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## **"Navigators of the First Global Air Force"**

*From On Celestial Wings* by Col Ed Whitcomb

November 1995

(continued from previous issue)

So at the age of 16, Charlie took his first job oiling the engine on a freighter ship of the P & O Steamship Company plying between Key West, Tampa and Havana. It did not take the lad very long to grow tired of his work in the steaming hot and smelly bowels of the ship. If there was any romance and adventure in that life, it completely escaped him. After a couple of trips he applied for a job working on the top deck where he would have more opportunity to learn about sailing.

As a deck hand, Charlie was industrious and inquisitive. He asked questions and he studied books until, at the age of 18, he became third mate on his ship.

From childhood, Charlie had heard stories of shipwrecks all along the Florida Keys. Spanish sea captains with millions of dollars in treasure had lost their ships in those waters as they made their way back toward Spain. He also knew the nineteenth century tales of how some Key West natives had ridden mules in the shallow waters along the reefs at night and had held lanterns high on poles to confuse pilots into navigating vessels onto the coral reefs. As a result, many Key West merchants sold a variety of exotic merchandise from such wrecked ships. Wrecking ships, recovering the cargo, and selling it resulted in a thriving business in old Key West.

These stories gave young Lunn a good sense of the value of accurate navigation. He became obsessed with the importance of being able to navigate by the stars as a means of maintaining an accurate course on

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Please note - we have changed the access to the online newsletters so that you will no longer need a password to access them. GO TO OUR WEBSITE AT: [www.clipperpioneers.com](http://www.clipperpioneers.com). To request a current membership list, email [sue@clipperpioneers.com](mailto:sue@clipperpioneers.com) with your request. Click on the "Members Only" button on the righthand side to access the current and previous newsletters.

## “Navigators of the First Global Air Force”

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the sea. He studied the stars and he studied navigation books until spherical trigonometry became common place as he worked to master his favorite subject. His diligence in learning the ways of the sea qualified him to be captain of his own ship at the age of 26.

In the early 1930s, an important part of the P & O Steamship Company's business was hauling trains from Key West to Havana. Cubans loaded the trains with sugar. P & O ships then transported the railroad cars laden with sugar back to Key West. From there they traveled on the railroad across the Florida Keys to US markets.

In Havana, Charles met two people who changed his life forever. The first was an attractive, green-eyed, blonde English girl who worked as a secretary in the P & O Office in Havana. After a year-long romance with the handsome young sea captain, she became Mrs Charles J. Lunn. The other person to change his life was Patrick Nolan, a captain for the Pan American Airways Company.

When Pan American pilots moored their flying boats in the Havana Harbor, they were generally near the P & O steam ships. It was a custom for the aircrews to go aboard the ships to visit and enjoy good, well prepared American food. It was on such visits that Captain Nolan became acquainted with Charlie Lunn and his expertise as a celestial navigator.

“Why don't you come up to Miami and make application for a job as a navigator with Pan American?” Nolan asked Lunn.

Lunn said he would have to think about that for awhile. He did think about it. In 1935 a disastrous hurricane swept across the Florida Keys destroying the rail line that had previously brought the trains to Key West. The P & O lines moved their operation from Key West to Fort Lauderdale. It was then that Charlie made up his mind to apply for a job as a navigator with the Pan American Airways Company in Miami.

At that time, Pan American was extending its aerial routes to distant cities of the world. Among the first people to navigate their big flying boats were Charlie J. Lunn and Fred Noonan. The latter name is indelibly written in the aviation history as the navigator who accompanied Amelia Earhart on her ill-fated effort to fly around the world. Although Charles J. Lunn is less well known, he had navigated the big Pan American clippers for five years before his fateful meeting with Gen Delos Emmons.

Classes began on Monday, 12 August 1940, with Charlie Lunn as the chief performer. He stood pleading with his fledgling cadets to understand the complicated procedures that he was explaining. There were no teachers' manuals. He was teaching what he had learned at sea and then modified so he could navigate flying machines. Great minds like Nathaniel Bowditch, John Hamilton Moore, Pytheas of Massalia, and many others had unlocked the secrets to using the stars for navigation. Lunn was the link between them and the thousands of young men who would be flying military missions around the world using celestial navigation.

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**Bank balance as of April 30, 2023 was \$16,160.52.** The opportunity to renew your membership with your donation is on a form on page 7 of this newsletter, which will go toward continuing forward. Thank you to the those who have mailed in your donations in 2023 already! Be sure to clip and send in your check if you'd like to continue to receive the newsletter. Thank you!

## “Navigators of the First Global Air Force”

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With his fine six-foot physique, Charlie was a handsome figure in his Pan American Airways uniform. However in the classroom at the university, he often appeared in front of his class clad in a round-neck, short-sleeved, knit shirt that exposed the brawny, tattooed arms of a son of the sea.

