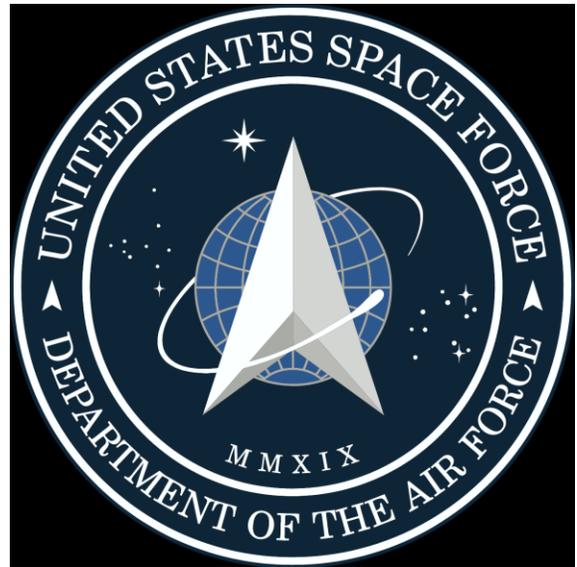




The Vision



The Reality

Long Island Early Fliers Education Foundation

Long Island Early Fliers Club

March, April 2020 Newsletter

Editor: Fred Coste Volume 5, Issue 2

Editor's Note:

The sun was glaringly bright, the road was dead straight and the waves of heat rising from it looked like shimmering water. The outside air temperature was over 110 degrees and the speedometer read about the same number as my sister Suzie drove across the Mohave toward Barstow. A very long freight train was crossing that desolate area at what seemed a snail's pace, no doubt going to the same crossroad in the middle of the desert. My parents were asleep in the back seat. I quietly motioned to slow down for fear of a blowout at that speed, in that heat.

The ultimate destination, a few days from now would be Lompoc, California a small town just outside Vandenberg Air Force Base, where my sister was starting her first job as an elementary school teacher. Despite its spelling, the name of the town is pronounced with the long "o"; Lom-Poke. Her excitement was about settling into her new life on the west coast, all I could think about was seeing Vandenberg Air Force Base.

A few days later, after getting Suzie settled, it was time see the base. In 1966, the world had not yet become as secretive and mistrustful; base security consisted of an Airman who stepped out of a small flat roofed booth that was well lighted along this dark, empty road in the middle of nowhere. He saluted as we slowly drove by. I thought, WOW...COOL, as I returned the salute, trying to be friendly.

We drove into the darkness, the Pacific Ocean blending with the sky. There were lights, up ahead over what looked like a dune, similar to the scenery back home on Long Island. There was low vegetation and a rocky shoreline. We drove on. Suddenly, I found myself looking at a Titan ICBM standing attached to its gantry, bathed in bright white light. The stark brightness that suddenly broke that darkness was breathtaking. We paused to admire this behemoth. I was hoping that by some chance we would see a launch, but I realized there was no venting LOX; she wasn't going anywhere tonight, but it didn't hurt to admire her sitting there.

The gantry had plastic wrapped around parts of the frame near the top and I could see the shadows of people working up on the section near the "nose cone." That was the type of

rocket that had been taking Gemini Spacecraft into space.



What it looks like in daylight

Science fiction writers are frequently credited with being the visionaries who spark innovative achievement. Cell phones, CAT scanners, MRIs and robotics are products inspired by science fiction. Over the years, we have traveled millions of miles in space, both on manned missions and with the help of robotic devices. We now find ourselves focusing much of that talent into a sixth branch of the US military; the United States Space Force.

While there are those who poke fun at the similarity between the Mission

Patches of Star Trek's Starfleet Command and the United States Space Force, the fact remains that unbridled creativity yields amazing accomplishment. I'm just hoping the warp drive and transporter will be perfected in my lifetime!

Where it all began.....

In much the same way the U.S. Air Force began the process of evolving after World War I until it was finally established after World War II, military space activities began immediately after the conclusion of World War II. General Hap Arnold, Commanding General of the United States Army Air Forces, was an early visionary for the potential of military space operations. In 1946, General Arnold directed Dr. Theodore von Kármán of the RAND Corporation to determine the feasibility of a satellite for strategic reconnaissance. This study identified nearly all current space mission areas, including intelligence, weather forecasting, communications, and navigation.

