



Missions for America
Semper vigilans!
Semper volans!

The Coastwatcher

Publication of the Thames River Composite Squadron
Connecticut Wing
Civil Air Patrol

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SCHEDULE OF COMING EVENT

28 JUN-Columbia Open House

04 JUL-Squadron Picnic

07-11 JUL-ACE Academy I (GON)

09 JUL-MIT Aero and USS Constitution-tentative

18 JUL, 2014-CTWG Golf Tournament

19 JUL-02 AUG-Nat'l Emergency Services Acad.

08-16 AUG-CTWG Encampment-Camp Niantic

11-15 AUG-ACE Academy II (GON)

23 AUG-Wing Wide SAREX-HFD

20 SEP-Cadet Ball-USCGA (tentative)

01 OCT-CTWG Commander's Call and CAC

17-19 OCT-CTWG/NER Conference

16-18 OCT-NER AEO Course at Conference

18-25 OCT-NER Staff College-New Jersey

CADET MEETING

24 June, 2014

submitted by

C/SSgt Virginia Poe

Cadets drill exercises were held on the Groton-New London Airport parking lot. One group of cadets took their drill tests. The remaining cadets practiced columns, flanks, and stationary drill.

Senior member Joel Drost taught a character development lesson on the CAP core values. The lesson focused on integrity and ethical decision making.

C/CMS Trotochaud, Johnstone, and Ray used our radio control model to instruct new cadets on fundamentals of aeronautics.

SENIOR MEETING

24 June, 2014

Submitted by

Capt. Christopher L. Magee

Maj Noniewicz conducted a safety briefing on the formation, character, and dangers of electrical storms to aircrews and aircraft.

Lt Meers reviewed the plans for our participation in the Columbia Aviation Expo on Saturday next. Setup will be Friday night, 1700-2000 and Saturday morning 0730-1000.

Plans are to have an aircraft and van on static display and a table stocked with CAP related materials. Pilots, ground team members, and male and female cadets will rotate manning the exhibits.

Uniform for the day will be flight suits for aircrew, BDUs for ground team, and blues for officers and cadets manning the table.

LtCol Rui Rodrigues attended the meeting and led a discussion about Monday's ELT search. Details follow in the next article.

ELT SEARCH

The Squadron teamed with Rhode Island Wing in an air-ground search for an emergency locator transmitter (ELT). LtCol Rui Rodrigues was Incident Commander. Squadron commander Paul Noniewicz and LtCols Rich Doucette, and Steve Rocketto departed Groton in mid-afternoon on the 23rd. An ELT broadcasting on 406 MHz was located near Newport, R.I. The 406 MHz beacon also transmits its latitude and longitude which the crew used to program the G1000 navigation unit in the aircraft.

A faint signal was picked up about 20 nmi east of Newport. The 406 beacon differs from the old 121.5 MHz beacon in that it does not transmit continuously. Rather it sends a burst transmission every 50 seconds. The signal received by the aircraft faded in and out and was unusable. Maj Noniewicz, monitoring 121.5 MHz on the number two radio picked up a moderate signal which seemed to be transmitted from the same position relative to the aircraft as the 406 signal. The crew switched the Becker direction finder to 121.5 and picked up a useful signal.

During the approach, we repeatedly tried to contact Quonset Mission Base but received no answer. However, Ground Team One came up and maintained contact with the aircraft for the balance of the mission.

The signal appeared to be emitted from a highly built up section of Newport. The original coordinates programmed into the aircraft GPS led us directly to it. Unfortunately, the ground team picked up no transmission on their L-PER direction finder.

To confirm the location, Noniewicz, the mission pilot, circled a large building which turned out to be the Pell Elementary School. The Becker direction finder stabilized at 270 degrees relative to the aircraft during the left hand turns. The maneuver was interrupted at one point when

Noniewicz took us south to provide clearance for skydivers at Newport State Airport.

Using the DeLorme Atlas, the aircrew guided the ground crew to the front of the school. The ground team disembarked but could hear no signal. They were then instructed to circle the building and received the signal at the rear of the structure.



The Ground Team has dismounted in front of the school. The team member on the far left is holding the L-PER direction finder.