“Don’t write that down,” he would plead. “You’ve got to get it up here in your head. Your notes and papers won’t do you any good when you’re out over the ocean some night.” Navigating over the ocean at night seemed more like a dream than a reality to the cadets. None of us had even been “out over the ocean” in a plane at night. Nevertheless, Charlie doggedly transferred his grasp of celestial navigation to his struggling students. Little by little we became skilled at celestial navigation.

We received 50 hours of in-flight navigation training flying from the Pan American seaplane base at Dinner Key. • The base was located on the coast five miles from the university. There Pan American converted five of its twin-engine Sikorsky and Consolidated flying boats into flying classrooms for day and night training missions. There were 10 large tables in each plane with maps of the Caribbean Sea area. Each table contained an altimeter, a compass, and an airspeed indicator. A large hatch open to the sky was used for taking celestial observations.

It was said that the ancient flying boats would take off at 115 miles per hour, cruise at 115 miles per hour, and land at 115 miles per hour. Cadet Harold McAuliff described the noise the clipper made in landing as being like the sound of a truck dumping a load of gravel on a tin roof. Antiquated as they were, the planes provided a real-life environment for practicing celestial navigation.

Before a cadet set foot in the big clipper training ships, he had to spend many hours atop the San Sebastian Hotel at night. There he got acquainted with the best friends he would ever had - the stars and planets. Cadets learned the names and the relative locations of the 50 brightest stars and the planets. Betelgeuse, Arcturus and Canopus became as familiar as the names of the streets back in their hometowns.

In the classrooms, there were “dry runs” across the Atlantic Ocean from Miami to Lisbon and from Lisbon, Portugal, and from Lisbon to New York. These were routes which Charlie Lunn had flown many times. Charlie provided columns of figures representing the altitudes of given stars in degrees, minutes, and seconds. He also provided columns of figures representing the hour, minute, and seconds of each observation. These were to be added and averaged manually before using the almanac and tables to establish celestial fixes along the course. Neither averaging devices nor computers were in use at the time. Navigation was an exercise in mental gymnastics that seemed to have no ending.

Academic training quickly revealed that the plane’s airspeed indicator did not really measure how fast the plane was traveling. The compass did not tell the exact direction the plane was traveling, and the altimeter did not mark the actual altitude of the aircraft. As an aircraft moves through the air, navigators have to make corrections for such things as temperature, atmospheric pressure, magnetic variation, deviation, precession, and refraction. These were things that Charlie Lunn had learned for himself when he left marine navigation and took to the air.

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**Pan Am Historical Society has a Facebook page. You can view it here:**  
<https://www.facebook.com/pages/Pan-Am-Historical-Foundation/226994925218>

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## “Navigators of the First Global Air Force”

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Days and nights of work and study filled the cadets' lives. As busy as they were the cadets found time for recreation at the beautiful Venetian Swimming Pool and the then uncrowded and uncluttered Miami beach. There were University of Miami football games at the Orange Bowl and dances under the stars at the Coral Gables Country Club. In addition there were many attractive coeds on the campus to keep company with the cadets in their various activities.

Then after 12 short weeks of Charlie Lunn's intensified navigation training, there came the November graduation exercises held at the stately Biltmore Hotel in Coral Gables. Forty-four cadets sat on the stage at the graduation exercises. We listened to speeches by Dr Ashe, Pan American Capt Carl Dewey, and Gen Davenport Johnson. The general, resplendent in his dress blue uniform, spoke for the US Army Air Corps. Several hundred invited guests attended the ceremonies, but few family members of the cadets were present. The country was still in the grips of the depression. Few people could afford the trip from remote parts of the country even for such an important affair.

Gen Davenport Johnson, in his wisdom, spoke of the future and of our mission. “Time is of the essence,” he said. “Our Air Force will be called upon to operate over much larger ranges than is the case in European operation today. If the United States should be become involved in the present world turmoil and be forced to defend the Western Hemisphere, we must be able to reach out from our coastal frontiers to discover, locate, and destroy the enemy before he can get in striking distance of vital objectives within the United States.”<sup>5</sup>

On that happy and peaceful night in Florida surrounded by the luxury and grandeur of the stately Biltmore Hotel and the music of the university band, General Johnson, even with a prophet's mind, could not have understood the significance of the event. In the months ahead, Charlie Lunn's 44 cadets would be navigating missions of inestimable significance. Passengers on their planes would include such luminaries as Sir Winston Churchill, Madame and Generalissimo Chiang-Kai-shek, Presidents Herbert Hoover, Franklin D. Roosevelt, Harry S. Truman, Dwight Eisenhower, and Lyndon Johnson and Generals Douglas MacArthur, George C. Marshall, and Curtis E. LeMay.