After the United States Air Force gained its independence in 1947, General Bernard Schriever was appointed to head the Western Development Division; charged with development of the Air Force's space and

intercontinental ballistic missile programs. It was responsible for developing the Advanced Reconnaissance System, which would have been the Air Force's first satellite constellation.



Sputnik 1 caused many Americans to search the night sky that October night.

On 4 October 1957 the Soviet Union launched Sputnik 1, the world's first satellite. This event transformed space development overnight, helping the national security establishment understand the importance of the space domain. While most of the focus was on NASA and the civilian space program, the military went into high gear, but few were aware of it.

Every branch of the military suddenly started developing their own space technology plans. The first American satellite was the Army Ballistic Missile Agency's Explorer 1 which was launched on the Naval Research Laboratory's Vanguard rocket. The Air Force still continued military space

development amidst this competition from the Army and Navy. In 1958 the newly formed Advanced Research Projects Agency assumed control over all military space programs, but this centralization was short lived and it gave control back to the services in September 1959. The creation of NASA in 1958 significantly hampered the Army and Navy's space programs, absorbing the Army's Jet Propulsion Laboratory and Army Ballistic Missile Agency and Navy's Project Vanguard and Minitrack satellite tracking network, but only absorbed the Air Force's "Man in Space Soonest" program, merging it with Project Mercury.

Development of Air Force space systems continued with the Missile Defense Alarm System (MIDAS) and Strategic Air Command's SAMOS reconnaissance satellites, as well as the Thor, Atlas, and Titan space launch vehicles. The Air Force and Central Intelligence Agency also jointly developed and operated the Corona reconnaissance satellite. The development of reconnaissance satellites became a national priority after an American U-2 reconnaissance plane was shot down over the Soviet Union, making aerial reconnaissance impractical. In 1961 the National

Reconnaissance Office was created as a joint Air Force–CIA activity to manage all spy satellites.

In 1961, Secretary of Defense Robert McNamara designated the Air Force as the lead military service for space, further diminishing the space programs of the Army and Navy. The relationship between the Air Force space program and NASA continued to grow closer, with agreements being reached to share information and personnel. The Air Force also began development on the crewed Boeing X-20 Dyna-Soar spaceplane and Manned Orbiting Laboratory, both of which were later canceled as their functions could be carried out by robotic systems. General Schriever's advocacy for military space led to the 1961 establishment of Air Force Systems Command (AFSC), which included a dedicated Space Systems Directorate to centralize all space development, separating it from the missile program.

In the early 1980s, the Air Force began to realize that it was insufficiently organized for military space operations, with assets and responsibilities split across Strategic Air Command, Air Force Systems Command, the Aerospace Defense Center, and the Air Staff. In 1979, the Air Force Scientific Advisory

Board concluded that "currently, the Air Force is inadequately organized for operational exploitation of space and has placed insufficient emphasis on inclusion of space systems in an integrated force study." In 1981, the Air Force took a measure to address this discontinuity, establishing the consolidated space operations center in Colorado Springs and began discussing the creation of a space command to centralize its space activities. On 1 September 1982, Air Force Space Command (AFSPC) was created as an Air Force major command. Air Force Space Command centralized all space operations, including missile warning, launch operations, satellite control, space domain awareness, and satellite communications.



The first GPS III was launched December, 2019 has up to 8 times the anti jamming capabilities of earlier models.

In March of 2018, Air Force officials told Congress that our Global Positioning System satellites that guide both precision guided weapons and car

navigation systems are vulnerable to attack from Chinese and Russian lasers and missiles. Air Force Secretary Heather Wilson said in House testimony that her service is working on developing jam-proof GPS satellites that are currently vulnerable to a variety of weapons.



Secretary Wilson stated: "With respect to the threat that we face, I think it's everything from jamming from the surface or a cyber attack, to direct-ascent satellite weapons, either from Russia or China. In 2007 the Chinese tested an anti-satellite weapon and spread debris all over orbit," Wilson told a House Appropriations defense subcommittee hearing.