(Photo Credit: LtCol R. Doucette)

They refined the bearing to the target and located a discarded marine ELT under a pile of trash which was under the porch of a house across the street from the school. At that point, the aircraft was released and returned to Groton.



The uncovered ELT is the orange and yellow object in the upper right corner of the trash pile.

(Photo Credit: LtCol R. Rodrigues)

The use of direction finders to track signals is both a science and an art. Often the signals are reflected or blocked leading to false readings or no readings at all. The aircraft was probably in a

position to receive the signal due to its position above the transmitter. The location of the ELT may have been such that the signal was blocked in one direction at ground level.

One unusual incident was noted. When switching the Becker between 121.5 and 406 MHz, a signal was heard on 243.0 MHz. This is the military distress frequency and it appeared to be emitted from the same source. The military frequency is the first harmonic of 121.5 and it may be possible that is why we received it. All radios broadcast harmonics and they are normally suppressed for obvious reasons. However, it is possible that the ELT tracked to Newport may have had an internal fault and allowed a receivable signal to be emitted on 243.0.

The Ground Team recovered the ELT and the house residents donated it to CAP. LtCol Rodrigues will bring it to the Squadron and we plan to test it using the aircraft's Becker direction finder. This may allow us to deduce the reasons for the anomalous signals which we received.

AEROSPACE CURRENT EVENTS

Model Aircraft Restricted

The Federal Aviation Administration which is struggling to meet a congressional mandate to develop rules to operate commercial unmanned aerial vehicles (UAVs) in the national airspace had no problem restricting hobbyists who fly radio controlled aircraft.

Without warning and without any chance for public comment, the FAA has ruled that hobbyist must maintain visual contact with their aircraft, avoid other aircraft, and notify air traffic control when flying within five miles of an airport.

Officials cite a “rash” of incidents involving “reckless use of unmanned model aircraft near airports and involving crowds.”

Second Mosquito Aloft

The second airworthy DeHavilland DH 98 Mosquito lifted off from Victoria International Airport, Vancouver, Canada under the control of noted aviator Steve Hinton. The aircraft is a post World War II MK.35 bomber variant which had been employed in the aerial survey business. A second airworthy Mosquito is at the Military Aviation Museum in Pungo, Virginia.



Above, the Mosquito on its first test flight at Vancouver. Below, the Virginia “Mossie” shows its classic lines.

(Photo Credits: Victoria Air Maintenance and Military Air Museum respectively)



The Mosquito, sometimes called the “wooden wonder,” is arguably one of the great aircraft of WWII. Almost 8,000 were built and they served as fighters, bombers, reconnaissance planes, and special mission transports. Built as a private venture by DeHavilland, they utilized plywood for the airframe. This allowed them to be built out of a non-strategic material by the carpentry industry.

AEROSPACE HISTORY

A Short History of Aerial Photography
by
Stephen M. Rocketto

Part Three

The Cold War-The Early Phase
(1946-1954)

Background of the Cold War

For almost a half century after World War II ended, the United States and the Soviet Union. The last two major powers still standing, faced-off in a worldwide struggle for political control and dominance. The immediate post WWII battles were political such as the 1948 elections in Italy, civil wars or insurgencies backed by one side of the other such as such as in Greece (1946-49) or the Philippines (1949-1955), or open warfare fought between surrogate nations such as Korea (1950-53).

The Korean War

The Korean War was the first hot engagement between surrogates of the East and West. Korea had been occupied by the Japanese since 1910. When World War II ended, the peninsula was divided at the 38th parallel. The Soviets occupied the north and the United States held the south. Ideological differences prevented the unification of the country similar to what happened in Germany. In June of 1950, North Korean forces, supplied with Soviet armaments and supported by the communist Chinese, invaded South Korea.

United Nations forces, led by the United States and Great Britain, and supported by almost 30 other countries intervened and after a see-saw battle up and down the peninsula, the battle lines stabilized near the 38th parallel. The western forces were unprepared for the war. Almost no maps of Korea existed. One source of cartographic information was a set of aerial photographs that

had been taken by Northrop F-5 photo-reconnaissance planes based in Japan. Later, a USMC squadron using the Grumman F7F-3P Tigercat continued the mission.

