



From a Northeast Airlines DC-3, to an American Airlines Boeing 727

## Long Island Early Fliers Education Foundation

July, August 2021 Newsletter

Editor: Fred Coste

Volume 6, Issue 4

### Editor's Note:

Pilots are well known for engaging in "hangar flying." These are the times when pilots of all experience levels get together over a beer or two, OK maybe 7 or 8; that's not important! What is important is the camaraderie of sharing the experiences gained with others who understand what was happening. It's a time to discuss the lessons learned and the remembrance of times past.

I recently had the privilege of speaking with a fellow member of the Long Island Hangar of Quiet Birdmen. Mike Mangan is a humble, soft spoken gentleman with a great memory and vast experience as an airline pilot. Mike mentioned that he had written some of his memories down for a book he has written and has been kind enough to share three candid and very different stories about his life in the aviation industry.

Mike's career started in 1953 with Northeast Airlines. In almost 40 years in the airline business, Mike flew everything from DC-3s to Boeing 747s with Braniff, Eastern Airlines, Trans Caribbean Airways and finally American Airlines.

The following is an excerpt from the manuscript (Chapter 9) of "Vignettes of a Pilot Life" by Michael P. Mangan (Bon Vivant, Raconteur and QB). If you would like a copy of Mike's book, You can do an Internet search for the title: "Vignettes of a Pilot Life" and order online.

*Excerpts from:*  
**“Vignettes of a Pilot Life”**

This information represents the Pilot’s procedures and problems in maintaining scheduled Airline Service shortly after Wilbur and Orville got out of the business.

The era was the 1950s and I was a young pilot working for Northeast Airlines, operating DC-3 airplanes. We were based in Boston or New York; wherever your seniority number would get you a position.

**The Airways and flight instruments:**

Instrument flying and navigation in the New England area at the time (the 1950s) was just as primitive as the airplane (the DC-3). Basically, it was “Ball, Bank and Clock,” for the turns. Then the Clock, Heading Indicator, Airspeed Indicator and Altimeter for approaches. The only computer in the operation was between our ears. The pilot had to know where he was at every moment. He really had to know the area. Those flight operational conditions existed in the Northeast operating region right up and into the early 1960s.

**Visual Airways:**

At times, we used “Visual Airways.” It was a system that had been put in place in the 1920s and preceded radio navigation. Basically, it was used by the Air Mail Service Pilots. Those Airways were designated flight paths that were lighted at night. They consisted of sets of lights

spaced about ten miles apart. At a minimum altitude of about 1,500 feet above the terrain, a pilot could see from one light to the next.



The only airway of this type that I can remember actually using, went from Manchester up to Burlington, through the valley. There was a little mnemonic sentence that helped us remember the ten light identifier codes. The identifier enabled us to know which light we were approaching in the sequence along the airway. At the present time, I can barely remember the details and don’t think I ever really learned the memory jogger very well. However, I do remember going to Burlington several times at night with a DC-3 and using these old visual lighted airways. It was an era that I do not believe many people in this day and age can remember, or would even imagine existed.

All of our instrument approaches in the New England area were made on low frequency radio ranges or on radio beacons (ADF). They were strictly timed approaches, down to about 400 feet above the ground and one mile visibility. Those

were the basic minimums for a non-precision approach.

The radio airways were all low frequency. They consisted of four legged ranges (radiation pattern). The legs were designated by color and number, as an Airway. Naturally, all of that low frequency radio equipment was subject to "static;" a constant and very irritating problem.

When on an airway, we flew along the right side of the range to the "Cone of Silence," inbound. When outbound from the station, it was the same method of staying to the right side of the "Beam;" the airway. Turning the volume up, when going away, or down when approaching the Station helped the pilot determine whether he was headed outbound or inbound.

If we did not see the field at the designated time, we pulled up and climbed out on the range leg or designated heading to continue to the next Station by using an orientation pattern to reestablish ourselves for another approach.

When executing an ADF approach, we flew a magnetic heading, correcting for wind, to the station (non-directional beacon). From there, we timed our letdown on the designated heading to the airfield. At the required time and altitude, if we did not see the airfield, we pulled up and circled back to the beacon. Of course, if we saw the field, we landed.

