of the Great Depression by its new owner, Robert Gross, himself just 35 years old. Lockheed was desperately in need of a new aircraft that would once again position it as an innovative industry leader.

Johnson's insight, confirmed by the wind tunnel tests, was that the model's single-tail configuration lacked stability. He recommended a twin-tail design, with the rudders placed directly behind each engine as well as related design revisions. Not only did the twin-tail version far outperform the initial design, it became a signature Lockheed design repeated in other Lockheed models.

Johnson's wind tunnel work was the first of many crucial insights that, in his own lifetime, branded him the century's leading aircraft designer. It also represented the innovative approach to teamwork adopted by Lockheed's new management team.

Lloyd Stearman, the President of the newly-reorganized Lockheed Aircraft and an expert aircraft designer in his own right, began working on designs for an all-metal, single-engine, single-rudder plane. The design was envisioned to replace the wooden, single-engine Orion. The combined brainpower and vision of Lockheed's young leadership team would transform that initial design into a true game-changer.

Gross wanted an aircraft that embodied the very latest in engineering innovations; a plane that would be fast and inexpensive to produce, and easily adaptable to the constantly evolving aviation market. He turned to a team of developers already in place—men like noted engineers Richard Von Hake and Stearman—who each had experience building their own planes. Chief engineer Hall Hibbard brought Johnson on board, and backed Johnson's initial hunch that the plane's single-tail configuration was a problem.

Together, the Lockheed team created a unique twin-engine, twin-tail prototype. It was called the Electra—named after a star in the Pleiades cluster—but also carried the designation Model 10, which was the next available model number in the Lockheed line.



Kelly Johnson was also involved in the development of Howard Hugh's airplane the Constellation. For more on that story click [HERE](#).



[Source Document](#)

Now that you know the rest of the story about the Skunk Works take some time to read the document at the link below. As I am sure most of you know, the CIA paid for most of the projects Kelly Johnson brought to life but did you know that the predecessor to the SR-71 was the Archangel? The featured photo at the beginning of the article is of the Archangel and for the complete story on this project click [HERE](#).

Have a good weekend, enjoy time with family and friends, and remember – **Life Is Short**.

Robert Novell

October 7, 2016

Robert Novells' Third Dimension Blog

October 21, 2016

Good Morning,

Last week we talked about the fastest airplane and this week we are going to talk about the biggest airplane. I want to take you back in time today to talk about "The Goose" and the men who were responsible for bringing it to life; however, this article is not all about Howard Hughes.....there are others.

Now, time to talk about the Goose and the man who gave birth to the concept, the man who designed it, and Howard Hughes who took the blame for all of the problems and delays.....





The HK-1 Hercules

(Spruce Goose)

Now I know that you may be a bit confused with my posting a picture of the Goose and a Liberty Ship side-by-side but there is a good reason for that. Most historians, remember this comment as we move forward, will tell you that the Goose was not the brainchild of Howard Hughes. The man who put the concept of the Goose on the table was Henry Kaiser – the man who made the “Liberty Ships” for the war effort. (I will have a few statistics on Liberty Ships and a video at the conclusion of this article.)

Now it may seem a little strange that a ship builder suddenly wanted to build airplanes but this was not his plan. Henry Kaiser was going to have Howard Hughes build his brainchild. Now, you know why the original designation of the Goose was HK-1 – H is for Hughes and K is for Kaiser; however, the final designation of the Goose was H-4 after Kaiser pulled out of the project and Hughes put his reputation, and money, on the line to prove his critics wrong.

Now, why did Uncle Sam need the Goose.....

The geographic isolation of the US was an advantage, reference keeping the war off our shores, during the Second World War, but this also led to logistic problems with ferrying men and machines to war theaters. Henry Kaiser, a civil engineer who had a habit of thinking big, was building Liberty Ships and had an idea for a large flying boat, which would avoid the U-boat menace in the North Atlantic. He approached Howard Hughes to build the huge craft, which would be called the HK-1.

The HK-1 contract was issued in 1942, as a development contract, and called for three aircraft to be constructed under a two-year deadline to be available for the war effort. The HK-1 was to have eight Pratt & Whitney 3 000 hp engines, a wingspan

of 320 feet and a length of 218 feet. It was designed to be capable of carrying 750 fully equipped troops or two 30 ton Sherman tanks. Its fully loaded cargo capacity was 150,000 pounds and all cargo would be loaded through front doors.

