

*Missions for America
Semper vigilans!
Semper volans!*



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17 OCT Commander's Call/Mitchell Ceremony
24 OCT-Staff Projects-Cadet CD or Aerospace
21 OCT-Commander's Cup Rocket Contest
31 OCT-No Senior or Cadet Meeting
04 NOV-Col Palmer Cadet Ball/Veteran's Lunch
07 NOV-Senior Staff Meeting-Cadet PT
14 NOV-Staff Projects
21 NOV-Commander's Call/Cadet Promotions
28 NOV-Staff Projects
05 DEC-Senior Staff Meeting
12 DEC-Staff Projects
19 DEC-Commander's Call
26-DEC-Boxing Day

CADET MEETING

10 October, 2023

The theme for the event was leadership. C/Capt Aneleise Mazzulli discussed the topic of communications and its importance as a two way conduit among leaders and their subordinates.

SM Kurt Levan ran a seminar on the characteristics of introverts and extroverts and the importance of understanding individual differences to those in leadership positions.

SENIOR MEETING

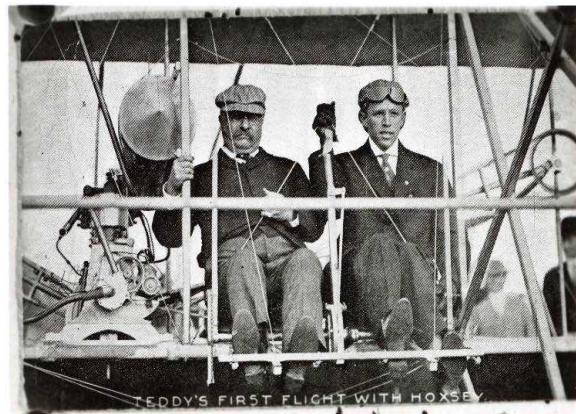
10 October, 2023

Maintenance

Capt Kopycienski led a work squad of seniors washing down the trailer skirts.

AEROSPACE CHRONOLOGY

October 11, 1910 – Theodore Roosevelt becomes the first former President to fly in an airplane when he takes a four minute flight at Kinloch Field in St. Louis in a Wright Type AB piloted by Arch Hoxsey.



October 12, 1954 – George Welch Goes West. Welch acquired fame when he and his squadron mate, Ken Taylor, had returned from an all night

party when the Japanese attacked Pearl Harbor. They telephoned Haleiway Fighter Strip and ordered two Curtiss P-40B Tomahawks readied for flight. Rushing to the field, dressed in their party finery, they managed to take-off and fly two sorties, shooting down four Japanese aircraft. Welch finished his combat tours with 16 victories before malaria sent him back to the states.



Taylor and Welch

With Army Air Force permission, he resigned his commission in 1944 and joined North American Aviation as a test pilot and flew the prototypes of the FJ-1 and XF-86. After working as the company representatives in Korea during the police action, he returned stateside and was assigned to the F-100 Super Sabre development program. On Columbus Day, 1954, Welch's F-100 partially disintegrated during a 7-g pullout and crashed in the Mojave Desert.

October 13, 1958 – NASA was created to replace NACA. NACA, the National Advisory Committee for Aeronautics, was proposed by the Smithsonian Institution as an advisory committee to coordinate theoretical and practical studies of the problems of flight.



The enabling legislation was a rider attached to the Naval Appropriation Bill passed on March 3, 1915. It established an unpaid board of 12 members, two each from the War Department and Navy Department, one each from the Smithsonian,

Weather Bureau and Bureau of Standards and five at large members with with aeronautical experience. The annual budget was set at \$5,000. Their work on airfoils design, cowlings, and aerodynamics would be offered gratis through a series of publications available to the industry.

Initially, the Committee selected stumbling blocks hindering aeronautical progress and handed the problem over to a government agency or university. But over time four NACA run laboratories were founded.

The Langley Memorial Aeronautical Laboratory at Hampton, Virginia, 1917, specialized in theoretical aerodynamics and empirical testing using wind tunnels. Langley's contributions are legion but two brilliant engineers employed at might be recognized.

