



Missions for America
Semper vigilans!
Semper volans!

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NEW YEAR'S EDITION

- 05 JAN-Seniors Staff Meeting
- 06 JAN-Cadet Meeting-Aerospace
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TO A BETTER YEAR



*Aurora Australis as seen from NASA's Boeing
747SP*
Go to: <https://www.knaviation.net/nasa-softia-mission/>
*for Keisha Nukina's story about flying aboard
The Stratospheric Observatory for Infrared
Astronomy*

CURRENT EVENTS

Droning on....

Five companies have been awarded contracts by the United States Defense Advanced Research Agency to develop unmanned autonomous aircraft which can be paired with a manned combat aircraft and jointly conduct military operations such as dog-fighting or bombing together.

The unmanned partner, designated a low-cost, attributable aircraft, or LCAA is envisioned in a number of roles: decoy, suppression of enemy air defenses, reconnaissance, and even dog-fighting. It will be interesting to observe how the concept of operations and mission doctrine evolve.

The LCAA is viewed as a cheap force multiplier, a reaction to the burgeoning cost of military aircraft. Calculated in terms of inflation, an F-35 costs between 100 million dollars and 150 million dollars depending on which version is purchased.

This is roughly twice the cost of the F-15 Eagle and four times the cost of the F-4 Phantom. The problem is obvious, given budget constraints. As the size of the operational force shrinks and given expanding defense commitments, the need for greater numbers of aircraft increases.

At present, two companies have produced prototypes. Kratos Unmanned Aerial Systems and the USAF Research Laboratory are flying the XQ-58 Valkyrie which has an internal bomb bay which would improve the aircraft's stealthiness.



Kratos/UAFRL XQ-58 Valkyrie

Boeing Australia and the Royal Australian Air Force (RAAF) have just completed the first high-speed taxi test of what they call the Loyal Wingman. (Coincidentally, this is being conducted at RAAF Woomera, an airfield which the Editor flew from a half century ago. By now they may have forgotten my confusion with their air traffic control instructions which they would issue in that peculiar down-under dialect called "Strine.")



Boeing Australia/RAAF Loyal Wingman

Both aircraft are roughly comparable in size to CAP's Cessna 182 Skylanes, a bit longer but with a shorter wingspan. Both are subsonic and have a range about equal to that of an F-16 or F-22.

The Great Conjunction

Southeastern Connecticut weather was uncooperative but The Coastwatcher did manage to observe the conjunction. However, clouds on the 21st hampered photography. Viewing was also degraded by the turbulence and humidity, aggravated by the long light path that the light had to transit at low elevation of the observations.

About every 20 years or so, the two largest planets in the solar system and the earth are lined up. On the evening of the 21st, they were aligned more closely than usual, a Great Conjunction.



An NASA image illustrating what the naked eye sees. Both planets blend into one "object."

The eye can discriminate about 1 arcminute, about the 1/60th the width of your index finger as seen when your arm is outstretched. The moon and sun subtend about 30 arcminutes (1/2 degree)

The next image is one taken by Shawn Terry in Preston on the 18th, the best day for visibility.



Saturn is visible in the bottom center. The separation is about 6 arcseconds.

The following two images were both taken under better conditions.



Photograph credited to Niccole-Neeley taken from Phoenix, Arizona, Dec. 19th



Photograph credited to Soltan-Levay taken from Bloomington, Indiana, Dec. 21st.

Surface bands and four moons of Jupiter are visible in the images. (top left to bottom right): Callisto, Ganymede, Io, and Europa. The ring structure of Saturn and the largest moon, Titan also shows up in the imagery.

Virtual ICS 300 Course Offered

Northeast Region will be hosting an ICS300 Class. This class will be virtual and will be conducted on Friday, 5 Feb 1900 to 2200 hrs, Saturday, 6 Feb, 0900 to 1700 hrs and Sunday, 7 Feb, 0900 to 1700 hrs. Seating is limited and on a first come, first serve basis.

The prerequisites are IS100, IS200, IS700 and IS800. They must be on your eServices records or completed online no later than 15 Jan 2021.

In order to participate, you must have a computer with audio and video capabilities.

To enroll, send an email to Maj Deborah Ozer at dozer@ner.cap.gov. Include your name, rank, CAP ID, charter number, and cell phone number.

AEROSPACE HISTORY

The Forgotten Morane-Saulnier 406

*by
C/TSgt Stephen Buchko
Cadet Aerospace Education Officer*

The Morane-Saulnier M.S.406 was a fighter used by the *Armee de l'Air* (French Air Force) during the late 1930's and during early WWII. The Morane-Saulnier M.S. 406 was conceived from a French Air Ministry Specification in 1934. The original airplane, the M.S.405, took shape as a cantilever, low wing monoplane, complete with a retractable undercarriage and enclosed cockpit.

