September 11, 2001
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Air Power History

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The horrific events of September 11, 2001, shook our nation as violently as did the attack on Pearl Harbor nearly sixty years ago. Just as we overcame that original day of infamy, so too shall we beat the challenge of the terrorist assault on the United States of America. Air power, which proved decisive throughout most of the twentieth century, will undoubtedly continue to influence events into the twenty-first. This journal will continue to encourage the study of air power history to serve the needs of our military, scholars, students, enthusiasts, and all people who love freedom.

To continue our study, this issue starts with an article by a Russian air power enthusiast, Viktor P. Kulikov, who recounts the history of Vladimir Lebedev’s World War I aircraft factory and its successes and failures. Many unique photographs illustrate the article. Michael Haas’s fascinating account of Don Nichols’s special operations exploits during the Korean War, “In the Devil’s Shadow,” is drawn from his book published by the Naval Institute Press. Air Mobility Command historian, Betty Kennedy, establishes the “lasting legacy” of the AMST—Advanced Medium Short-Takeoff and Landing Transport—the C–17 Globemaster III. It is relevant even today over Afghanistan. Stephen Wilson wrote, “Taking Clodfelter One Step Further,” while he was a U.S. Air Force Academy cadet. In this article, Lt. Wilson extends his mentor’s thesis by examining how the policy of gradualism led to the misuse of air power in the Vietnam War. Brig. Gen. Brian S. Gunderson, USAF (Ret.), this journal’s publisher and a World War II veteran, concludes his final installment of “Slanguage,” the Rosetta Stone of RAF-USAAF slang terms. Future generations will thank him for deciphering an entire body of arcane literature.

Nine books are reviewed in this issue, covering a variety of subjects and written by experts in their field; these should pique everyone’s interest. Again, I invite your attention to the books received list. Book review editor, Michael Grumelli, is actively soliciting new reviewers. If you feel qualified to review one or more of the books listed—in this or prior issues, or have an appropriate book that was not listed—please contact Dr. Grumelli. See pages 62–63.

The departments section includes the usual categories of “The History Mystery,” letters, news, notices, and reunions. If you would like to express your views or advise readers of some upcoming event, please write or e-mail the editors. See page 2.

Gen. W. Y. Smith, USAF (Ret.), president of the Air Force Historical Foundation, was compelled to postpone the coalition air power in the Korean War symposium that was slated for October 17–18, 2001. We anticipate rescheduling it next spring.

On behalf of the staff of Air Power History, I wish all of our readers happy holidays, health, and good fortune.

J. Winkfield

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ebedev's Factory

Viktor Kulikov

VLADIMIR ALEXANDROVICH LEBEDEV WAS BORN IN ST. PETERSBURG IN 1879. WHILE STUDYING FOR A LAW DEGREE FROM ST. PETERSBURG IMPERIAL UNIVERSITY, HE WAS THE RUSSIAN CYCLE RACING CHAMPION. IN FRANCE IN 1908, HE OBSERVED THE FLIGHT OF A WRIGHT BROTHERS’ AIRPLANE. THE FOLLOWING YEAR, VLADIMIR LEBEDEV AND HIS BROTHER, ALEKSANDR, A PROFESSOR AT THE IMPERIAL POLYTECHNIC INSTITUTE, BUILT A GLIDER THAT MADE A SERIES OF SUCCESSFUL FLIGHTS NEAR ST. PETERSBURG. VLADIMIR LEBEDEV BECAME AN ACTIVE MEMBER OF THE ALL-RUSSIAN AERO CLUB AND WROTE FOR VESTNIK VOZDUKHOPLOVANYA (THE HERALD OF AERONAUTICS) MAGAZINE. IN MARCH 1910, THESE ACTIVITIES GAINED HIM ADMISSION TO THE HENRY FARMAN FLYING SCHOOL IN FRANCE. BY APRIL, LEBEDEV HAD EARNED HIS WINGS. HE PASSED HIS EXAMINATIONS, QUALIFYING FOR THE RANK OF PILOT-AVIATOR, AND SOON RETURNED TO RUSSIA. AWARDED FLYING DIPLOMA NO. 98, HE BECAME THE THIRD RUSSIAN TO GRADUATE FROM THE FRENCH AERO CLUB. IN JUNE, LEBEDEV COMPLETED SEVERAL SUCCESSFUL DEMONSTRATION FLIGHTS AT GATCHINA AIRFIELD, FREQUENTLY TAKING RUSSIAN OFFICERS ALOFT. AS A RESULT OF THOSE FLIGHTS, MANY OF THE OFFICERS LATER BECAME MILITARY PILOTS.