Early Korean War Photo Planes

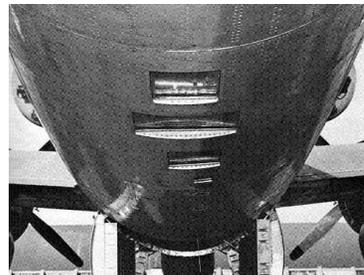


*F-15
Reporter*
(USAF Photo)



*F7F-3P in USMC
Livery*

During the war, the Boeing RB-29 Superfortress, the Lockheed RF-80 Shooting Star and the North American RF-86F Sabre assumed the roles of bomb damage assessment and tactical reconnaissance.



*The RB-29s
pressurized
fuselage required
the photo
windows to be
made from 3/4 inch
glass.*

*RF-80A flown by
Col. Ray
Schreckengost
who accumulate
104 combat
missions. Note
the oblique photo
window and
mission marks.*





The F-86F modified with a distinctive bulge to accommodate the film magazine. The gun ports are painted on!

North American RB-45 Tornados flew pre-strike and post-strike night missions with the 91st Strategic Reconnaissance Squadron and some were painted black to make them less visible when illuminated by anti-aircraft searchlights. The Navy and Marines relied on the McDonnell F2H-29 Banshee and the Grumman F8F-8P Cougar.



RB-45C at the old SAC Museum near Offutt AFB.



Marine Corps F2H-29 at the Pensacola Navy Museum bears the marks of 50 photo missions.



Marine F9F-8P displays forward and oblique camera windows.

The situation was so critical that veteran photo-reconnaissance pilot Col Karl "Pop" Polifka, Sr. was specifically requested by the Far East Air Force Command to organize the photo-reconnaissance efforts. Polifka had flown photo missions over Guadalcanal in 1942 and was a key officer in the Mediterranean-North African Theaters and Europe in the later stages of WW II. His experience and organizational acumen led to the development much improved performance by the photo reconnaissance units. "Pop" Polifka was considered to old to fly combat so he signed his flight releases as Lt. Jones. Tragically, he was killed when his North American RP-51 Mustang was struck by ground fire. When he bailed out, his chute fouled the tail of the aircraft.



Alabama Air National Guard F-51D. Two photo windows are visible on the aft edge and below the national identification mark.

(Photo Credit: USAF)

The 67th Intelligence Wing headquarters-building at Kelly AFB and the Karl L. Polifka Trophy has been awarded for outstanding performance in reconnaissance and cyber warfare. Many CAP officers enrolled in National Staff College at Maxwell AFB will recall attending lectures in Polifka Auditorium.

Col. Polifka at work!

(Photo Credit: USAF)



“Pop” Polifka's son, Lt. Col. Karl Polifka, Jr. followed his father's path. During the Vietnam War, he flew in Laos as a “Raven,” forward air controller and recon pilot.

that they could not deliver them. Their long range bomber fleet consisted of the obsolescent TU-4 Bull, almost a carbon copy of the B-29, three of which they had interned during World War II.

Western Reaction to Soviet Expansionism

The responses by the United States and her allies to Soviet pressures took many forms. Korea was direct military action. Other responses consisted of massive economic or military alliances such as the multi-nation European Recovery Plan (Marshall Plan) or the North Atlantic Treaty Organization (NATO). Direct aid might be offered to a favored country. Other strategies were propaganda campaigns exemplified by Radio Free Europe or the many overseas offices of the United States Information Agency. In extreme cases, covert action by intelligence agencies led to *coup d'états* such as the 1953 overthrow of the Iranian government.

Containment of communism as a policy was developed by the astute diplomat, George Kennan, and made concrete in 1947 by President Harry Truman in what became known as the Truman Doctrine. The United States would no longer stand by and tolerate Soviet expansion in Europe and Asia.