When I think of those conditions and the surrounding terrain where we operated daily, the only statement that comes to mind is: "GOD! I'm really lucky to be alive!" However, we really did it all and I am still here. Living proof that luck wins out with a little help from skill and daring. But, then again, I have always found that luck is the confluence of skill and daring."

Those were the "Bad Old Days." The hours were long, the required skills were very exacting, the work was arduous and the pay was miniscule. I really can say that I do not miss those times at all!

### **A PILOT VIEW OF HISTORY AND**

### **MYTHS:**

### **THE DC-3**

*(An endearing myth and reality all in one shiny package.)*



The mid-1950s was an operational era that is quite ancient and virtually unknowable to the airline pilot of today. It is usually passingly referred to as: "The pre-jet era." Presently, there are very few professional pilots who were actually involved in those operations, who can still clearly remember

**demands of the long-past scheduled airline working conditions, on any realistic basis.**

**The clock and the calendar have taken their toll. The reality of that time presents a picture totally different from the popular legends and our present-day romanticized notions of that operationally and economically difficult era.**

**The DC-3 that is still extolled in romantic and endearing terms, was in reality a fairly prehistoric piece of machinery even in the 1950s. The airplane had been designed in the 1920s and built into the early 1930s with all of the engineering skill, technology and craftsmanship of that bygone era. In truth, operating such an ancient machine was really quite an experience.**



**The airplane was a delight to be cruising around in, when the weather was sunny and clear. It was a fun day, VFR airplane. It was the perfect machine for the leisurely operations around the islands in the Caribbean or a pleasant summer and fall in New England. In short, it lent itself perfectly to pleasant living and comfortable atmospheric conditions. It was the perfect accoutrement to the**

**leisurely dream life depicted in most travel brochures.**

**However, in the Northeast winter, with its snow, icy and blustery winds, maintaining a regular airline schedule and at times, just staying alive, was very often a tedious, tenuous and exceedingly demanding real world "JOB." Basically, it was just a lot of hard work!**

**The airplane could not be dispatched into an area of known icing. Unfortunately, due to the weather service available at the time, there was plenty of unknown icing in the New England winter. Once we were in it, the battle for survival started. Believe me, very often it was a real and viscously ferocious struggle, with the outcome at many times, unpredictable.**

#### **THE WEAPONS OF SURVIVAL:**

**The anti-icing equipment on the DC-3 was very basic and really quite primitive by modern aircraft standards. Operational, reliability and effectiveness were, at best, marginal.**



**A mixture of alcohol and water, quite similar to a cocktail, plus some heat from**

inside the engine cowling was used to keep the carburetors from icing up. The propellers were deiced with the same mixture of alcohol and water. The mixture was thrown across the front of the propellers from "Slinger Rings." Those rings were mounted at the propeller hub. As the ice broke off, it would be flung against the side of the airplane just behind the Pilot's and Co-Pilots heads with a sharp and very loud "BANG." To say the least, it was nerve racking.

Any airplane that had operated in that region for a few winters had a ridge on the fuselage just behind the cockpit area. Eventually, it was necessary to install a plate on each side to repair the fuselage and to absorb further damage. This "Mark of Service," was the result of the prolonged, repeated impact of the propeller ice.

The pilots had to be constantly on the alert for any signs of an icing condition. If the propeller anti icing system was not activated as soon as possible and the ice did form on the propellers, the de-icing fluid might run across the top of the ice and would be ineffective in causing it to break away. The same fluid was sprayed across the windshield to reduce the ice build-up, as well as into the throat of the carburetor when we did not have enough engine heat.

The center portions of both pilot windshields were equipped with strong hydraulic wipers. They, combined with the

anti-ice fluid, might keep the windshield partially clear in moderate icing conditions.

Inside the cockpit, each pilot had a hand-held warm air tube, which was directed against the window using a hook suspended from a bungee cord across the top of the window frame. With that tube, hot air from the Janitrol heater was blown directly onto the windshield. The pilots would try to keep it trained on the areas of ice accumulation in the hope of melting some of it.