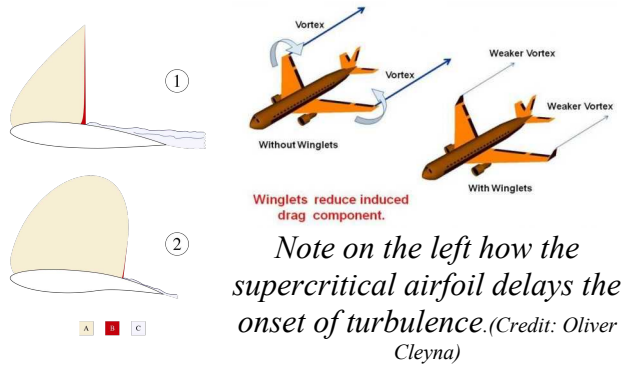
Richard T. Whitcomb spent his entire professional career at Langley and is credited as a pioneer developer of the area rule, winglets, and the supercritical airfoil.



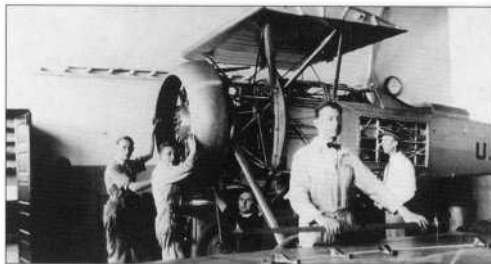
Simply put, the area rule reduces drag by designing the cross-sectional frontal area of aircraft to remain constant over its length. Winglets reduce drag by controlling the lift induced vortices normally shed by a conventional airfoil. The supercritical airfoil delays the onset of wave drag in the transonic flight regime.



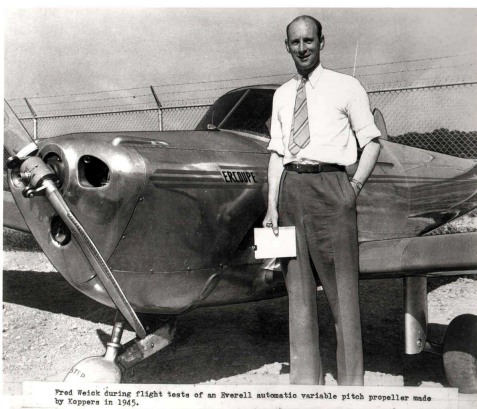
The “Coke Bottle fuselage indicating the application of the Area Rule is evident on this NACA Convair F-102A Delta Dagger.



Fred E. Weick was active at NACA in the 1920's and was very active in propeller design, a principal figure in building the first wind tunnel for full scale propeller testing. His design of the NACA cowling was a revolutionary break-through which increased speed and fuel efficiency and improved engine cooling by reducing drag by means of controlling air flow over radial engines.



Technicians installing a NACA cowling over the exposed cylinders of a Wright Whirlwind radial engine on the Curtiss AAT-5A test aircraft.



After leaving NACA, he worked as an engineer for a number of businesses, developed the tricycle landing gear and formed a company, ERCO which offered the Aircoupe to the public.

The ERCO Ercoupe was a unique and original design. It was a stall proof aircraft equipped with the novel tricycle landing gear and used interlocked controls to eliminate the use of rudder pedals.

In 1946, 4,311 Ercoupes were produced at a selling price of \$2,625 equipped with 75 hp Continental A65-8 engines.

The Ercoupe, a USAAF XPQ-15 pioneered the first rocket assisted take-offs using JATO units produced by GALCIT, the predecessor of NASA's Jet Propulsion Laboratory. The aircraft was production number 11, USAAF serial 41-25196, civil registry NC28665.

CAP's Nebraska Wing may have received its first Ercoupe, a veteran of this experiment in May of 1944.

When World War II ended, Weick joined the faculty at Texas A&M College and designed the AG-1, the first purpose built agricultural plane optimized for crop spraying, fertilizer application, and pilot safety.



© aerofiles.com

The AG-1



© aerofiles.com

Weick then went on to Piper where he was responsible for the PA-25 Pawnee and worked with John Thorpe and Karl Bergey to create PA-28 Cherokee series.