Within one year, instead of defending our shores, many of us would be navigating across the world to “locate and destroy the enemy.” Classmates would fly combat missions on every battlefield in World War II: in the frigid Aleutian Islands, across the sand-blown deserts of North Africa, in distant Rangoon, Saipan, and Germany. They would navigate on the first aerial attack on Japan and later with the B-29s burn Japanese cities. They would “seek out and destroy” V-1 and V-2 launching pads and submarine pens on the continent of Europe and help soften up the beaches of Normandy for the D day invasion. They would be prisoners of the Japanese and the Germans, and internees of the Turks. They would help in the project to dig the tunnel for the great escape from Stalag Luft III in Germany. They would travel the brutal Bataan Death March and lose classmates in the horrible Japanese prison camps.

At the commencement exercises of the celestial navigators of the Class of 40-A, General Johnson could have said, “These navigators will follow the stars on a path of tragedy and glory unique in the annals of American military history.”

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**Don't forget to check out our website at: [www.clipperpioneers.com](http://www.clipperpioneers.com)**

## “Navigators of the First Global Air Force”

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### (Footnotes)

· *Coxey's Army* refers to a group of about 500 unemployed persons who marched from Ohio to Washington, D.C., in the spring of 1894 to petition Congress for work on public works projects. The organizer of the march was Jacob S. Coxey.

· By way of contrast, in the mid-1990s fledgling US Air Force navigators selected for the “bomber track: acquire approximately 150 hours of in-flight navigation training by the time they report to their first operational unit.

### (Endnotes)

<sup>1</sup> The Pan American-run school at Coral Gables was a short-run solution to the sudden and massive growth of demand for trained navigators in the Army Air Corps (AAC) (known after July 1941 as the Army Air Forces [AAF]). By late 1941, the AAF was meeting that demand with graduates from three navigation schools of its own located at Kelly Field, San Antonio, Texas; Mather Field, Sacramento, California and Turner Field, Albany, Georgia. By the time the Japanese attacked Pearl Harbor, the Pan American facility at Coral Gables was largely given over to training fledgling navigation for the Royal Air Force. The best scholarly account of aerial navigation down to World War II is Monte D. Wright, *Most Probable Position: A History of Aerial Navigation to 1941* (Lawrence, Kansas: University Press of Kansas, 1972). The relatively brief existence of the Pan American facility as a training school for ACC navigators is noted on page 189.

<sup>2</sup> Army Air Forces. “Flying Training Command Historical Reviews,”

1 January 1939-30 June 1946, held by Historical Research Agency, Maxwell AFB, Alabama.

<sup>3</sup> Ibid. Prior to World War II, the Army Air Corps had no school dedicated to training aerial navigators and Monte Wright in *Most Probable Position*, 175, describes pre-World War II navigation training in the AAC as “neither lengthy nor rigorous.” In fact, specialized officer aircrew members were unknown in the prewar ACC and navigators, as a distinct group of rated aviators, simply did not exist. All flying officers were pilots, some of whom might be called upon to perform navigator functions. Aerial navigation was considered just another flying skill that some pilots were expected to master. The most ambitious AAC training program for pilot-navigators was instituted in 1933 when the 2d Bomb Group at Langley Field, Virginia, and the 7<sup>th</sup> Bomb Group at Rockwell Field, California, offered standardized navigation courses to pilots drawn from units across the Air Corps. The program was cancelled the following year, a casualty of limited resources and the Air Corps’ costly involvement in government airmail operations. From 1934 until the establishment of the Pan American school at Coral Gables, navigation training reverted to individual units where it was conducted on a limited and more or less haphazard basis to meet local requirements.

<sup>4</sup> Charles J. Lunn, interview with author, 1980; and Officer of the Chief of the Air Corps to Dr. B.F. Ashe, letter, subject: Pan American Navigation School, 24 July 1940.

<sup>5</sup> Pan American Airways, Inc., *New Horizons*, New York December 1940, 11.

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## Do You Know About Events that are Upcoming?

There are many events and get-togethers that may be of interest to our readers. If you know about one, or have a group that gets together on a regular basis - or even once in awhile - please let us know so we can share with our readers! :)

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## Pan Am Philadelphia Area Pilots (PAPAP)

We meet the second Tuesday of every quarter at the Continental Inn in Yardley, PA at 1200 for a bit of BS before going to our private conference room upstairs for lunch.