ALSO IN 1910, THE LEBEDEV BROTHERS, ALONG WITH CAPTAIN SERGEI UL’YANIN AND A BUSINESSMAN NAMED LOMACH ESTABLISHED PETERBURGSKOYE TOVARISHCHESTVO AVIATSI (THE PETERSBURG AVIATION COMPANY (PTA). THE NEWLY ORGANIZED COMPANY WON AN ORDER FROM THE ARMY’S CENTRAL ENGINEERING DEPARTMENT TO BUILD A FOLDING OR DEMOUNTABLE AIRCRAFT. THE CONTRACT SPECIFIED THAT THE DISASSEMBLED AIRPLANE BE CAPABLE OF REASSEMBLY AND PUT IN FIGHTING TRIM WITHIN TWO HOURS. COMPLETED ON JANUARY 26, 1911, MILITARY BIPLANE PTA NO. 1 WAS A MODIFIED FARMAN IV, DISTINGUISHED FROM THE FRENCH MODEL BY ITS REDUCED WING AREA AND FEATURED A GONDOLA FOR AN OBSERVER AND THE PILOT. THE AIRPLANE WON A PRIZE AT THE FIRST INTERNATIONAL AERONAUTIC EXHIBITION IN ST. PETERSBURG IN 1911. LEBEDEV’S FLIGHT TESTS AT KOLOMYAZHSKY AIRFIELD DEMONSTRATED THAT THE NEW AIRPLANE WAS AS FAST AS THE
lighter Farman IV. The All-Russian Aero-Club bought two copies of PTA No. 1 for pilot training.

In 1912, without interrupting his flying activities, Lebedev decided to devote himself to business. He opened a workshop in St. Petersburg to repair and produce French Integral type propellers, parts for Depredation aircraft, and trolleys to transport disassembled Nieuport IV airplanes. Although this workshop burned down in 1913, Lebedev had bought insurance. Then, shortly after the workshop was restored, a second fire broke out and again insurance compensated him. Some suspected that this was how Lebedev accumulated his capital. In April 1914, Lebedev built several industrial facilities for his new aircraft factory—Aksionernoe obschestvo vozdukhoplavaniy V.A. Lebedeva (Lebedev's joint stock aeronautic company) in the Novaya Derevnya, near Komendantsky airfield in St. Petersburg.

A Growing Business

Lebedev's factory began with only seven workers, but after obtaining many orders from the Military Department, the factory's workforce grew to 1,500 employees and increased industrial capacity. Only six planes per month were produced in 1914. Two years later, the monthly average rose to thirty aircraft. The factory's facilities included woodworking, drying, mechanical, fitting, welding, carpentry, and assembly shops. The factory's chief pilot was a French aviator named Januar. Lett Martin Fyodorovich Gospovskii, who had worked as an engine mechanic, later replaced Januar. Vitold Ivanovich Yarkovskii was the factory's manager and technical head. On the eve of the outbreak of World War I, Lebedev recruited Leopold Mikhailovich Shkulnik to be the factory's primary designer. Shkulnik, who had previously worked for the German AGO Company, designed most of the airplanes at Lebedev's factory. Vasilii Ivanovich Rebikov headed the serial construction of foreign aircraft. Engineers Samuil Borisovich Gurevich, Leonid Dement'yevich, and Kolpakov-Miroshnichenko also worked in aircraft construction. Throughout 1914, aircraft production at the new factory centered on the French Depredation two-seaters, powered by Gnome 80 hp. engines. Sixty-three of these airplanes were produced. In July, the factory began to manufacture the French Voisin airplane, with the Salmson 130 hp engine.