In August of 1949, the Soviets tested their first nuclear fission device, ending the short-lived U.S. monopoly on atomic weaponry. A hydrogen bomb followed four years later. During this period, they also used the services of impressed German rocket scientists and engineers to develop a missile program under the leadership of the Chief Designer, Sergei Korolev. These efforts paralleled the U.S. rocket program which was also highly dependent on the German scientists and engineers who came west.

The Bomber Gap

The United States, less than a decade after Pearl Harbor, feared a surprise attack. The Soviets certainly possessed the capability to produce nuclear weapons but the best evidence suggested



Tu-4 at Molino (Photo Credit: Pavel Adzhigildaev)

For a comparison, here is a B-29A, Joltin' Josie at Lackland AFB.



The Soviet leadership assumed an aggressive posture, constantly touted their lead in missiles and military technology and exaggerating their production figures and their stockpiles. Russian nationalism and communist ideology were one source of this attitude and behavior but the Soviets had a well-founded fear of western hostility towards Russia: Napoleon, the British led anti-Bolshevik efforts after World War I, and Hitler prove that Stalin's fears were not totally paranoid. On the other hand, the Stalinists in the Politburo gained power through conspiracy and psychologically, saw the west in the same light, as conspirators. Soviet fear of the West was well founded historically and psychologically.

The Soviets also adopted a policy of fear-mongering, trumpeting their superiority in weaponry and using a favored tool, *maskirovka*. *Maskirovka* is a form of deception in which the enemy is led to believe that something is true which is not. For example, in 1955, at a Soviet Aviation Day fly-by open to foreign military attaches, the long range Myasishchev M-4 Bison bomber made an appearance which startled the observers. Twenty-six were counted but actually, the first pass was made by ten Bisons which flew out of sight and returned and then flew out of sight with eight returning. The impression of a huge bomber force was made but actually, the 26 were about all that were operational!

The United States definitely had a lead in long range bombers, the Boeing B-50 and the Convair B-36 Peacemaker were flying in quantity.



RB-50F of the Air Photographic and Charting Service. The B-50 was based on the B-29 but with much larger engines, a taller tail, and a strengthened structure.)
 (Photo Credit: USAF)



The ten engined behemoth, an RB-36H, at the Castle AFB Museum.

By the early '50s, Boeing's B-47 Stratojet and B-52 Stratofortress were being added to the USAF order of battle. The United States also had a much larger inventory of nuclear weapons.



Twenty-seven RB-52B aircraft were produced. This plane is on display at Denver's Wings Over the Rockies A&S Museum.

But much of the political and popular opinion in the United States bought into the Soviet message of superiority. Why? Three reasons. First, the Republican Party used it to hammer the Truman administration. Second, the USAF, engaged in a budget battle with the US Navy sought the funding that would go with a buildup of the U.S. Bomber force. And third, there was almost no hard intelligence data to state otherwise. The outcome was the so-called "bomber gap."

In 1952, Truman was replaced by Dwight Eisenhower, a Republican, and now it was the Democrats turn to savage the new administration on alleged shortcomings in defense policy. Many political leaders and defense analysts found little reason to fear the Russian Air Force but ironically, fear-mongering, exacerbated by continuous Soviet boasting assisted the "bomber generals" who advocated for, and got, the funding to build a fleet consisting of thousands of strategic bombers.

The Air Force had already primed itself to take the mission. General Arnold, in 1946, had reorganized the Army Air Force into three commands, the Strategic, Tactical, and Air Defense. A year earlier, General Spaatz had chaired a panel which argued that an air force was the first line of defense and given atomic weapons, the nation could not afford a surprise attack. A strategic bombing force, superior to any other nations, was, therefore, a necessity. Implicit in this set of principles was the germ of massive atomic retaliation if the United States were to be attacked.

The Air Force was committed to strategic bombardment. In the 1930s, the Air Corps Tactical School Bombardment Section at Maxwell Field, under the leadership of Maj. Harold George, developed a theory of strategic bombardment based upon unescorted, high altitude bombers flying in daylight using precision bomb sights. Many of the instructors and students became general officers in WWII. These included Robert Olds (the father of Robin Olds), George Kenny who ran the air operations for General MacArthur in the Southwest Pacific Theatre, and some more familiar names: Hap Arnold, Jimmy Doolittle, Carl Spaatz, and Curtis Lemay.

