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“Navigators of the First Global Air Force”

From *On Celestial Wings* by Col Ed Whitcomb - November 1995

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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 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.

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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.

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

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You can now access the mailing and phone list of your fellow Clipper Pioneers. Go to the Clipper Pioneer website - www.clipperpioneers.com - and scroll down to the bottom of the home page. Click on “Members Only” - when the password box pops up, type in username & password on print edition. You will be able to access the current list of names, address, phone #s, and email addresses there.

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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.

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.”⁵

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

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Be sure to check out “The Maiden of Maiden Flights” slideshow on our website (www.clipperpioneers.com) in the right-hand column - the old photos are amazing - from a bygone era!!

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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.”

FLIGHT THROUGH THE DISTANT PAST - FLEET MODEL 7 AIRCRAFT

Registration number 788 Victor

MORNING AUGUST 27th, 1953

The weak light of sunrise filters through the misty rain that swirls over this small sandy Mile Branch airstrip, four miles west of Cecil Field Naval Air Station, on the north-east coast of Florida. I lie miserable inside my sleeping bag atop a few pieces of damp cardboard that I had hoped would insulate me from the wet sand floor of the corrugated tin hanger. My blue and yellow biplane stands with its lower starboard wing providing a secondary roof over my head that is both help and hindrance. The help comes in the form of a deflector that prevents a leak through the rusty tin roof from falling directly on the dirty canvas engine cover that lies spread over my sleeping bag. The hindrance is derived from the drip of rain water that seeps through the roof to drop several feet and strike the dope tight fabric of the upper wing surface with a resounding ping.

Sleep evades me and I lie contemplating my recent antique aircraft purchase. This venerable Fleet Model 7 biplane was constructed in 1929 and is powered by a 125 horse power radial five cylinder engine. It has a length of twenty one feet, eight inches from tail to nose and the upper wing has a span of twenty eight feet composed of fabric and wood. A modification added in later years is a sleek metal propeller to replace the inefficient thick wooden prop of old. The rear open cockpit is small for my six foot one inch frame and on first settling into the seat I find myself much too close to the instrument panel for ease of observing the gauges. On further contemplation I decide it is not of great significance as there is not much to observe. There are *no radios to tune; only an empty hole indicates where the airspeed indicator once resided; and the altimeter is inoperative*, so the need for constant surveillance is minimal. Up on top of the glare shield stands a liquid magnetic compass that will aid my dead reckoning across America. To monitor the smoky oil throwing Kinner engine there are tachometer, oil pressure, and temperature gauges. To the left of these items is located the magneto switch with its worn placard “OFF”, “BOTH”, “RIGHT MAG” and “LEFT MAG” selections. To measure quantity remaining in the twenty five gallon fuel tank a calibrated glass tube with a float gauge protrudes downward beneath the upper wing. On the left cockpit

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sidewall is a quadrant with throttle and mixture controls, their knobs worn smooth of paint after years of service. Out of the floor center line the control stick stands ready, and forward to right and left are the rudder pedals, dirty black except where the metal is shiny and worn from years of buffing against pilots' shoes. The use of this collection of indicators and controls will become second nature in the weeks ahead.

I rise up on one elbow and look outward. The view between the landing gear struts is depressing. Gusts of wind blow blankets of rain across the field momentarily obscuring the view of the piney woods that border the far end of the takeoff area. I give up the idea of further rest and roll out of my damp sleeping bag to pull on my pants and Navy dungaree shirt. In minutes I stow my sleeping gear in the front cockpit along side my duffel bag that contains personal effects for my proposed flight west to California. I leave my silent aircraft and run through the rain to the dilapidated World War Two cinder block ready room. Once inside, I make coffee and contemplate the stale bear claw that will constitute breakfast on this wet and windy sunrise. While the coffee water heats I look out the window and estimate the rain is falling from a three to four hundred foot ceiling with a forward visibility of perhaps one half mile. I spend a few minutes once again going over my flight plan written out on a small cardboard sheet. $\text{Distance} \times \text{estimated groundspeed} = \text{time to destination}$, $\text{fuel burn per hour} \times \text{time enroute with a comfortable reserve} = \text{fuel required}$, compass heading (derived from true course modified by magnetic variation, and compass deviation) this compass heading will have to be adjusted in flight by visual estimation of wind direction and velocity. Today's problem will be one of limited visibility. To estimate the wind one must be able to observe smoke from chimneys, flying flags, and "cats paws" over bodies of water. For dead reckoning the iron compass (railroad tracks), highways, and observation of towns and cities refine the process but on this day I will be hard-pressed to locate these usual signs to verify my course over the rain-filled countryside.

Once again my mind ranges over my money supply; with no extras I have enough to buy aviation fuel enroute and live off the cheese, crackers, apples, and peanut butter that I have already purchased. This foul weather day after day is frustrating as my money supply ebbs away. I am determined that today must be my day of decision!