The U.S. doesn't have a GPS backup system. Most of our critical infrastructure, including power grids, banks, transportation systems and telecom networks, rely on the Global Positioning System. Beyond mapping and other location services, GPS is used for highly precise timing necessary for high-speed financial trading, wireless

network synchronization and power grid synchronization. Up to now, the rising risk of a major outage has gone largely unnoticed. "I think GPS vulnerability doesn't attract much attention because there have not been any major calamities yet, unlike with cybersecurity," says Marc Weiss, a researcher at the National Institute of Standards and Technology.

A disruption in GPS would paralyze scores of business and other services, and with GPS use on the increase, a plausible work-around is becoming critical. A 2013 report from the Government Accountability Office pegged the cost of a GPS outage in the billions of dollars, and that might be a vast understatement. Google and Boston Consulting Group concluded in a 2012 report that the value of geospatial services, only a portion of GPS's total value, added up to \$1.6 trillion in just the U.S. Experts point out that the potential for civil unrest would rise, too, as a variety of systems, from ATMs to cellular networks, go down. Intentional wireless jamming, solar flares, satellite malfunctions and foreign threats are among the rising threats to GPS.

When asked, Dana A. Goward, president of the Resilient Navigation and Timing Foundation, about

quantifying the value of GPS services, his response is blunt: "What's the value of oxygen? GPS is oxygen. If it goes away, really, really bad things happen." Now the head of the RNTF, a nonprofit that promotes the need for resilient navigation systems, Goward points out that GPS has become a ubiquitous and invisible utility.

A recent bill would put the Coast Guard in charge of restarting work on a land-based backup system, known as LORAN, which is short for long-range navigation system. The old system would get an overhaul that adds automation and stability. The cost to run the updated LORAN would be less than \$50 million per year, a drop in the bucket compared with the cost of a major GPS disruption. Uncle Sam has kicked the can down the road for years when it comes to fortifying GPS. The need for a GPS backup system was identified at the end of the Clinton administration. After gaining some traction, the funding for a backup was scrapped by the Obama administration in 2009.

The Department of Transportation (DoT) has begun organizing field demos of technologies to provide back-up in case the Air Force's Global Positioning System (GPS) goes dark, says DoT's General Counsel Steven Bradbury.



Speaking to the National Space Council at its sixth meeting, Bradbury explained that under Security Policy Directive 39 (issued in 2004), DoT is in charge of all civil GPS uses. It is also co-chair of the National Space-Based Positioning, Navigation and Timing Executive Committee (PNT ExCom) with the Defense Department.

“Through this PNT ExCom,” Bradbury explained, “we’re working closely with DHS [Department of Homeland Security] and other federal departments and agencies to address policy and technical issues including the security and resilience of GPS receivers.”

“In light of the critical importance of GPS, DoT has asked for submissions from technology vendors interested in providing GPS backup technologies, and we’re now organizing field demonstrations of those technologies,” he added.

DoD for years has been worried about the rapid spread and increasing capability, of jamming systems — particularly those of Russia and China. Indeed, Russia has used jamming technologies in conflicts in its neighborhood, and stands accused by several Nordic nations of using jamming to disrupt a NATO exercise in Norway in 2018. The Air Force is working on a number of initiatives to figure out how to better protect GPS and to make it more resilient in the event of an attack on the space-based system.

The Trump Administration’s fiscal year 2020 budget request for DoT included \$105 million to “support designated civil elements of the Air Force GPS program” as well as “civil GPS augmentations and related activities.” GPS is used around the world for everything from enabling banking transactions to Google Maps for lost tourists, as well as by US and allied militaries for myriad missions from helping Army tanks navigate in the Iraqi desert to guiding cruise missiles to their targets.

With all of these vulnerabilities, it does seem like the establishment of a designated United States Space Force is a logical next step. It hardly seems necessary to have a fleet of starships

patrolling deep space, however the ability to service, upgrade and repair existing hardware or investigate threats to our GPS constellation by foreign powers is a much needed endeavor.