In the summer of 1915, Lebedev's factory in Petrograd (St. Petersburg) was renamed in the summer of 1914) acquired a captured German Albatros plane, powered by a Benz 150 hp engine. Acquisition of the Albatros initiated the practice of copying captured aircraft at Lebedev's factory. Slight changes were made to adapt different engines to the copies. This line of business proved profitable to Lebedev, as the government paid the same price—13,700 rubles—for any two-seat aircraft, whether repaired, captured, or newly-built.

Lebedev hired two new test pilots, Aleksei Petrovich Goncharov and Vasilii Yakovlevich Mikhailov. At the beginning of the war, Lebedev's factory produced many more aircraft than did other Russian aircraft factories. In 1916, his factory produced on average one airplane per day, and in some months one and a half airplanes daily. Besides the Albatros, the factory also copied German airplanes built by Rumpler, Aviatik, and LVG. Also constructed, but in smaller numbers, were the British Sopwith Tabloid and Sopwith 1-1/2-strutter. The copies were all named Lebed and numbered sequentially. Thus, the Sopwith Tabloid was named Lebed VII. Lebedev's factory also developed experimental airplanes. He enlisted creative people and provided them with favorable working conditions, but infrequently carried the work through to completion because experimental airplanes simply did not generate enough profit soon enough. Nonetheless, several experimental Russian designs were built at Lebedev's factory, including the Svyatogor by Vasily Slesarev, Le-Grand by Leonid Kolpakov, Morskoy Parasol by Georgy Fride, VM-4 by Aleksander Villish, and Lebed-XVII by Sergei Gurevich.

Trophy and Licensed Aircraft of Lebedev's Factory

Orders for military planes increased sharply following the onset of World War I. The Central Military-Technical Department asked for 60 Morane Saulnier type G, 30 Morane Saulnier type L, and 72 Depredation aircraft. Later, the two-seat reconnaissance Voisin became the factory's main product, with 153 copies of that aircraft produced in 1916-1917. Lebedev also signed contracts for 40 Nieuport 10 aircraft (only twelve were produced), 260 Sopwith 1-1/2-strutters (five were produced), and 80 Farman 30s (none were turned out). Many of the orders could not be filled, however, because of the factory's limited capacity and a severe shortage of aircraft-engines.

Lebedev's factory also produced the so-called German “trophy” aircraft. Damaged enemy aircraft captured by Russian forces that could not be repaired at the front were sent to the factory, where they underwent thorough exploitation to learn the latest advances in German aviation technology. Usually, these aircraft were copied exactly, with only slight alternations. One of the first German aircraft repaired at Lebedev's factory was Albatros No. 76, powered by a four-cylinder Argus engine. Repaired by Lebedev mid-1915, it was handed over to the Gatchina military flying school. In December of that year several more trophy German aircraft were delivered to Lebedev’s factory. Among them was the Rumpler No. 300 with a Mercedes 112-hp engine and an LVG with a Mercedes 129-hp engine. After repairs, both aircraft were sent to the front to the 8th Army Air Detachment in February 1916.

In 1916, about twenty German aircraft, mainly Albatros types, were repaired at Lebedev's factory. Those aircraft were equipped with engines removed from other planes that had been shot...
down. After alternation, repair, and test flights the aircraft were designated “Albatros of Lebedev’s factory” with a corresponding number and sent to front, providing welcome reinforcements to the 18th, 33d, 34th, and Grenadier Corps Air Detachments; and the 8th and 12th Army Air Detachments. The use of outdated German planes was necessitated by an acute shortage of airplanes for Russian army frontline aviation during the war.