All of these features were heady stuff for a company whose last fighter, the M.S. 225 of 1933, had a parasol wing, fixed, spatted landing gear, an open cockpit, and a 500 hp Gnome-Rhone engine that barely propelled it to 200 mph.



M.S.405

Photo L'Equipe

The airframe of the M.S.405 was of all metal construction, with a covering of "Plymax" (aluminum bonded to plywood) and fabric. It was powered by an 860 hp Hispano-Suiza engine. The prototype which was built in extreme secrecy, flew on August 8, 1935.

On its first flight, the M.S.405 broke 300mph, the first French designed aircraft to do so. Altogether, 17 M.S.405's were built. Production shifted in 1938 to the refined M.S.406, which used a slightly different engine, different propeller, and a redesigned and strengthened wing. Armament consisted of one 20mm cannon firing through the propeller hub, and two 7.5mm machine guns, one in each wing.



M.S.406 C1

When the M.S.406 was displayed at the Brussels Air Show in 1937, one authority called it "the best fighter in the world." But as production began to ramp up, disaster struck. The recently elected left-wing, Socialist government nationalized the aerospace industry, forming huge conglomerates based on geographical location. This caused mass confusion when former suppliers were cut off, and companies were hard pressed to find basic things like propellers, or even engines or machine guns. Because of the incompetence of this move, many good, modern designs never left the drawing board, yet designs that by 1938 or 1939 were already considered antiquated were still in production.

In 1938, the first French fighter unit was equipped with the M.S.406. By the beginning of the war, 12 of the 26 French fighter groups were so equipped. But when the Germans invaded France, the M.S. 406 was found to be totally outclassed by the Messerschmitt Me 109E. One of the French pilots

that flew them said she was: "free from vices, but too slow to catch German aircraft and too badly armed to shoot them down. Poorly protected, our losses were high."

During the Battle of France, 150 M.S.406's were lost in aerial combat. About 100 M.S.406's were destroyed on the ground, and 150 were destroyed by their crews to prevent their falling into enemy hands. This accounts for 1/3 of the entire production run.

The Vichy French government sent some surviving M.S.406's to Syria to fight against the Royal Air Force. The Germans used some as advanced trainers and test-beds for new ideas. Italy took a small share of the loot. Germany also transferred large numbers to other nations. Croatia was given 38. Turkey bought thirty and Finland bought 30. Finland later received 20 more from the Germans. When parts became scarce, the Finnish M.S.406's were fitted with Russian Klimov M-105P engines of 1,050hp, which gave better performance. These were nicknamed LaGG-Moranes.



Finnish M.S. 406. The Swastika predates the Nazi use. It was adopted in 1918 and its name comes from the Sanskrit word for ""well-being and it considered a good luck charm.

Switzerland's Eidgenössische Flugzeugwerke Emmen (EFW) bought two M.S.406's and a production license. They produced 82 406's designated EFW-3800, and an improved version; EFW-3801. Improvements included a controllable pitch propeller and replacement of the tail skid

with a wheel and the drum fed machine guns with belted ammunition. Aerodynamic and power plant improvements boosted the speed to 295 mph, a 15 mph increase over the M.S. 406.



Swiss EFW D-3800

Altogether, 1,176 M.S.406's were produced by the French. The Morane-Saulnier 406 was obsolescent when the war broke out, underpowered and underarmed.

AEROSPACE CHRONOLOGY FOR THE WEEK

Dec. 30, 1970 – The prototype Grumman F-14 Tomcat suffers a hydraulic leak. This pyramided into a loss of the primary and secondary hydraulic systems. The Combat Survival System, which supplied power to only the tailerons and rudder also failed.



Number 4 Tomcat Prototype

The aircraft crashed just short of Grumman's Calverton airport. Both Grumman Chief Test Pilot Robert K. Smyth (PNF) and Project Test Pilot William Miller (PF) successfully ejecting seconds before the Tomcat struck the ground.

Videos of the event are available on You Tube. one of which is narrated by Mr. Smyth. A loose connector and vibrations caused by hydraulic pump resonance initiated the train of events that led to the crash.

Dec. 31, 1944 – Grumman's last piston engine powered fighter, the F8F Bearcat entered service with the United States Navy. The Bearcat concept was a small, light-weight aircraft with a high rate-of-climb and excellent maneuverability.



F8F-1

To meet the requirements, Grumman stuck a Pratt & Whitney R-2800 Double Wasp 2,000 HP+ power-plant into the lightest airframe, even sacrificing range and armament. The Bearcat has the additional ability to operate off the small escort carriers, replacing the obsolescent Wildcats. However, the war ended before the Bearcat joined the fighting squadrons.