The U.S. Space Force's mission is to "organize, train, and equip space forces in order to protect U.S. and allied interests in space and to provide space capabilities to the joint force. Its responsibilities include developing military space professionals, acquiring military space systems, maturing the military doctrine for space power, and organizing space forces to present to the Combatant Commands."

The Space Force will assume responsibility for all major space acquisitions programs, as well as manage a distinct and separate budget, ensuring independence from the Air Force. The Space Force is intended to include all uniformed and civilian personnel within the Department of Defense conducting and supporting space operations, centralizing management of space professionals. The Space Force will also create career paths for military and civilian space personnel, to include operations, intelligence, engineering, science, acquisitions, and cyber.

Of course, there is a Social Media aspect to our new space force, and in an era of everyone being equipped with an opinion and a soapbox, this new division of the military is not immune to its share of criticism and hair brained logic. However, there are some fun "cultural details," like a Star Fleet Command patch, the uniform (maybe a new space suit?), and will they be called Space Cadets?



It doesn't matter, really. This is an effort whose time has come.

*******LIEFC News*******

Long Island Early Fliers Education Foundation

**2020 Bus trip to the
mountains of northern
Pennsylvania**

**April 30 through May 2nd
(continued next page)**

2020 Bus trip (continued)

Thursday, April 30:

- 1). Depart Bayport Aerodrome – 06:00; Depart Christopher Morley Park – 07:00
- 2). Rest stop while on route
- 3). Lunch in Lock Haven, PA – approx. 12 noon
- 4). Tour the Piper Aviation Museum 1-4 pm
- 5). Eagles Mere Inn B&B;
<https://www.eaglesmereinn.com/>
(click to visit their website)

Friday, May 1:

- 1). Breakfast at Eagles Mere Inn
- 2). Thomas Taber Museum – Williamsport, PA
(non-aviation attraction for spouses – but they do have a model train collection 😊)
- 3). Winery Tour & Sampling

Saturday, May 2:

- 1). Breakfast at Eagles Mere Inn
- 2). Eagles Mere Air Museum
<https://www.eaglesmereairmuseum.org/>
- 3). Eagles Mere Auto Museum
- 4). Depart for trip home at approx. 3:00 pm

Price includes: *R/T bus including driver's gratuity, snacks & refreshments on the bus; 2 nights at Eagles Mere Inn; 2 breakfast buffets at the Inn; admission to Piper Museum; Taber Museum; winery visit; air museum; auto museum*
Lunches and dinners not included

Double occupancy =

\$445.00/person

**Single Occupancy = \$570.00/
person**

This bus trip will take us through some very beautiful countryside and we will be in an elegant bed & breakfast. While mostly aviation themes, we are planning some diversity for our very patient spouses. We urge you to visit the website for the Eagles Mere Inn and see what a special area this is. (see the last page to sign up for this trip)

Member Donations:

We gratefully acknowledge the generosity of the following members since our last newsletter:

Mike Scott	\$40.00
Steven Pinello	\$15.00
Stephen Spainer	\$15.00
Peter Borneman	\$50.00
Stephen Moddle	\$50.00
Pat Gallagher	\$165.00
John Sandhaas	\$50.00
Stanley Kalemari	\$65.00
Herb Jacobs	\$15.00
George Bowen	\$50.00
Louis Urciuoli	\$100.00
Paul Emmert	\$35.00
Tom Hancock	\$65.00
Ed & Barbara McDermott	\$200.00
Michael Sepe	\$50.00
Lee & Lucille Shaw	\$100.00

Welcome New Member:

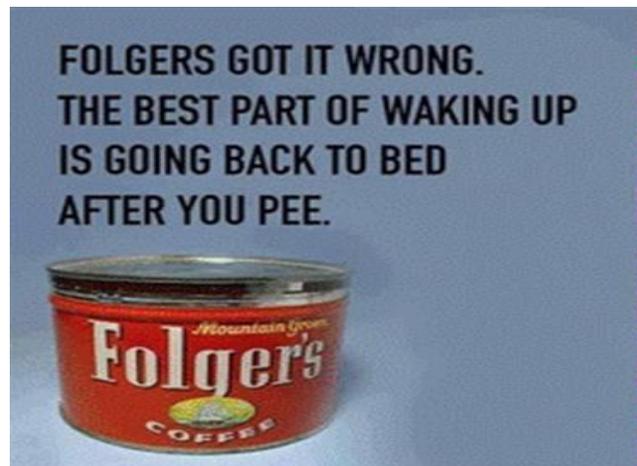
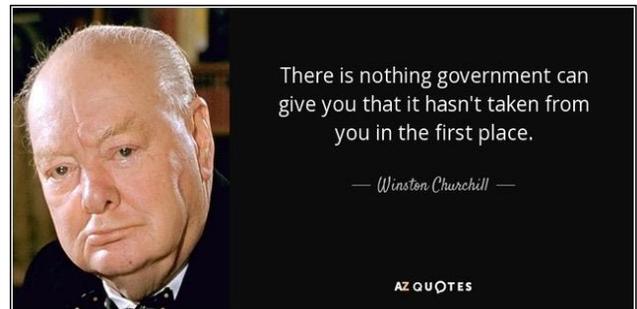
Deno Charalamsous

Donations of life size mannequins *still* needed.

We have many uniforms, both military and civilian that we would like to place on public display. It would be best to use full body mannequins, including heads, that we can place helmets or hats on, however partial body forms could also be useful. Can you help us with this request? Think of it as a great way to clean out the basement or attic!

Time to smile.....

I could swear he is doing it wrong, but since I dont own a boat, Im going to keep my opinion to myself!



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<input type="checkbox"/> Return Member	<input type="checkbox"/> Insurance			
<input type="checkbox"/> Email	<input type="checkbox"/> Billboard			
FOR OFFICE USE ONLY				
EFT INFORMATION				
Payment Method (please circle)				

When you walk out the door in the morning and see a sky like this...



...go back inside, have another cup of coffee and stay home. It's NOT going to be a good day.

A moment of tension in Vatican.
If the bishop moves forward the queen can take him.



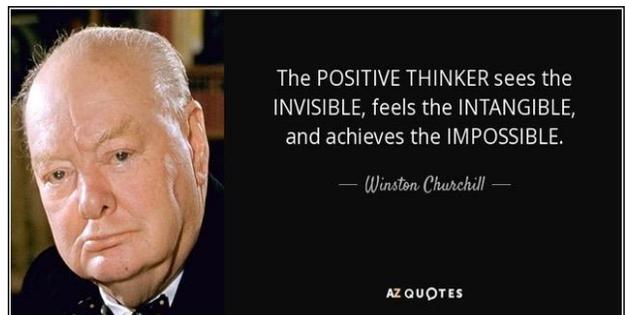
For those who don't want Alexa listening in on your conversations, they're making a male version....it doesn't listen to anything.

SOCIAL MEDIA MARKETING - DM

AND SO IT BEGINS!



ONLY THE VERY BEST GENERATIONS WILL GET THIS



The POSITIVE THINKER sees the INVISIBLE, feels the INTANGIBLE, and achieves the IMPOSSIBLE.

— Winston Churchill —

AZ QUOTES

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The LONG ISLAND
Early Fliers Club

Long Island Early Fliers Club, Inc. 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.C., P.O. Box 43, Holbrook, NY, 11741 or call (631)-523-5407 (Fred Coste) or fax: 631-588-2147

Sal Vitale
President

Pat Gallagher
Vice President

Fred Coste
Treasurer

Joan Vitale
Secretary

Sign me up!!!

Long Island Early Fliers Education Foundation

2020 Bus trip to the mountains of northern Pennsylvania

April 30 through May 2nd

Price includes: *R/T bus including driver's gratuity, snacks & refreshments on the bus; 2 nights at Eagles Mere Inn; 2 breakfast buffets at the Inn; admission to Piper Museum; Taber Museum; winery visit; air museum; auto museum*

Lunches and dinners not included

Double occupancy = \$445.00/person

Single Occupancy = \$570.00/ person

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***Please send \$100 deposit per person.
(Sorry, the deposit is only refundable until April 1st.)***

Space is limited....book early!

Return this form with a deposit of \$100.00 per person to:

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Holbrook, NY 11741**

Please call Fred Coste with any questions at 631-523-5407