II - SEA DUTY COMPLETED

Weather of this mid-August 1953 had started out hot and sunny as I arrived back in Mayport naval facility. The date marked the completion of my military enlistment as a crew member on board the aircraft carrier USS TARAWA (CVA-40). I had made two cruises, one a shake down to the Caribbean, followed by a six month cruise with the Sixth Fleet in the Mediterranean. Now that my term of duty was complete I mustered out of naval service.

During my tour of duty when not at sea and based at NAS Cecil Field, I had worked for a small fixed base operator as a flight instructor in my off duty time. The field had been an auxiliary training base for the Jacksonville Naval Air Station during World War 2 but in the intervening years it had reverted to private ownership and I was employed by the operators, Dee and Reg Tower. I taught primary flying to local boys and off duty servicemen. The group of old pilots that were habitués of the field were all WW 2 types and I spent many happy hours of hanger flying with these veterans and occasionally obtained a flight in one of their fast private aircraft. In this group there was an old Navy Chief who possessed two vintage biplanes but no longer flew them because he could not pass his CAA flight physical. He owned a Waco UPF-7 and a Model 7, 1929 Fleet. As the time for my discharge drew near I talked the old Chief into selling me the Fleet for eight hundred dollars. On August twelfth 1953 I purchased this venerable old flying machine. My total Navy savings of \$700.00 added to my \$241.30 mustering out pay plus \$181,38 travel discharge pay

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gave me the grand total of \$1,122.68, a bare minimum to purchase this aircraft and fly it cross country to San Jose, California.

III - AIRCRAFT CHECK OUT

On the field, an old leather-jacketed ex RAF Battle of Britain pilot, whom I greatly admired, offered to give me some dual instruction in my newly acquired machine. The airspeed indicator was missing and the altimeter was inoperative so I needed instruction to learn the proper whisper sound of wind through the flying wires to determine proper approach and landing airspeeds. The other necessity was locating the visual altitude for airport patterns. My friend flew with a velvet hand and soon showed me the fundamentals of flying by sound and the seat of my pants. Within days we progressed to instruction in a few basic aerobatic maneuvers which I struggled to emulate with medium success. The following week I flew a cross country to become acquainted with the idiosyncrasies of the aircraft. One of the first lessons I learned was the tendency of this biplane to ground loop on landing. This particular airplane was designed with a tail skid and later modified to a full swiveling tail wheel. (not connected to the rudder pedals as all later aircraft would be equipped) Because of this design modification it is imperative to land and maintain precise runway heading with the rudder, and as the ship slows to feed pressure to the main wheel brakes to maintain directional control. (A year later when I sold the aircraft to two United Airline pilots and explained this need for extreme caution, they waved me off with disdain, with the result that at a later date they lost control of the aircraft on takeoff and crashed into a line of parked aircraft, putting one of the pilots in the hospital and destroying the lower right wing.) On my first cross country I flew north to Indian River where Cape Kennedy is now located. I visited a girl friend over a weekend and then started back to my home field, Mile Branch, Jacksonville. Before daybreak under a clear sky I climbed south from Indian River expecting an uneventful ride to home base. As I approached Jacksonville there was a rapid formation of ground fog. It would be termed tule fog in California. The unique characteristic of this radiation fog is that it forms with a thickness of only a few feet right on the ground. This day I looked down vertically through it and could see the earth but when in the approach to land in an open field the slight angle prevented sight of the landing area ahead in the dense fog. I immediately pulled up and turned north but the fog was already forming throughout the area.

In south Florida they have what are called "go to market roads". The road beds are built up out of the swampy surrounding land and the top has a pronounced curvature to allow heavy rain to run free of the asphalt surface. Off to my right I could see the faint outline of one of these roads just protruding out of the misty low lying fog. Without delay I flew over and made an approach and landed on this public road. When I first touched down the old biplane rolled straight down the center line but as I slowed down the road crown forced me to use heavier and heavier brakes to maintain heading. There was a sudden loud snap as the right brake cable failed and I was now just a passive rider — no longer in control of my machine. With a slow sickening swerve the airplane started to accelerate in a turn as the full castoring tail wheel ran down hill. With a whip like motion I was turned through more than two hundred and seventy degrees of heading, out of control. There followed the sharp sound of splintering wood as my wing tip cut off a roadside mail box. In moments a farmer arrived on the run to investigate my unexpected arrival. Together we inspected the damaged wing tip. With his shop tools I cut clean the shattered wing tip bow and cleaned the fabric back to the outer rib. The job was complete with a few loops of rough sack twine passed through the wing covering to prevent peel back in flight. The farmer brought a swedging tool and we spliced in a piece of cable from his barn to repair the brakes and the aircraft was again air worthy. This repair process took two hours and by then the fog had dissipated and I flew back to home base without further incident. The previous owner of the aircraft guided me in rebuilding the wing tip, fabric work, and proper repair of the brake cable.