As if that rig was not primitive enough, there was one last item of, "EMERGENCY EQUIPMENT;" the Direct Vision (DV) window. It was a portion of the windshield (approximately one third) that was held in place by two screw type fittings. When the screws were loosened, the portion of the window could be slid toward the center of the windshield, out of the line of sight. The pilot could then see directly out of the airplane.



As can be imagined, that was really not a very reassuring prospect while hurtling through the clouds at about 100 miles an hour in an ice and snow storm. Apparently, it had been designed to please the leather helmet, goggle and scarf crowd. As a piece of equipment, it was nicely romantic and heroic, but not a truly practical idea. More heat would have been a much better solution.

Beyond that scenario, every time a pilot read the pre-starting checklist, he would automatically give the two window retaining knobs a twist. The result, of course, was that it would have taken super human effort to loosen them, if necessary. For that reason, I always carried a twelve inch water pump pliers in my flight bag. It was the only practical tool that would loosen those over tightened retaining knobs.

I had only had to use those pliers once, but that was enough. We were executing an, emergency approach into Worcester, Mass. With a heavy build up of rime ice. We had heat, alcohol and METRO power

on the engines and were still sinking at three hundred feet a minute.

As our last ditch effort, we loosened both windows, but used only one in the full opened position. The other was held in reserve in case it was needed at the very last minute. It was a tough night, but we made it into Worcester. Thanks to my pliers, which by the way, I still possess! I should probably have the framed.

As can be imagined, on a rough winter afternoon in the New England Region, the anti-ice fluid along with the hydraulic fluid from the windshield wipers was constantly leaking onto the pilots. In addition, there was the continual dripping of water from the emergency overhead escape hatch and coffee spilling from our paper cups as we bumped along. The cockpit area would become quite a mess.

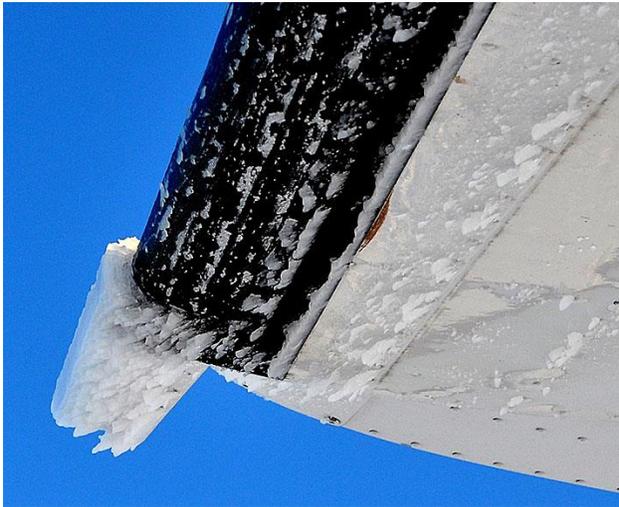
There was a mixture of oily and acrid fluid everywhere. The pilots were thoroughly spattered with alcohol, water, hydraulic oil and of course, coffee. Our uniforms, which were light blue, sustained a great deal of "wear and tear."

#### THE ANTI-ICING EQUIPMENT:

The anti-icing equipment was considered an optional accessory on the original airplane. However, in New England, it was definitely an operational necessity.

The basic weight of the airplane was 25,000 pounds. The wing and tail anti-icing

components weighted approximately 242 pounds. Unbelievably, the operating company did not want to install the equipment for fear of losing valuable payload. Mercifully, the FAA issued a waiver for the additional weight of the components.



The system was composed of rubber covers (boots) on the wing and tail leading edges. Each of the “Expander boots” consisted of three chambers. The chambers were inflated and contracted to break the ice off the leading edges and try to maintain a flyable wing and tail airfoil. The inflation cycle was: first the two outside tubes simultaneously, then the center tube. The air pump for the system was on the left engine. If you lost the engine or the air pump, you lost the game.

The “boots” were pretty good against clear ice, but rime ice could get you into real trouble. It could build up over the boots, if they were in operation, thus negating their purpose. Therefore, they were operated intermittently in any type of icing conditions.