Ames Aeronautical Laboratory was founded in 1939 at Moffett Field, Sunnyvale, California. Charles Lindbergh headed the selection committee. Langley was running out of space and the electrical energy supply was insufficient so some of its responsibilities were transferred west. Offices, laboratories and four wind tunnels were built.



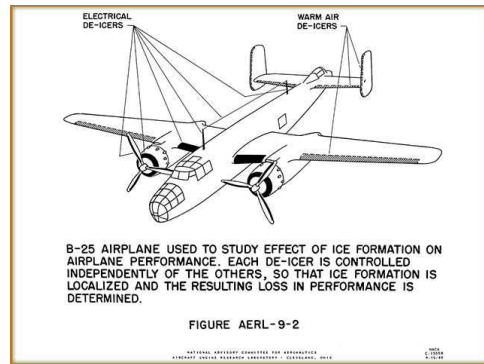
A technician inspecting a model mounted in a wind tunnel at Ames.



The aircraft is probably the Douglas XS2BD Destroyer, later the BTD.

During the war, Ames studied the problems that U.S aircraft, especially pursuit planes, were exhibiting at different speed ranges from compressibility issues at high speeds to low speed behavior in a landing configuration.

Cleveland, Ohio became the site of the Aircraft Engine Research Laboratory (AERL) in 1942 with a mandate to develop and improve aircraft engines. Its new name is the NASA John H. Glenn Research Center at Lewis Field. During World War II, the AERL studied engine cooling, airframe icing, supercharger performance, and swept wings.



Muroc Flight Test Unit was the last of the four NACA centers and was sited on the high desert of California and gained fame as the home of the X plane probing the trans-sonic and supersonic flight regimes. It is located on Edwards Air Force Base and is now known, after many name changes, as The NASA Neil A. Armstrong Flight Research Center.



NASA Dryden Flight Research Center Photo Collection
<http://www.dfrc.nasa.gov/gallery/photo/index.html>
NASA Photo E-298 Date: 1953



Three luminaries of high speed flight, Scott Crossfield and Neil Armstrong, NACA test pilots flank Maj. Robert White, USAF, celebrating delivery of X-15 aircraft.

Crossfield was the first to pilot the X-15 and the first to break Mach 2 in the D-558-2. White was first through Mach 3, 4, and 5 and set the winged aircraft altitude record of 314,750 feet and retired as a major general. Armstrong's test pilot career has been overshadowed by Apollo 11 but he flew the X-15, was project pilot on the century series fighters and flew the F5D Skylancer to test the Dyna-Soar abort profile.



Armstrong's Douglas Skylancer drag racing a CAP van. The Editor has opened the side speed brakes to allow Armstrong to pull ahead and avoid embarrassment.

October 14, 1943 – Black Thursday-Mission 115-The Second Schweinfurt Raid. Schweinfurt was selected as a target because the city was a center for ball bearing production, an essential element in the construction of war materials.



B-17s over Schweinfurt (Credit:National Archives)

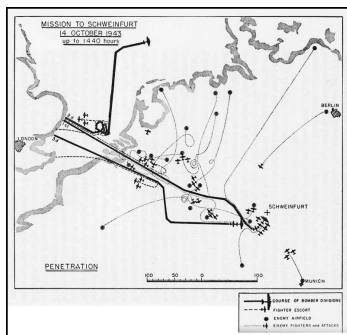
The mission can only be described as a catastrophe for the Eighth Air Force. 291 B-17s were dispatched and 60 were shot down, 17 returned with such heavy damage that they were scrapped and 121 which made it home received repairable battle damage. This was a loss of 26%, one-quarter of the fleet sent out on the mission, a unsustainable wastage given the reserves on hand and the rate of replacement. The human toll was horrific. Around 650 aircrew-men were either killed, wounded or taken prisoner, 24% of the force. Only 16 missions could be flown in the next 30 days and only half bombed targets in Germany and no deep penetration raids were attempted for almost four months. In terms of the odds for survival, an airmen could expect to survive only four missions like Schweinfurt and 25 missions was a standard combat tour.

A number of factors contributed to the disaster. The Air Force doctrine developed in the 1930s that daylight precision bombing utilizing armed bombers with no fighter escort was flawed in the face of the highly competent, efficient and integrated Luftwaffe air defenses. The only escorts were P-47 Thunderbolts and British Spitfires which lacked sufficient range to cover the bomber formations over Germany proper.