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*...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

Burleigh B. Wood, Sr. passed away on April 10, 2010. Burleigh was born on October 27, 1934, in Seminole, Oklahoma. In July of 1964 he hired on with Pan American World Airways as a Pilot Engineer and attained Captain on the B-707 then Captain on the B-747. In 1986, Pan American sold its international routes to United Airlines and Burleigh was one of the Captains on the B-747. Later, he transferred to United where he finished out his career as an airline pilot.

For more information about each of these friends who will be missed, click on "In Memory Of..." at our website: www.clipperpioneers.com. Know of someone from Pan Am who has passed? Email the obit to Jerry Holmes at jerry747@copper.net

Bermuda Cruise

The cruise is now over and everyone had a good time.
The weather was wonderful. I'm just returning from same as I write this.
Nothing new at the meeting that won't wait until next month.
Watch our website - www.clipperpioneers.com - for photos and updates.
~Jerry Holmes

A gathering of other Clipper Pioneers, specifically those from the New York City metropolitan region

The gathering is on 17 June, 2010 at Port Jefferson, New York (Long Island). The starting time is around 1030 until 1200, where beverages will be purchased and stories told annnnnnd. The lunch starts at noon. The menu choices are: Salmon, Chicken, Rigatoni, Skirt Steak and a choice of desert, Molten Chocolate Cake and Cheesecake, New York style.

The boat leaves at 0900 from Bridgeport and arrives around 1030 in Port Jefferson. The return ferries are at 3PM and 4:30PM. Get to the ferry terminal early so you can park your car and Bob Johnson will have a list of the names who should get roundtrip tickets. Alternatively, see Paul McVay.

Those who are interested send a check for \$31.00 and your choice of meal and desert IF you are going to drive in a car, train or taxi to Port Jefferson. IF you are going to travel the Bridgeport/Port Jefferson ferry, send your check for \$43.00 per person and your meal choices.

Contact information: W. P. Atkinson, 31 Cherry Lawn Lane, Northport, NY 111768. Phone: 631-757-0386, Email: watkinso@optonline.net. Make the check out to Wm. P. Atkinson.

Upcoming Pan Am Events

If you have an upcoming event you'd like everyone to know about,
please send it to us at least a month ahead for the next newsletter. Thanks!

Pan American Airways Crew Layover Hotels - <http://www.paacrewlayover.com/> - is a website that has photos from many hotels from the present and the past. Be sure to check it out!

FBI Tips - How to Avoid Fraud

Read this and make a copy for your files in case you need to refer to it someday. Maybe we should all take some of his advice! A corporate attorney sent the following out to the employees in his company:

1. Do not sign the back of your credit cards. Instead, put 'PHOTO ID REQUIRED.'
2. When you are writing checks to pay on your credit card accounts, DO NOT put the complete account number on the 'For' line. Instead, just put the last four numbers. The credit card company knows the rest of the number, and anyone who might be handling your check as it passes through all the check processing channels won't have access to it.
3. Put your work phone number on your checks instead of your home phone. If you have a P.O. Box use that instead of your home address. If you do not have a P.O. Box, use your work address. Never have your SS number printed on your checks. You can add it if it is necessary. But if you have it printed, anyone can get it.
4. Place the contents of your wallet on a photocopy machine. Do both sides of each license, credit card, etc. You will know what you had in your wallet and all of the account numbers and phone numbers to call and cancel. Keep the photocopy in a safe place.

I also carry a photocopy of my passport when I travel either here or abroad. We've all heard horror stories about fraud that's committed on us in stealing a name, address, Social Security number, credit cards.

Unfortunately, I, an attorney, have first hand knowledge because my wallet was stolen last month. Within a week, the thieves ordered an expensive monthly cell phone package, applied for a VISA credit card, had a credit line approved to buy a Gateway computer, received a PIN number from DMV to change my driving record information online, and more.

But here's some critical information to limit the damage in case this happens to you or someone you know:

5. We have been told we should cancel our credit cards immediately. But the key is having the toll free numbers and your card numbers handy so you know whom to call. Keep those where you can find them.
6. File a police report immediately in the jurisdiction where your credit cards, etc., were stolen. This proves to credit providers you were diligent, and this is a first step toward an investigation (if there ever is one).

But here's what is perhaps most important of all: (I never even thought to do this.)

7. Call the 3 national credit reporting organizations immediately to place a fraud alert on your name and also call the Social Security fraud line number. I had never heard of doing that until advised by a bank that called to tell me an application for credit was made over the Internet in my name. Here are the phone numbers: Equifax: 1-800-525-6285; Experian (formerly TRW): 1-888-397-3742; Trans Union : 1-800-680 7289; and Social Security Administration (fraud line): 1-800-269-0271.