When ice started to accumulate, they were turned “on” until the ice was broken off the wing. Then they were turned “off” and the pilot kept an eye on the build -up. As more ice started to accumulate, they were again turned “on.” That operation continued until the airplane was out of the icing situation.

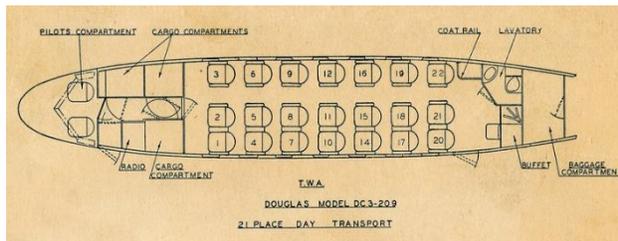
In reality, it was not a job for the faint of heart. It was cold, messy, dangerous, uncomfortable, complicated and basically just plain hard work. That was just operating the airplane and staying alive. Getting paid regularly was almost as difficult. Collecting the money that the Company owed on your expense account report was just about impossible.

Despite the difficulties of operating the airplane in the New England Winter, it was a good, rugged and very reliable machine. Considering that it had been designed using 1920s/30s technology, it had certainly proven itself as the cornerstone of the Air Transport Industry.



The DC-3 carried twenty four passengers. It had a Captain, Co-Pilot and one Stewardess on board. The galley was comprised of a couple of jugs of coffee and water strapped to the rear bulkhead. There was a counter top with a small sink and an overboard drain. The toilet was located adjacent to the galley.

If any food was put aboard, it consisted of sandwiches and soda in chests stored under the sink. Very much like a small sailboat. There was a baggage compartment behind the galley bulkhead. It was limited to a few hundred pounds of freight and baggage. That was the extent of the personnel conveniences available on those airplanes.



The heating in the airplane was supplied by a "Janitrol" heater. That unit stood about three feet high and burned gasoline from the right fuel tank. It was mounted in a small bay just behind the Co-pilot. There was an unheated air scoop up on the right-hand side of the airplane, which supplied air for the heater combustion and for passenger cabin ventilation. At times the scoop would ice over and of course, the heater would quit. At that point, you knew that you had been in the icing conditions long enough; it was time to get out.

Opposite the heater bay, there was a small baggage door and bay located behind the Captain. Just aft of that was the radio rack. The cabin bulkhead and door separated the cockpit area from the passenger compartment.

The hydraulic system on the DC-3 raised and lowered the landing gear and operated the wing flaps and engine cowl flaps. The system was pressurized by one pump on the right engine. A stand-by operation was supplied by a "Wobble Pump" with a long handle located to the left of the Co-Pilots seat. With that hand pump, it was possible to manually pump the landing gear and flaps down. The settings for the flaps were simply: Quarter, Half, Three Quarters and Full down.

The various other controls were similarly uncomplicated. There was a tail wheel latch lever under the center control pedestal. The landing gear lever had a latch to lock the handle down to the floor. The center pedestal contained the throttles, fuel mixture controls and engine heat controls. On either side of the pedestal, there was a control to select the appropriate fuel tank for each engine.



In our operation, the airplanes had three 200 gallon fuel tanks located in the belly. To the right of the Co-Pilot seat there were two hydraulic controls for the engine cowl flaps. Those cowl flaps were located about midway on each engine nacelle. They were opened and closed hydraulically, in order to control the temperature of each engine.

The electrical system consisted of two engine driven generators and a battery. It was a very basic and reliable system. I can remember losing generators several times. However, there was plenty of electrical power from one generator to supply all of the aircraft operational requirements.



For navigation, the airplane was equipped with ADF, VOR and ILS radio equipment. Communications was via HF and VHF radios. We could maintain contact with Company Headquarters on the HF throughout the system. However, most of our communication with the company was via VHF at the Stations we serviced. They in turn would use telephone landlines to relay our information to the Dispatcher in Boston.

That was about all there was to it. The DC-3 was a simple, basic and very reliable machine. Other than one oil leak, which necessitated an emergency diversion into Hartford, I cannot remember actually losing an engine or, indeed, any system of consequence on the DC-3. Undoubtedly, that was attributable to the pure simplicity of their design and the rather rugged construction of the airplane.