The HK-1 would be built from wood, because of wartime restrictions on the use of aluminum and concerns about weight, and the HK-1 critics nicknamed it the “Spruce Goose” despite it being made almost entirely of birch rather than spruce. The plane was covered with duramold, which involved laminating and molding thin sheets of veneer together and one of the most amazing aspects of the construction was that the Spruce Goose had almost no nails or screws. The duramold process used layers of 1/32 inch wood veneer laid in alternating grain direction and then bonded with glue and steam-shaped. Duramold made the Goose both strong, and lightweight, for its size.

As we know the airplane suffered extensive delays. Part of the time delay was due to Hughes insistence on perfection; however, the technological problems that had to be overcome in the design were numerous and included the testing of new concepts for the large hull, flying control surfaces, and the incorporation of power boost systems for control.

Henry Kaiser pulled out of the program because of the delays and Hughes continued the program alone and redesignated the HK-1 the “H-4 Hercules.” Hughes signed a new contract with Uncle Sam, which now limited production to one prototype. Work proceeded slowly, with the result that the H-4 was not completed until well after the war was over.

The airplane was shipped over the roads/highways to Pier E in Long Beach, California by a company specializing in house moving. It was moved in three large sections consisting of the fuselage and each wing, and a fourth smaller shipment containing the tail assembly parts and other smaller assemblies. After final assembly, a hangar was erected around the flying boat with a ramp to launch the H-4 into the harbor. It has been said that this new hangar was the first climate-controlled building in the United States. Imagine that.....

[Source Document](#)

Now that we have an overview of the project let’s talk about one of the few men Howard Hughes trusted and why the history books are wrong about who conceived the idea of the HK-1.

Glenn Odekirk



(The Man Who Built the Spruce Goose for Howard Hughes)

Glenn Odekirk, whose life and times were indelibly entwined with Howard Hughes and who designed and built the Spruce Goose, the flying boat that became more of a success on the ground than it ever was in the air, has died.

Odekirk was 81 when he died of cancer late Monday at a hospice in Las Vegas.

Over the years Odekirk, who met Hughes on a movie set nearly 60 years ago, was the eccentric billionaire's "shop superintendent," "chief mechanic" and "assistant to the president" at Hughes Aircraft Co.

What he always was in fact was one of the few people Hughes ever trusted to design the planes that the young adventurer flew to the then furthest fringes of possibility. He was involved on two important events, when the industrialist, and flier, made an unsuccessful world record airspeed run in 1935 and a nonstop West Coast to East Coast flight in 1938.

However, Odekirk's most lasting legacy will probably be the mammoth wooden Spruce Goose seaplane with the 100-yard wingspan that has become its own museum in Long Beach Harbor, next to another memento of a Gargantuan past, the Queen Mary.

In a 1979 interview with *The Times*, Odekirk said he conceived of the flying boat when he heard shipbuilder Henry Kaiser complain on the radio about the huge number of vessels being lost to German submarines in World War II.

“Well, I guess I'll have to put wings on my boat,” Odekirk recalled Kaiser saying.

Odekirk approached Kaiser on behalf of Hughes and together the three men conceived the HK-1 (for Hughes and Kaiser), known popularly as the Spruce Goose, even though a preponderance of the wood used was birch. Odekirk was the designer in charge of the flying boat that was to carry 750 fully equipped troops across the Atlantic to fight in Europe.

However, the plane, 218 feet long and 79 feet high, made only one brief flight. That was on Nov. 2, 1947, 70 feet above the water with Hughes at the controls. It was then placed in storage until converted to a popular public attraction a few years ago.

Shortly after that, Odekirk left Hughes to start his own company and the two men saw each other infrequently, if at all, until Hughes' death in 1976.

Odekirk contended over the years that the old flying boat, with some mechanical adjustments and checks, could be flown again.

“To me it would be (as simple as) ABC,” Odekirk said.

[Source Document](#)

OK, so now we know the rest of the story about the concept, and design, and the man/men responsible for bringing the Goose to life. So, let's talk about the man named Kaiser and what he did.