The weather gods dealt a bad hand to the raiders and the weather briefers did not read the cards. The take-off and climb-out was impeded by fog and clouds to extending to 6,000-10,000 feet impeding the formation of the defensive combat boxes which maximized mutual support among the squadrons. Bomber defenses were also weakened when 22 B-17s aborted due to engine and technical issues, the loss of 200 machine guns.

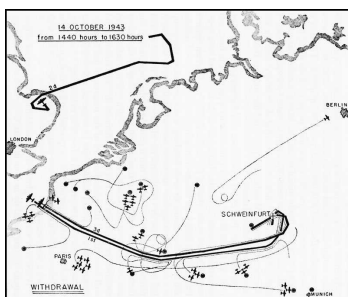
The timing and assembling of the escorting Allied fighters had similar problems when they sortied. Sixty B-24s from the Second Air Division were scheduled to fly a diversionary raid but only 21 managed to assemble and they made a feint to Emden in northwest Germany, 250 miles north of

Schweinfurt. The plan was to split the fighter defenses but the weak force headed to Emden was not considered a primary threat by the Luftwaffe controllers.



USAAF maps of the penetration and withdrawal routes. Note the limited range of the escort fighters and the number of German airfield along the routes.

Many of the Luftwaffe fighters flew two sorties, attacking the bomber formation on ingress and egress.



Only 13% of the bombs landed in the factory area and repairs to the equipment were rapidly made in just over a month. Ball bearing production was reduced by 10%. Furthermore, the Germans had large reserves of ball bearing in stock built up from their own manufacturing plants and imports from Sweden and Switzerland.

Tragically, the raids on Schweinfurt may not have been necessary. Arthur Harris, commanding RAF Bomber Command knew this and refused to attack what he called “panacea targets,” defined as those which if destroyed would bring the German war economy to a halt. He used night raids to bomb built up areas, “dehousing” and killing workers and weakening the morale of the civilian population. The Army Air Force doctrine emphasized precision daylight raids by massed formations aimed to destroy localized targets such as factories, marshaling yards, and fuel production facilities.

Both strategies were flawed and had to wait for the development of stand-off precision munitions and the ability to identify and attack command structure and key infrastructure targets with the goal of paralyzing an enemy force rather than attacking civilian populations and fielded military targets.

October 15, 1933 – The Rolls-Royce Merlin engine is started for the first time.



(Credit: JAW)

The Rolls-Royce Merlin is a liquid cooled V-12 piston engine which Rolls-Royce developed as a private venture designated PV-12. It achieved fame as the power-plant of the Hurricane, Spitfire, Lancaster, and the American built Packard V-1650 used in the Mustang. 150,000 Merlins were produced.

Questionable Sources and Questionable Data Department

October 16, 1912 – *One source claims* that the first aerial bomb as used by Bulgarian Air Force pilots Radul Milkov and Prodan Torakchiev on the Turkish railway station of Karaagac during the First Balkan War. The bomber was an Albatros F-II.



Radul Milkov and Prodan Torakchiev and the Albatros F-II (Credit: www.lostbulgaria.com)

But this claim is challenged. Another source states that Italian Lieutenant Giulio Gavotti flying an Etriche Taube monoplane dropped bombs on Turkish Ottoman troops in Libya in November 1, 1911.



Lt. Giulio Gavotti, one of his improvised bombs and Wilf Hardy's painting of his attack

The Ottoman Empire protested claiming a violation of the 1899 Hague Convention which forbade dropping bombs from balloons. The Italian rebuttal argued that the ban did not extend to heavier-than-air craft since an appended phrase continues "or by other new methods of a similar nature." As President Bill Clinton stated to a grand jury, "It depends on what the meaning of the word 'is' is," so "new methods of a similar nature" needs its ambiguity resolved to settle the issue.