The DC-3 was just a very basic machine. It was well suited to short haul, fair weather operations. For a fellow in his early twenties, it was a great training machine that provided a lot more experience than I really care to remember.

The Federal Interstate Highway System combined with the improved reliability of the automobile and of course economics, sounded the death knell for the DC-3 operation in the Northeast Region of the United States by the end of the 1950s. Indeed, those were the factors which marked the end of the regional airline system.

Transportation has and always will be an evolving, growing and improving industry.

***Now, to the future!***

**TRUE AVIATION EXPERIENCES:**

by Captain Mike Mangan

**A Visit to "Coffin Corner,"  
The Edge of Flight**

**Editor's Note:**

**(As background to the term)**

***"Coffin corner" (also known as the aerodynamic ceiling or Q corner) is the region of flight where a fast but subsonic fixed-wing aircraft's stall speed is near the critical Mach number, at a given gross weight and G-force loading. In this region of flight, it is very difficult to keep an airplane in stable flight. Because the stall speed is the minimum speed required to maintain level flight, any reduction in speed will cause the airplane to stall and lose altitude. Because the critical Mach number is the maximum speed at which air can travel over the wings without losing lift due to flow separation and shock waves, any increase in speed will cause the airplane to lose lift, or to pitch heavily nose-down, and lose altitude.***

**I was in the Dallas Dispatch Office changing equipment. It had been about an hour ago that I brought flight 346 in from San Diego. The weather in Dallas was clear and, as usual for July, about 100 degrees. My next assignment was dispatched from Dallas to LaGuardia in New York as Flight 738.**

**The weather charts showed an extensive warm front stretching from Chicago to New Orleans. It was a fairly normal mid-summer, mid-continent display of warm frontal activity. I expected extensive thunderstorm activity with build ups to 60,000 feet in the central section of the country, tapering down to about 35,000**

**feet toward the Gulf. It was a real powerhouse building throughout the area. Definitely a challenge to the maximum operational abilities of the airplane. We were in for a very hard days work.**

**The dispatcher had filed our flight plan on the usual route; up over Little Rock, St. Louis and Pittsburgh to New York. Our speed was Mach .82, altitude 35,000 feet. I didn't like the routing, so I refiled to the south, over Memphis, Knoxville, Roanoke and up to New York.**



**I had a Boeing 727 with a full load of passengers, fuel and freight – about 200,000 pounds in all. Our departure from Dallas was standard, not much local weather.**

**About an hour and a half out of Dallas, we began to encounter the back side of the warm front. It was massive! Build ups to at least 60,000 feet with anvils everywhere; boiling and churning across the continent; well over 30,000 feet. The atmosphere had the power of 10 to 15 atomic bombs. My radar was filled with activity. At 35,000 feet we were in the tops. I requested**

**37,000; We were pretty heavy for 39,000 feet.**



**We were about 300 miles south of St. Louis and the radar was showing a pathway through the buildups. The area ahead to the Southeast was bright and seemed clear. Below was a solid mass of churning power; no place for an airplane! Left and right were dark clouds building up. The airplane was touchy; we could only bank 2 degrees either side. At that rate, it would take 5-10 miles to reverse course, that was not an option.**

**It was time to put "Chance" (what I call a convergence of skill and daring) to work. I advised the cabin attendants to secure all equipment and make sure that the passengers were belted in, then belt themselves in. I requested 39,000. We struggled up to it very gingerly.**

**We were in "Coffin Corner" and could feel it. At our weight, we had only about 15 knots between high speed and low speed stall. I could not bank more than 2 degrees**

**without feeling the airplane start to shudder. A bank increases the "G" load (weight) and would cause a stall.**

**We were still at Mach .82 with the airspeed indicating 250 knots. The needles in the Mach meter were just about touching. The flight deck was extremely quiet; we were feeling and listening for any shudder or rumble. Wisps of cloud rose around us. Below was all hell, churning and swirling, a mass of unmeasurable power.**