The Liberty Ship Program

The origins of the Liberty Ship can be traced to a design proposed by the British in 1940. Seeking to replace wartime losses, the British placed contracts with US shipyards for 60 steamers of the *Ocean* class. These steamers were of a simple design and featured a single coal-fired 2,500 horsepower reciprocating steam engine. While

the coal-fired reciprocating steam engine was obsolete, it was reliable and Britain possessed a large supply of coal. While the British ships were being constructed, the US Maritime Commission examined the design and made alterations to lessen cost and speed construction.

This revised design was classified EC2-S-C1 and featured oil-fired boilers. The most significant change was to replace much of the riveting with welded seams. A new practice, the use of welding decreased labor costs and required fewer skilled workers. Due to their plain looks, the Liberty Ships initially had a poor public image. To combat this, the Maritime Commission dubbed September 27, 1941, as “Liberty Fleet Day” and launched the first 14 vessels. In his speech at the launch ceremony, Pres. Franklin Roosevelt cited Patrick Henry’s famed speech and stated that the ships would bring liberty to Europe.

In early 1941, the US Maritime Commission placed an order for 260 ships of the Liberty design. Of these, 60 were for Britain. With the implementation of the Lend-Lease Program in March, orders more than doubled. To meet the demands of this construction program, new yards were established on both coasts and in the Gulf of Mexico. Over the next four years, US shipyards would produce 2,751 Liberty Ships. The majority (1,552) of these came from new yards built on the West Coast and operated by Henry J. Kaiser. Best known for building the Bay Bridge and the Hoover Dam, Kaiser pioneered new shipbuilding techniques.

Operating four yards in Richmond, CA and three in the Northwest, Kaiser developed methods for prefabricating and mass-producing Liberty Ships. Components were built all across the US and transported to shipyards where the vessels could be assembled in record time. During the war, a Liberty Ship could be built in about two weeks at a Kaiser yard. In November 1942, one of Kaiser’s Richmond yards built a Liberty Ship (*Robert E. Peary*) in 4 days, 15 hours, and 29 minutes as a publicity stunt. Nationally, the average construction time was 42 days and by 1943, three Liberty Ships were being completed each day.

The speed at which Liberty Ships could be constructed allowed the US to build cargo vessels faster than German U-boats could sink them. This, along with Allied military successes against the U-boats, ensured that Britain and Allied forces in Europe remained well supplied during World War II. Liberty Ships served in all theaters with distinction. Throughout the war, Liberty Ships were manned members of the US Merchant Marine, with gun crews provided by the US Naval Armed Guard. Among the notable achievements of the Liberty Ships was SS *Stephen Hopkins* sinking the German raider *Stier* on September 27, 1942.

Initially designed to last five years, many Liberty Ships continued to ply the seaways into the 1970s; in addition, many of the shipbuilding techniques employed in the Liberty program became standard practice across the industry and are still in use today. While not glamorous, the Liberty Ship proved vital to the Allied war effort. The ability to build merchant shipping at a rate faster than it was lost, while maintaining a steady stream of supplies to the front was one of the keys to winning the war.

[Source Document](#)

While it can be agreed that the number of large transport airplanes, like the Goose, produced would never rival the number of “Liberty Ships”, I think it is easy for everyone to see that the concept of the Goose was the building block for what we refer to today as an “Air Bridge.” The “Air Bridge” concept was used effectively in Iraq, and Afghanistan, by the US military to support ground operations using the C-5, which looks like the Goose by the way, and the C-17.

Have a good weekend, stay close to family and friends, and remember all aviators/aviation enthusiasts are ***“Gatekeepers of the Third Dimension.”***

Robert Novell

October 21, 2016

Robert Novells’ Third Dimension Blog

November 18, 2016

Good Morning,

Welcome back to the 3DB and I hope all is well with you and yours. This week I want to go back to 1978 and talk about the commercial airline industry and a few of the Legacy Carriers. While most of you may remember some of the airlines I will talk about I suspect some of them may have been forgotten by you and many others.

Enjoy.....