Been going on since 1992 and it's a great way to stay together. Contact: Chris Blaydon [215 757 6229](tel:2157576229) or [cblayd@aol.com](mailto:cblayd@aol.com)

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## Flying Boat Reunion clip now available for viewing

A 15-minute special that aired April 27, 2016 on Ireland's popular RTE TV show "Nationwide" is now available for viewing. China Clipper First Officer Robert Hicks (94); Merry Barton, daughter of Folger Athearn (Pan Am's station manager in Noumea, New Caledonia in 1941); Director of the Foynes Flying Boat Museum Margaret O'Shaughnessy; Ed Trippe and Mary Lou Bigelow were interviewed during the Foynes Flying Boat reunion. <http://www.rte.ie/player/us/show/nationwide-21/10566026/>

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## Pan Am -- Personal Tributes to A Global Aviation Pioneer

The Pan Am Historical Foundation recently published the highly acclaimed *Pan Am – Personal Tributes to a Global Aviation Pioneer*, a book that caught the attention of Pan Amers and aviation enthusiasts around the world. Visit <https://www.panam.org/shop/669-panam90-book> to order.

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## Flying Somewhere? Useful Tip for Air Traffic

FlightAware is a free flight tracker that will change what you think about live flight tracking and aviation data. It can be seen at: [www.flightaware.com/](http://www.flightaware.com/)

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## Layovers for Pan Am

Check out Pan American layovers at [www.paacrewlayover.com](http://www.paacrewlayover.com), where some 81 cities and over 161 hotels are shown in photos.

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## Check Out the Lockerbie Website

A website has been created for Lockerbie. It can be viewed at [www.lockerbie103.com](http://www.lockerbie103.com). It might be a worthwhile site to check out, especially for those who plan on visiting Lockerbie. Be sure to enter the web address in the browser (not Google Search, etc.) with the www. Otherwise, they will get hundreds of Lockerbies and 103s and may not find the web site after 15 pages. ~Claude Hudspeth

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## Thank You for the Stories You're Sending In! Keep 'em coming!!

We've been getting some good stories about memories of your times with Pan Am, and we want you to know we appreciate it! Keep them coming, and you will see them in the upcoming issues! Are there memories you've written down that you'd like to share with us in this newsletter - short or long? Have you come across an interesting article that you'd like to share with us? Would you share pieces from a book you've written? Send them to [sue@clipperpioneers.com](mailto:sue@clipperpioneers.com).

*...and God will lift you up on Eagle's Wings, bear you on the breath of dawn,  
make you to shine like the sun and hold you in the palm of His hand.*

## IN MEMORIAM

**Donald "Don" Lee Funk** of Evergreen, Colorado passed away on May 19, 2023. Don was 90 years old. Born on June 13, 1932 to his parents Adolf and Olga (Weinbrenner) Funk at their home in Hope, KS He graduated from Hope High School in 1950. Following high school, he attended Kansas Wesleyan and then transferred to the ROTC program at Kansas State University. He graduated from the ROTC program in 1955. He was commissioned into the United State Air Force as a pilot and was honorably discharged after 9 years of service.

Following his discharge, he flew for Pan American World Airways for 28 years. San Francisco was his home base until November 1989 when he retired to Evergreen, Co. During his years at Pan American, he met his future wife, Hannelore "Lore" Busse, who was serving as an airline purser. Don and Lore were married in Germany on February 11, 1983. They were married for 32 years.

**For more information and full obituaries about each of these friends who will be missed, click on "In Memory Of..." at our website: [www.clipperpioneers.com](http://www.clipperpioneers.com). Know of someone from Pan Am who has passed? Email the obit to Sue Forde at [sue@clipperpioneers.com](mailto:sue@clipperpioneers.com), or mail to: **Sue Forde, P. O. Box 3457, Sequim, WA 98382****

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**Thanks to those of you who have sent us stories! Keep 'em coming!**

## RENEW TODAY!

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***Thank you for your continuing support of the Clipper Pioneers!***

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Join us on a fabulous luxury Silversea Cruise!  
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Come sail with us in Pan Am style and support the Pan Am Museum! Enjoy exclusive amenities and guest benefits by booking your suite through this fundraiser.

We've secured the very best pricing and a liberal cancellation policy for our exclusive PAMF group (all pricing excludes airfare and transfers). In addition, our special pricing will be guaranteed until Dec. 31, 2022.

Open to friends and family! Space is limited! Many suites offer a 3rd guest with a pullout couch.

**Venice to Venice: August 2 - 9, 2023**

**VOYAGE ITINERARY**

Silver Spirit – 7 Days

Leaves Port: August 2, 2023

Voyage SL 230802007

Day 1: Venice (Departs at 7pm)

Day 2: Trieste, Italy

Day 3: Zadar, Croatia

Day 4: Hvar, Croatia

Day 5: Dubrovnik, Croatia

Day 6: Split, Croatia

Day 7: Kvarner Bay, Croatia

Day 8: Venice (Arrive at 8am)

**For More Information**

**The Pan Am Museum Foundation  
[board@thepanammuseum.org](mailto:board@thepanammuseum.org)  
[www.thePanAmMuseum.org](http://www.thePanAmMuseum.org)**

**What's Included prices starting at \$4,400 per person**

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