**I held on for about 15 minutes until we reached the eastern side of the front. Finally, we were in the clear ahead of the active warm air mass! I requested 37,000 and a vector to Roanoke. When we changed to Washington ATC, we were cleared down to 35,000.**

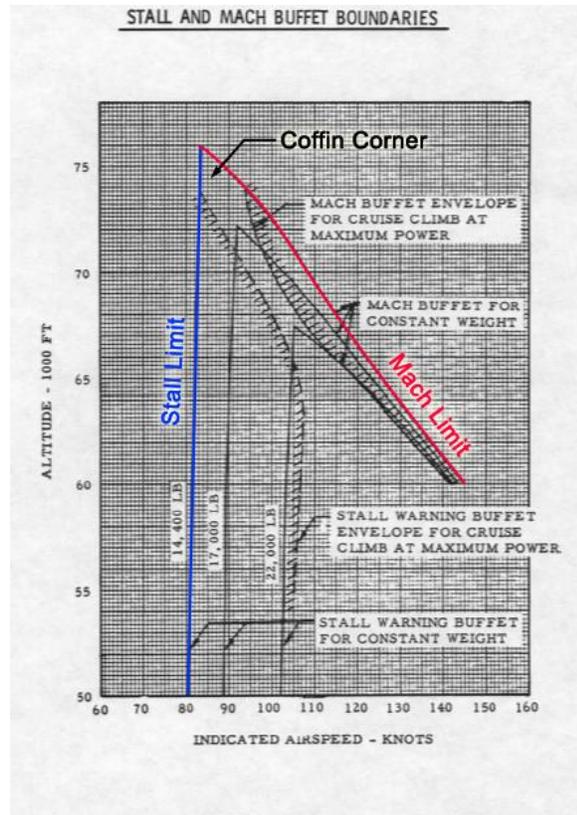
**My "Chance" had paid off! We were successfully out of danger and operating well within the flight envelope. I advised the cabin attendants to resume their normal service. All was well!**

**When I arrived at LaGuardia, about 20 minutes behind schedule, I was advised that mine was the only Dallas flight to make it in that afternoon. Two were held in Dallas, one diverted to Chicago and one diverted to St. Louis.**

**It was a tough day of operation, but a really good day of work.**

**Notes:**

Each model airplane wing is designed for maximum productivity. Engine power and aircraft weight are the other two factors that determine the operational performance envelope of the model. (Speed, maximum altitude, fuel consumption, etc.)

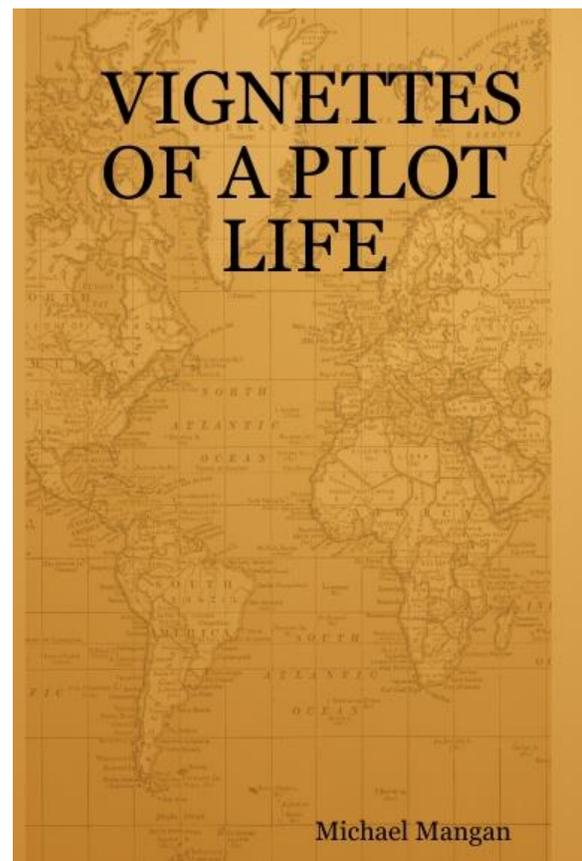


“Coffin Corner” can be pictured as a bell curve with altitude on the vertical axis and speed on the horizontal. Weight is the variable. If you picture 250 knots as the center of the apex; as you increase in altitude, the space between high speed on the right and low speed on the left narrows. At the apex, they meet and the airplane stops flying; “stalls.” Recovery from the stall usually requires a decent of several thousand feet.