The Legacy Carriers

Mergers and failures are difficult to keep up with, but there are some significant changes that have taken place since the 1980s, and the decades after, that can provide us with some perspective of the state of the industry. Do you remember which airlines were around in 1978 and which ones are no longer in existence? If the answer is no, here's a list of who is not around:

- Aloha Airlines failed in 2008
- Air Cal was absorbed by American in 1987
- Braniff failed in 1982 and Braniff II failed in 1989
- Continental is still with us but the current Continental is a remake of the original Continental that was bought out by TI/Frank Lorenzo
- Eastern failed in 1990
- Frontier was absorbed by Continental in 1985
- National was absorbed by Pan AM in 1980
- Northwest was absorbed by Delta in 2008/2009
- Ozark was absorbed by TWA in 1986
- Pacific Southwest was absorbed by US Air in 1988-
- Pan Am failed in 1990
- Piedmont was absorbed by US Air in 1989
- Republic was absorbed by Northwest in 1980
- TWA was absorbed by American in 2001
- Western was absorbed by Delta in 1987

These facts are very telling on the success of deregulation, but there are a number of experts who will argue that this is normal for any industry whether it is airlines or typewriters. However, the important thing to note here is that other industries were not regulated by the CAB.

Airline failures and mergers (what I referred to as absorbed above) occurred for some very simple economic reasons. First, and the most important, was to grow the airline and increase the route structure. The second reason was to control the minor to major markets to offset or minimize loss in the major to major markets where there was stiff competition. The third was only the strong will survive.

The Failure of Braniff and Eastern

Braniff was truly the most colorful airline of all times. The airline began back in the 1920s and as you might imagine there were air mail contracts that helped them with that start. Braniff had a colorful and successful history; however, when it came to deregulation CEO Harding Lawrence made a calculated decision to expand operations rapidly on a newly opened set of domestic and international routes. This was done quickly and new routes began with little advanced marketing or training of personnel. Bad idea.....

Lawrence believed that deregulation would be retracted and that Braniff would retain its new routes. When deregulation was codified into law Braniff found itself with huge cash needs, for operations, but insufficient cash flow because the customer base was marginal at best. Again, its market failure stemmed from poor management strategy and execution; however, a friend, who flew for Braniff, once told me that the CEO had conducted a teleconference for employees and his take on the business strategy was that Braniff would be the biggest airline in the U.S. or they would break the bank. "Damn the torpedoes and full speed ahead" was his philosophy. The rest is history.

Eastern Airlines, formerly known as Eastern Air Transport before the airline was forced to change its name in 1934 because of the air mail scandal that we have discussed previously, was a Florida airline with a proud tradition and a solid route structure. However, most people will blame Eastern Airline's failure on poor management practices and bad labor relations which actually began under the direction of Eddie Rickenbacher. Still, the primary reason for the failure can be attributed to Frank Lorenzo who gutted the airline, alienated the unions and finally forced a strike which led to the failure.

Lorenzo was finally banned from ever being a part of any airline operation, but the damage he did to Eastern and others was reprehensible and his punishment should have been jail and reparations paid to the employees, and families, who lost everything.

The Failure of TWA and Pan AM

TWA and Pan AM were part of the big four that made aviation what it is today and the demise of TWA is the saddest of all the fallen carriers. TWA was not always TWA but started life as Transcontinental Air Transport, The Lindbergh Line

incorporated in 1928, and merged with Western Air Express in 1930. The merger was forced by Postmaster General William Brown and the airline was then known as Trans Western Airlines. In the mid-forties the name was changed to Trans World Airlines.

TWA will always be known as the Howard Hughes airline, and Carl Icahn will always be known as the man who destroyed that airline. TWA seemed to always play catch up instead of leading. Howard Hughes was responsible for the Constellation taking TWA ahead of the pack, but then he refused to move away from the Constellation into the jet age and left the airline floundering. TWA had an east to west route system but never developed its north to south route until after deregulation which put them at a real disadvantage when we talk about competing in an unregulated environment. The story has many ups and downs but TWA 800 was the final blow and things never rebounded.

Pan Am is another sad tale. Pan Am was the pioneer of international aviation, and during the regulatory era, it had been awarded worldwide routes but no domestic routes.