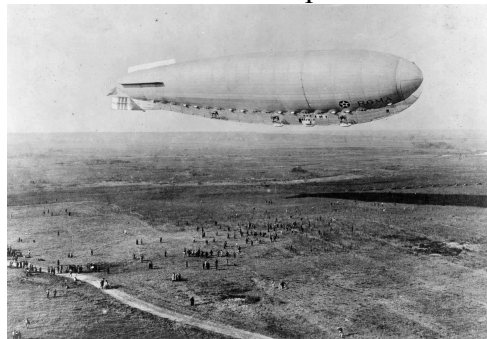
October 17, 1922 – The Army will announce that they will abandon hydrogen lifting gas in their airships after their largest blimp, the Navy developed C-Class, TC-6, which some sources claim is the C-2 and others the C-6 catches fire at Brooks Field, San Antonio, Texas, the base for airship patrols to provide improved security along the Mexican border.



Note the application of the U.S. Army markings. Could this have been needed after the C-2 was transferred from the Navy to the Army? (Credit: SHORPY)

The eight man crew escapes death but seven of them suffer injuries when they abandon the blimp. A month earlier, the blimp, under the command of Maj. H. A. Strauss, made the first transcontinental airship flight from Langley Field, Virginia to Foss Field, California.

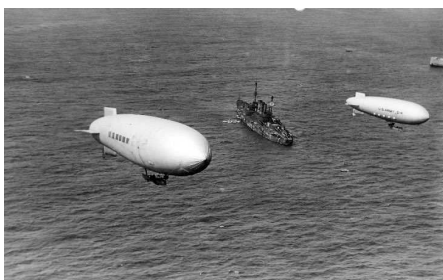
There was a series of U.S. military blimps going up in flames during the immediate post-war period. On July 2, 1919, C-8 burned while landing at Camp Holabird, Maryland. The C-3 burst into flames above NAS Hampton Roads, Norfolk, Virginia on July 7, 1921. On the 21st of February, 1922, the semi-rigid *Roma* hit high tension lines near Norfolk and ignited. *According to most sources*, this led to the decision to use helium as a lifting gas but as stated previously, *another source* attributes it to the TC-6 mishap.



The Roma, a semi-rigid airship. The keel is evident. Note that the airships fly the National Ensign. Navy Dirigibles were commissioned warships.

The Army stuck with various blimp programs until 1937 when they turned their lighter-than-air inventory over to the Navy. Their interest was part and parcel of Billy Mitchell's struggle to create a separate air arm. Traditionally, the Navy provided coastal defense. The Army wanted to claim the mission, traditionally a Navy role, and the creation of the Coast Artillery Corps and the use of long range bombers were arguments for a bigger slice of the peacetime War Department budget and the establishment of a separate Air Force.

To build up a public and congressional awareness, between 1921 and 1938, Billy Mitchell conducted his bombing demonstrations off the Virginia Capes, the Air Corps searched for and intercepted the battleship Utah and the Italian liner *SS Rex*.



Army blimps C-2 and D-4 overfly the former IMS Ostfriesland before the Mitchell bombing. (Credits National Museum of the USAF)

Italian liner SS Rex overflowed by two Y1B-17s 625 nmi off shore on its way to New York.



Coastal Artillery batteries were part of the struggle for funding. For example, The Army's Long Island Sound defenses, Camp Hero, Fort Wright and Fort Michie were armed with guns as large as 16 inches, ironically acquired from stocks acquired for cancelled battleships, deployed controlled minefields and operated the vessels, U.S. Army mine planters, to service the fields.



*16 inch naval rifle
Fort Michie, Great Gull Island
(Credit: Adelard T. LeGere)*



*Army mine planters in Fishers Island's Silver Eel Pond. The number of vessels indicates that an exercise is scheduled.
(Credits: Henry L. Ferguson Museum)*

An Odd Historical Note

A quarter century after the first flight of a C-Class blimp, the weapon designers of nuclear bombs were trying to improve the stability of the follow-up to Fat Man, the Hiroshima bomb. Fat Man had stability problems, most of which were solved by experiments at Wendover, Utah in which surrogate Fat Men were dropped and the fins modified but the bomb type still had a peculiar wobble. Solution. The Mark IV, the first mass produced nuclear weapon, derived its shape by modifying the profile of the C-Class blimp!



The Mark IV is an implosion-type device similar to Fat Boy used on Nagasaki. Approximately 550 were produced.