On 26 July, the National Defense Act of 1947 granted the USAF independent status. The newly fledged Air Force faced huge administrative problems and worse, had almost no ability to carry out the strategic bombardment mission envisioned by the 'bomber generals.' There were very few atomic bombs in the arsenal, very few aircraft able to carry the bombs, and very few air crew competent to man the missions. Moreover, information about the strategic targets in the Soviet Union was lacking. Most of the data came from out-dated maps, reports from ex prisoners of war, and the files of the Germany's WW II intelligence organizations.

In 1949, LeMay took command of the Strategic Air Force and found out that it was a hollow shell. He ran a test of SAC's capabilities and learned that "not one aircraft crew finished the mission as briefed, no one." That was to change.

Eisenhower knew he suffered from a dearth of hard intelligence data about the Soviets and his military experience in leading the Allied effort in Europe led to his promotion of methods which might improve the data.

During the 1930s, Eisenhower had been assigned to survey sites which were sources of strategic materials. He used aerial photographs and since there was no Army school for the discipline, Eisenhower taught much of what he needed for photo-interpretation to himself. He was also a

private pilot and had some understanding about the problems of flight. As a result of these experiences, Eisenhower recognized the importance of aerial photography as a vital tool for the military intelligence officer and his political masters.

The United States and Great Britain had been flying intelligence missions all along but they were mostly along the periphery of the Soviet Union and its client states but the photographic equipment and aircraft were unsatisfactory.

Eisenhower authorized a series of flight using RB-29s and the RB-47E and the Navy's Consolidated PB4Y-2s Privateers and Martin P4M Mercators. Attacks on these flights were relatively common, justified by the Soviets as protection of their airspace. The US government protested these attacks on aircraft experiencing navigational difficulties or unarmed weather reconnaissance flights.



RB-47E at the Charles B. Hall Airpark, Tinker, AFB, Oklahoma



The Privateer was a lengthened B-24 Liberator with the a large single vertical stabilizer.



The Mercator was a four-engine aircraft. Two jet engines were carried in the same nacelles that housed the piston engines!

Some of the flights were deep penetration missions flown by the RB-47E, British English Electric PR Mk.7 Canberras, and the RB-45C, carrying British insignia and flown by RAF personnel. The photographs which they garnered not only showed that the Russians were not preparing a surprise attack but also that they did not have any superiority in bombers. The “bomber gap” existed but it was the United States that Lockheed the the quantitative and qualitative advantage.



The RAF flew a number of missions in the PR.3 Canberra. The aircraft was modified from the bomber version by adding 14 inches to the forward fuselage which allowed for the installation of seven cameras

The Human Cost of Aerial Intelligence Operations

However, in order to assess Soviet military preparedness, the nation paid a price. The airmen gathering the information flew two kinds of missions, photo flights (P) and ferret flights (F).

Photo flights using cameras and radar scope photos took pictures of military installations, factories, test ranges, and other unique points of interest (image intelligence or IMINT). They also provided the data for maps and rectified the map references. Ferret Flights used electronics to detect and analyze the properties of anti-aircraft radar (signal intelligence or SIGINT) and intercept communications (COMINT). In the first two decades of the cold war, the east bloc and western air forces continuously confronted each other from the eastern fringes of Europe to the Pacific rim. The following table is an account of the shoot-downs of U.S. aircraft which fell to

Russian, Chinese, and North Korean interceptors and anti-aircraft batteries. The number in parentheses is the number of men killed in each incident. The second line in each entry is the approximate area where the incident took place.