Shortly after deregulation, Pan Am proceeded to rectify the situation by purchasing National Airlines. National seemed to be a good fit with its Miami location and offered a route network that naturally drew planes into the Pan Am hub at Kennedy Airport. Pan Am failed at that merger, not because it lacked foresight or resources, but because it poorly executed the merger. Pan Am's expertise was in delivering international operations where customers readily tolerated delays of an hour or more. It was unable to deliver a competitive degree of on-time performance when compared with domestic services of other U.S. carriers. It was unable to integrate its systems and its work forces effectively, and unable to modernize its fleet. In the last decade of its operations, Pan Am lost more than \$12 billion. It survived by selling off its assets. The Pan Am Building in New York, the Intercontinental Hotel Chain, land in Tokyo, and its routes to Japan and London were all sold for top dollar. Once those were gone, the airline itself disappeared.

Gone, but not forgotten.

I know this was brief but I have a reason. Former employees of each of these airlines have web sites that contain a wealth of information on who, what, when, and where. Take some time to explore the story that they tell. A good starting point for Pan Am is <http://www.panam.org> and for TWA I would start with http://www.twasilverwings-kc.com/htdocs/TWA_historypage1.htm. A good

starting point for Eastern is <http://www.eara.org/history.html> and for Braniff I would start with <http://www.braniffpages.com/>.

Have a good weekend, keep family and friends close and remember to take care of you. If you don't, then you can't possibly take care of anyone else.

Robert Novell

November 18, 2016

Robert Novells' Third Dimension Blog

November 29, 2016

Good Morning,

I think most everyone knows by now that Bob Hoover passed away the past October. A unique and accomplished **Aviator/Aviation Pioneer** who I have written about many times. Below is a tribute written by the NY Times and after that is a video of Bob talking about his career. The video is a little long but well worth your time.

Bob Hoover

-Aviator Whose Aerobatic Stunts Are Legend-

Dies at 94

Bob Hoover, a pilot who escaped Nazi captivity in a stolen plane, tested supersonic aircraft with his friend Chuck Yeager, barnstormed the world as a breathtaking stunt performer and became, by wide consensus, an American aviation legend, died on Tuesday in Los Angeles. He was 94.

Tall and lanky, Mr. Hoover forged a long career studded with aeronautical achievements and feats of daring. The subtitle of his memoir, written with Mark

Shaw, suggests as much: “Fifty Years of High-Flying Adventures, From Barnstorming in Prop Planes to Dog fighting Germans to Testing Supersonic Jets.”

At a World War II air base in the Mediterranean, he wrote, he terrified senior pilots who had been lording it over him by flying a P-40 fighter under a bridge while they were standing on it. At an international aerobatic competition in Moscow in 1966, he put on a thrilling though unauthorized display, flying upside down and executing spectacular loops in a Yakovlev-18.

By his account, the stunt upset his Soviet hosts, and he escaped K.G.B. custody afterward only because of the intervention of a mildly inebriated Yuri Gagarin, the first man in space. The two had struck up a friendship.

Indeed, Mr. Hoover could trace the history of aviation, to the dawn of the space age, by the men he came to know: Orville Wright and Charles Lindbergh, General Doolittle and the World War I flying ace Eddie Rickenbacker, and the astronauts Walter Schirra and Neil Armstrong as well as General Yeager and Colonel Gagarin.

Mr. Hoover’s trademark maneuver on the show circuit was a death-defying plunge with both engines cut off; he would use the hurtling momentum to pull the plane up into a loop at the last possible moment.

But his stunts were not foolhardy. Each involved painstaking preparation and rational calculation of risk. “A great many former friends of mine are no longer with us simply because they cut their margins too close,” he once said.

Mr. Kaplan, of the National Aviation Hall of Fame, said of Mr. Hoover, “You do not survive the life he lived without discipline and caution.”

His favorite plane in the 1950s and ’60s was “Old Yeller,” a P-51 Mustang fighter painted bright yellow. Mr. Hoover sometimes shunned flight suits to perform in a business suit (less trouble for the undertaker in case of an accident, he once said) and a trademark Panama straw hat.

He once invited a crew from the ABC program “That’s Incredible!” to film him in action, pouring a glass of iced tea with one hand while he rolled his plane 360 degrees with the other.