F8F-2 at the National Museum of Naval Aviation

Lyle Shelton flew *Rare Bear*, a highly modified Bearcat sporting a 4,000 HP Wright R-3350 engine which put out over 4,000 HP! In 1969, he set a world record for piston engine aircraft, 528.33 mph. Rare Bear also copped the rate-of-climb record, in 1972, reaching 3000 meters in 91.9 seconds, an average of 6,425.9 fpm.



Rare Bear (Credit: Kogo)

In 1951, 200 Bearcats were given to the French Air Force which deployed them in the First Indochina War and used for close air support. Eventually, the South Vietnamese Air Force ended up with 28 operational Bearcats. The last military Bearcats were flown by the Royal Thai Air Force and were retired around 1983.

End of the Line



Operational French Bearcat on a field in Vietnam.

Gate Guard South Vietnamese Bearcat



Royal Thai Air Force Bearcat.



01 Jan., 1987 – New Year's Eve Party Hangover! The Dupont Plaza Hotel, San Juan Puerto Rico is ablaze. USCG, USN, police and commercial helicopters fly to the rescue, lifting trapped people off the roof. A labor dispute led three angry union members to torch the building, killing 88 and injuring hundreds.



Coast Guard Dolphin doing what the Coast Guard does: rescuing people.

02 Jan., 1930 – Leroy Grumman, Leon Swirbul and William Schwender officially opened the Grumman Aircraft Engineering Corporation. All three had been employees of Loening Aircraft Engineering Corporation but when Loening moved to Pennsylvania, the trio decided to remain on Long Island, N.Y and strike out on their own.



Swirbul, Schwender and Grumman

Grumman earned a Bachelor of Science degree in mechanical engineering from Cornell University in 1916. He then joined the U. S. Navy and earned his wings in 1918 and became a flight instructor. The Navy sent him to the Massachusetts Institute of Technology to study aeronautical engineering. He served as a Navy test pilot before joining Loening.

Schwender earned a Bachelor of Science degree in mechanical engineering from New York University in 1924. He was chief engineer,

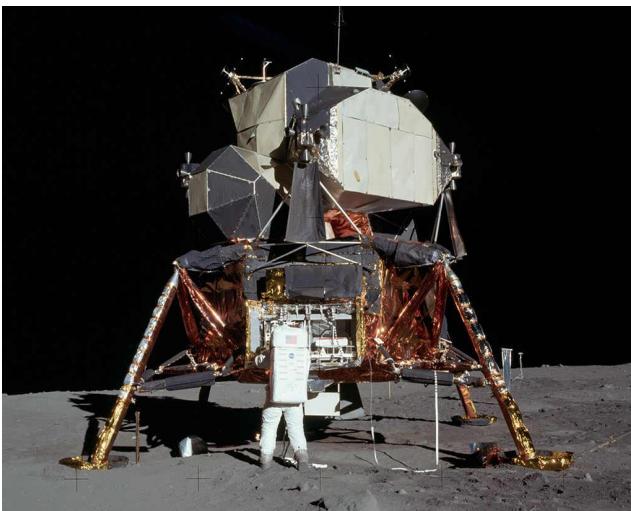
executive vice-president and ultimately Chairman of the Board of the Grumman Corporation

Swirbul studied for two years at Cornell University but then left to join the U.S. Marine Corps. He worked closely with Grumman and rose to become president of the corporation.

Grumman's achievements range from the FF-1, the first carrier aircraft with retractable landing gear to the Lunar Module. Their line of aircraft gained a reputation rugged and reliable and the sobriquet, Grumman Iron Works has been applied to the company by the aviation community.



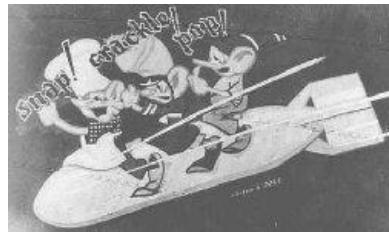
From Fifi to LEM



(Credit: NASA)

03 Jan., 1943 – A B-17F named "Snap! Crackle! Pop!" loses its wing to flak and falls out of the sky. The wounded ball turret gunner, Sgt. Alan McGee somehow gets clear of the wreckage but has no parachute and falls 20,000 feet and crashes through the glass roof of the Saint-Nazaire

railroad station. Found alive, he receives medical care and survives the war as a prisoner.



The aircraft commander Capt. Jacob Fredericks had worked for Kellogg's Cereal.



McGee in 1995 at a memorial in St. Nazaire which honors his lost crew-mates.