02 APR 1950	(F)	PB4Y-2	(10)
		Baltic Sea	
06 NOV 1951	(F)	P2V-3W	(10)
		Cape Ostrovnoi/Sea of Japan	
13 JUN 1952	(P)	RB-29	(12)
		Vladivostok/Sea of Japan	
07 OCT 1952	(P)	RB-29	(8)
		Kurile Islands/Sea of Okhotsk	
18 JAN 1953	(F)	P2V-5	(6)
		Formosa Straits	
29 JUL 1952	(F)	RB-50G	(16)
		Vladivostok/Sea of Japan	
04 JAN 1954	(F)	P2V-5	(10)
		Dalian, Manchuria/Yellow Sea	
04 SEP 1954	(F)	P2V-5	(1)
		Vladivostok/Sea of Japan	
17 APR 1955	(P)	RB-47E	(3)
		Kamchatka Peninsula/Pacific Ocean	
22 AUG 1956	(F)	P4M-1Q	(16)
		Shanghai/East China Sea	
10 SEP 1956	(F)	RB-50G	(16)
		Sea of Japan	
02 SEP 1958	(F)	RC-130	(17)
		Soviet Armenia	
01 JUL 1960	(F)	RB-47H	(4)
		Kola Peninsula/Barents Sea	



The versatile Lockheed Neptune served as ferret, recording data on Soviet radars. This is a P2V-5 at the Pueblo, Colorado Weisbord Air Museum.

A Coterie of Sagacious Patriots Point the Way

Eisenhower's problem was to gain continuous hard data on the state of Russia's air force, especially their ability to launch a surprise attack without risking aircrew or creating an international incident. The solution was to use an aircraft that was undetectable and immune to Soviet interception. Soviet radar was ineffective beyond about 45,000 feet. The new aircraft had to be a high-flyer. A new cast of characters emerged and provided the solutions, all of which either came to fruition or commenced development during Eisenhower's two terms. In no particular order, let us take a look at some vignettes which might capture the flavor of the enterprises.

Norwich, Connecticut native Edwin Land, the developer of the Polaroid camera, was a prolific inventor who held 533 patents. Land was a key player in the network of scientists and military officers interested in fostering a mission for aerial photo-intelligence which transcended the view that the aircraft was a form of cavalry or naval frigate, tactical scouts for the main battle force. They understood that aerial reconnaissance could provide the necessary information which might forestall surprise attacks, attacks which given the nuclear option, were orders of magnitude greater than ever seen or even contemplated by past military and political thinkers. Where once a surprise attack might eliminate a fortress or a fleet, now it might destroy an entire nation. Land's

associations with Eisenhower and the pool of

talent consisting of such men as Baker, Bissell, Leghorn, and Johnson were conduits which coalesced the various needs, technologies, and authority and provided Eisenhower and his successors the tools needed to develop and informed national defense policy.



"Din" Land and his Instant Camera
(Photo Credit: Polaroid)

Richard Leghorn was a rare combination of film researcher, war-time photo-reconnaissance pilot, visionary, and industrialist. His war-time experiences led him to propose an "open skies" policy which could eliminate the fear of surprise attacks by allowing nations to use surveillance aircraft to overfly each others territories, an idea rejected posthaste by Stalin. As early as 1946, he envisioned an aircraft which could fly so high that it could not be intercepted. His policy papers heavily influenced the military, the national civil leadership, and key scientists.



Richard Leghorn in WW II
(Photo Credit: USAAF)

George Goddard remained a principal player in the aerial photo-intelligence game. He recruited James Baker, a genius in optical technology and

provided financial support for designs of long focal length camera lenses. Goddard was instrumental in founding the Boston University Optical Sciences Laboratory which morphed into Itek and developed the cameras used in the U-2 and Corona, the first photo-reconnaissance satellite.

In resolving details on the ground, the name of the game is focal length. Focal length is the distance between the camera lens and the focal plane, the film or an electronic sensor. Long focal lengths give greater magnification but less field of view and if you wanted long focal length, James Baker was the man to see.



James Baker at work in the laboratory

The Nikon D90 used in the CAP airborne photography application has a focal length of around one inch to four inches. The WW II K18 medium to high altitude camera had a focal length of 24 inches. A Baker lens for the U-2 was made by Perkin-Elmer in Danbury and had a 36 inch focal length. One of the biggest cameras ever built, Boston University's Optical Lab K-42 or Boston Camera had an astounding 240 inch focal length. It weighed around 6,000 pounds and was carried by a RB-36 or RC-97. Given good atmospheric seeing, the K-42 could resolve a golf 1.5 inch object, about the size of a golf ball from 45,000 feet! Goddard once said that "...in reconnaissance, there is no substitute for focal length.