Robert Anderson Hoover was born on Jan. 24, 1922, in Nashville. His father, Leroy, worked for a paper company while his mother, Bessie, kept house. Bob started to fly

as a teenager, “working 16 hours in a grocery store to earn 15 minutes of flight time,” as he told an audience of young admirers.

He soon taught himself the loops and hand rolls of aerobatics, enlisted in the Tennessee National Guard and received orders to Army Pilot Training School.

With the onset of World War II, he was sent to England as a flight instructor for the Royal Air Force. The Army Air Forces later assigned him to Casablanca, Morocco, where he tested newly assembled and repaired planes and ferried them to the front. Valued as an operations officer, he was nevertheless hungry to fight and, through persistence, persuaded his commanders to grant him combat duty.

“I can hit a target upside down or right side up,” he said he told a general.

As a pilot with the 52nd Fighter Group, based in Corsica, Mr. Hoover, a lieutenant, flew 58 successful missions before his Spitfire fighter was shot down by the Luftwaffe in February 1944. He spent 16 months in Stalag Luft I, a prisoner of war camp in Germany reserved for Allied pilots.

Mr. Hoover and a friend escaped from the camp in the chaotic final days of the war, according to his memoir. Commandeering an aircraft from a deserted Nazi base, he flew it to freedom in the newly liberated Netherlands, only to be chased by pitchfork-wielding Dutch farmers enraged by the plane’s German markings.

He remained in the military after the war as a test pilot based at Wright Field in Ohio (now part of Wright-Patterson Air Force Base). There, with jet-propulsion planes replacing propeller aircraft, he took on the dangerous duty of working out kinks in workhorses like the F-80 fighter.

Mr. Yeager was also a test pilot there, and in the fall of 1945 they became friends after getting into a spontaneous mock dogfight that ended in a draw. They were soon performing in air shows around the country.

Both men were recruited to train together at Muroc Field (later named Edwards Air Force Base) in California to fly the Bell Aircraft X-1, the rocket plane that broke the sound barrier in October 1947 over the Mojave Desert.

Mr. Hoover might well have gotten the call to pilot the plane if his rambunctious streak had not undone him, Mr. Kaplan said. Earlier that year, he had buzzed a civilian airport in Springfield, Ohio, in an experimental military jet as a favor to a

friend; the friend wanted his relatives in the area to think that he was flying the aircraft.

Commanders discovered the episode, and Mr. Hoover was relegated to flying the “chase” plane during the X-1 test flights, making observations and taking photographs, while Mr. Yeager made history.

After leaving the Air Force (the successor to the Army Air Forces), Mr. Hoover became a test pilot for General Motors and then North American Aviation, a Los Angeles-based military contractor that later merged with Rockwell-Standard.

He stayed with the company through the 1980s. But as the pace of jet innovation slowed, he became a roving ambassador and showman, flying North American planes at air shows around the world and taking part in a documentary film, “Flying the Feathered Edge: The Bob Hoover Project.”

Mr. Hoover was one of the most honored pilots in American history. His military awards alone include the Distinguished Flying Cross, the Soldier’s Medal of Valor, the Air Medal with Clusters, the Purple Heart and the French Croix de Guerre. In 2007 he received the National Air and Space Museum Trophy, the museum’s highest honor.

Mr. Hoover’s wife, Colleen, died recently. They had lived for many years in the Los Angeles area. Survivors include a son, a daughter and several grandchildren.

Mr. Hoover flew well into his 80s, but not before clashing with the authorities when he was 72, in 1994, when medical examiners from the Federal Aviation Administration declared him unfit to fly, saying that his “cognitive abilities” had diminished.

Mr. Hoover quickly recertified himself in Australia and began a legal battle back home, led by the defense lawyer F. Lee Bailey, who had befriended Mr. Hoover through a mutual love for flying helicopters.

Mr. Hoover emerged victorious 18 months later, and his United States license was restored. His campaign found support among fans who wrote thousands of letters. At the Oshkosh Fly-In and Air Show in Wisconsin, posters were displayed everywhere saying, “Let Bob Fly.”

[Source Document](#)

Have a good week and join me on Friday when we will talk about

Robert Novell

November 29, 2016