Credit: René Francillon Photo Archive

04 Jan., 1964 – A chartered Alitalia DC-8 carries Pope Paul VI to Amman, Jordan. This is the first time that an airplane has been used by the Bishop of Rome for an official visit.

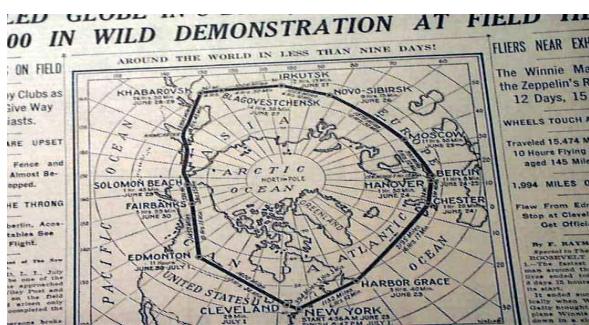


Papal flights are now common. Generally, Alitalia carries the Holy Father outbound and he is returned on the national airline of the country visited. The flights are chartered by the Vatican and costs covered by outrageous fees charged to the press contingent.

05 Jan., 1903 – Birthday of Harold Gatty whom Charles Lindbergh called the "Prince of Navigators." Gatty was born in Tasmanian and was a devilish smart navigator. He was chief instructor at P.V.H. Weems School of Navigation and instructed Charles and Anne Morrow Lindbergh and Fred Noonan in his novel navigational techniques.

Gatty achieved fame as navigator on a number of pioneering flights including a 1935 world record time for circumnavigation of the globe in the Lockheed 5C Vega, Winnie Mae, piloted by Wiley Post.

The flight departed and arrived at Roosevelt Field, Long Island with intermediate stops at Harbour Grace, Flintshire, Hanover, Berlin, Moscow, Novosibirsk, Irkutsk, Blaoveshchensk, Khabarovsk, Nome, Fairbanks, Edmonton, and Cleveland. The flight took 8 days, 15 hours and 51 minutes and covered 15,474 miles.



Gatty not only practiced navigation but taught navigation and invented a drift and speed indicator which set the standard for the type. He authored a number of books about navigation and

\after WWII ended, founded Fiji Airways.



Gatty Drift Indicator No. 1 (Credits: NASM) This is the instrument he used on the Winnie Mae.



A 1932 picture of Gatty demonstrating his drift meter to an Air Corps officer. He was the chief navigation engineer of the Air Corps.



1951-First Fiji Airlines aircraft, a deHavilland DH-89 Dragon Rapide

Fiji Airways is now the flag carrier of the Republic of Fiji. When Gatty founded it in 1947 it went by the name of Katafaga Estates. The name derives from a coconut plantation owned by Gatty. In 1951, he renamed it Fiji Airways. After Fiji gained its independence from Great Britain in 1970, it was rebranded as Air Pacific. But in 1970, what goes around comes around and the airline reverted to the old name of Fiji Airways.



DQ-FJT 330-200 series, named *The Island of Taveuni*. The aircraft still bears its original French registration F-WWKO.

A GLANCE BACK IN TIME



Smuggling Fleet-Asunción, Paraguay
circa October 1971

Challenge: Can you name any of this eclectic fleet of aircraft?

*To be drowned or be shot
Is our natural lot,
Why should we, moreover, be hanged in the
end---
After all our great pains
For to dangle in chains
As though we were smugglers, not poor honest
men?*

*Poor Honest Men
Rudyard Kipling*

P-38G CRASHED ON NEW YEAR'S DAY, 1945-RESTORED AND ON DISPLAY IN 2000

1945! 2nd Lt. Robert Nesmith crash-landed his Lockheed P-38G Lightning on Attu Island, part of Alaska's Aleutian Archipelago. Nesmith was leading a four ship formation at low level, contacted the ground and slid along the snow, lost an engine, hopped into the air and then settled into a relatively smooth landing. Nesmith was unhurt, abandoned the aircraft, walked to the coast and awaited rescue.

Over the years, the aircraft had a few parts salvaged but over the next 55 years sat unmolested except for some vandalism. But the aircraft had not been forgotten.

In 1979, the Lightning was nominated for the National Register of Historic Places. A decade later, the American Veterans Memorial Museum in Denver registered the aircraft with the FAA! AS N55929. Another decade passed an in 1999,

In June 1999, a recovery team of volunteers dug the wreckage out of the muskeg and disassembled what they could. A helicopter from the Coast Guard station moved the parts to the Attu air station and atN Alaska Air National Guard C-130 took it to Anchorage.

Restoration work commenced in Hanger 4 at Elmendorf AFB. A wide range of volunteers appeared and the work went quickly. In August of 2000, the Lightning was mounted for display at the base's McCloud Memorial Park.