Hap Arnold recognized the importance of science and recruited Theodore von Kármán, arguably the leading aerodynamicist in the country as a consultant and provided funding for lab laboratories and research facilities. He formed a Scientific Advisory Panel which brought together the leading scientists and engineers to assist the Air Force in developing the tools needed to counter the Soviet threat.



Five Star General "Hap" Arnold, the only man to hold that rank in both the US Army and the US Air Force. Note the U.S. Military Aviator Badge below the medal ribbons.

(Photo Credit: USAF)

The concept of using artificial satellite to photograph denied territory received support but in 1952, the idea was not yet practical. A short-term solution was needed and the men who provided it were and Richard Bissell and Kelly Johnson.

Dr. Richard Bissell, a Hartford native, was an economist who worked with the Office of Policy Coordination in WWII, planning paramilitary operations and psychological warfare. His reputation as a hard charging organizer led Alan Dulles, Director of the CIA, to place him in charge of a projected aircraft, the CL-282, designed by Lockheed's brilliant Clarence "Kelly" Johnson.

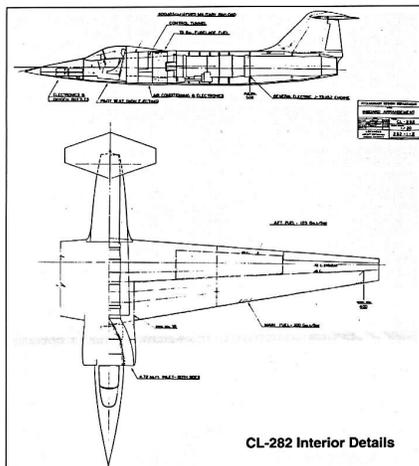
Richard Bissell





Tony LeVier and Kelly Johnson (c. 1943) examine a "compressions flap" used to remedy control problems in P-38s during high speed dives. LeVier was the first pilot to fly the U-2.
 (Photo Credit: Lockheed)

Johnson knew of an Air Force contract given to both Bell and Fairchild to produce studies for Leghorn's invulnerable high flying spy plane. Using his own initiative, he submitted the plans of his CL-282, a design based on the F-104 Starfighter, to the Air Force. The plans were received by General Bernard Schriever who was also pressing for the development of a modified version of Martin's B-57 Canberra for the same mission. Schriever approved but Johnson's bid was rejected by the Air Force. This opened the door for the CIA.



Preliminary design of the Lockheed CL-282

Good photo intelligence is more than daring pilots, superior cameras and film, good weather, and a modicum of luck. A photo is data but data must be interpreted, made meaningful in a specific context.

That is the job of the photo-interpreter. Constance Babington-Smith has been mentioned earlier for her work in World War II. The cold war brought forth a new class of interpreters, one of which, Arthur Lundahl stands as a technical and administrative paradigm.



Arthur Lundahl, Founder of the National

Photographic Interpretation Center
 (Photo Credit: National Geospatial-Intelligence Agency)

Lundahl, trained as a geologist, served in the Navy during WW II and worked as an image intelligence specialist. Afterwards, he headed a division of the Naval Photographic Interpretation Center before moving to the CIA where he headed the Photographic Interpretation Division. His contributions there included the development of automatic data processing equipment and the implementation of graphical displays for briefing political and military leaders and their staffs.

The CL-282, rejected by the Air Force, found new support by the group this group advisors who volunteered or were recruited by Eisenhower. They understood that the radical design could meet the 70,000 foot altitude standards demanded by the original Air Force proposal for an aircraft that could fly high enough to be undetectable to Soviet radar systems. Air Force indifference to the CL-282, the CIA's access to un-vouchered funds, and Eisenhower's concern that military officers should not fly over Soviet territory placed the program in the hands of the CIA which assigned the cryptogram "Aquatone" to the project. Lockheed's Kelly Johnson received a contract to construct a specialized reconnaissance aircraft that the called 'The Angel, which when completed, filled a gap in the USAF aircraft designation system between DeHavilland of Canada's U-1 Otter and the Cessna U-3 "Blue Canoe."