Weight is the factor that determines the altitude of the apex. Banking increases the “G” force (Weight).

A common training maneuver for pilots is to perform a 360 degree turn while holding 60 degrees of bank. In that configuration, one experiences 2 Gs, or double your body weight. - Editor

To read more of Mike’s stories, you can purchase his book by Internet search of the title:



**Editor’s Note:**

*The first airplane to encounter the “Coffin Corner” scenario was the Wright Flyer. The take-off speed of the airplane was 30 MPH*

*and the cruise (top speed) was 31 MPH. Even the slightest turn brought the airplane very close to stalling. What Mike refers to as "Chance" – the convergence of skill and daring, I have generally thought of as "finessing the airplane."*

*Call it what you like, when you're there, you know it!*

### **SAVE THE DATE:**

**Sunday, September 19, 2021**

Bayport Aerodrome Society Neighborhood  
Appreciation Picnic.

**L.I. Early Fliers Education Foundation  
will have a hangar sale that day, as  
well as Ice Cream sales.**

**Stop by and visit!**

**Time to smile.....**

on March 10, 1876  
Alexander Graham Bell  
makes the first phone call ever.

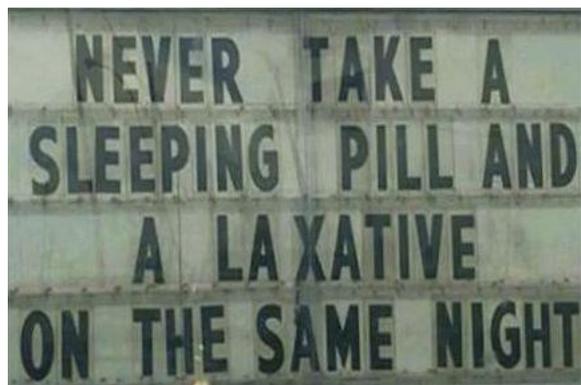


and moments later he was notified  
that his car's extended warranty  
had expired.

**What do we learn from  
cow, buffaloes & elephants?**



**It's impossible to reduce  
weight by eating green grass  
and salads and walking**





**Do you ever wake up, kiss the person sleeping beside you, and feel glad that you are alive? I just did and apparently will not be allowed on this airline again....**

**MY WIFE ASKED ME WHY I SPOKE SO SOFTLY IN THE HOUSE. I SAID I WAS AFRAID MARK ZUCKERBERG WAS LISTENING! SHE LAUGHED. I LAUGHED. ALEXA LAUGHED. SIRI LAUGHED.**

**Who would've thought one day we'd be smoking weed at a family gathering, but the illegal part would be the family gathering. 🍓**

**They say that for Christmas we can meet up to 8 people without any problems.**

**But I don't know 8 people without problems... 🍓**

**Reminder!**

**Next meeting is Sunday, July 18<sup>th</sup>**

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Long Island Early Fliers Education Foundation is a non-profit organization founded in 1956 and Chartered by the New York State Education Department. We are dedicated to aviation education and preserving Long Island's aviation heritage. Volunteers who want to help educate and preserve our history are always welcome. Annual Membership in our organization is \$35.00 for individuals; \$50.00 for families.

Donations of aviation memorabilia, aircraft and aircraft parts, aviation clothing, display quality models and items of historic significance are always welcome and greatly appreciated.

Cash donations, as well as artifact donations are tax deductible. You may visit our facility at Bayport Aerodrome, Vitamin Drive, Bayport New York most Wednesdays between the hours of 9:00 a.m. and 1:00 p.m. Appointments are necessary as airports are secure locations and can also be arranged at other times for your convenience. Contact us at: L.I.E.F.E.F., P.O. Box 43, Holbrook, NY, 11741 or call (631)-523-5407 (Fred Coste) or fax: 631-588-2147

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