Seaplanes of Lebedev’s Factory

The Lebed-Morskoi-I (LM-I) float seaplane was designed first with a 220-hp Renault engine, then a 150-hp Sunbeam engine was installed. It was three-bay biplane, two-seat reconnaissance that had three floats. Its useful load was 365 kg, with a takeoff weight of 1,455 kg. After testing in the spring of 1916, the seaplane was delivered to the Air Detachment of the Emperor Peter the Great.

Another seaplane produced at Lebedev’s factory was a floatplane copied from the German Albatros No. 269. The latter made a forced landing on September 28, 1915, south of Mitava not far from Babit Lake and was then delivered to Lebedev’s factory. It was planned to equip it with a Hispano Suiza 200 hp engine. The Military Department ordered 175 of the aircraft, but Lebedev was able to produce only two.

At Lebedev’s factory in 1915-1916, Georgy Fride modified the Morane Saulnier type L aircraft into a flying boat, designated the Morskoy Parasol (Sea Parasol). The wings, tail unit, and Gnome 80 hp engine were taken from a standard Morane Saulnier type L aircraft and installed in a boat-shaped hull with significant dead rise and equipped with additional hydrofoils. The aircraft was tested in the summer of 1916. The power of the hydrofoils caused the flying boat to rise from the water before the wings developed enough lift and the aircraft could be brought under control. Pilots did not want to risk the takeoff with hydrofoils. Without the hydrofoils, however, the flying boat could not take off from the water. Work soon stopped.

At the end of 1916, the VM-4 seaplane was designed by Aleksandr Villish and built at Lebedev’s factory. It was a flying boat with a truss tail and pusher propeller, powered by a 110 hp Le Rhone engine. The wing cell was equipped with a device for changing the angle of climb during the flight; but it appeared to be unnecessary as the aircraft successfully flew with fixed wings. After successful tests in Baku, the aircraft was turned over to the Navy pilot school, but was not mass produced.

Besides seaplanes, in 1915 Lebedev’s factory turned out two copies of a float version of the Depredation and copies of Maurice Farman M. F. 11 on floats for Navy aircraft schools. The French flying boat FBA, renamed Lebedev Morskoi-2 (LM-2) was built under license at Lebedev’s factory in 1914-1916. A two-seat reconnaissance aircraft with a 100 hp Gnome-Monosoupape engine, it could fly at up to 105 km/hr.

Other Russian-designed Aircraft

In March 1916, testing began of the giant Svyatogor bomber, designed by Vasily Slesarev. The Svyatogor, one of the largest of Russian aircraft built before 1917, was 21 meters long, with a 36-meter wingspan. Specifications called for the aircraft to take off with a 6.5-ton load, and fly for 30 hours at a speed of more than 100 km/hr, with a ceiling of 2,500 meters. The aircraft featured large, 6-meter diameter propellers, set in motion with a belt drive by two Renault 220 hp engines mounted in the fuselage. In early November 1916, while taxiing at Komendantskyi airfield, a wheel of the aircraft rolled into a drainage ditch, damaging the aircraft. The designer failed to solve the problem of inefficient transmission from engines to propellers and the Svyatogor did not get airborne. Slesarev changed the belt drive into a rope transmission. However, breakdowns continued and the power plant displayed new shortcomings. The airplane remained unfinished for three years after the Bolshevik revolution.

The two-seat reconnaissance K-1, designed by Leonid Kolpakov, with an Austro-Daimler 100 hp engine, was built at the Lebedev factory in the summer of 1916. The aircraft featured a variable structure. During flight, the pilot could alter angle
of attack of the wing cell within limits of 7 degrees. This device was designed to obtain greater lift, while taking off and greater speed during flight by selecting a smaller, constant angle of attack. During the first flight the aircraft took off steeply then lost speed and fell. Pilot M. Gospovsky escaped with slight injuries. The aircraft was never rebuilt and work on the project stopped.

The Early Lebed Aircraft

All experimental and serial aircraft produced at the Lebedev's factory in 1914-1918 were designated "Lebed" and numbered from I to XXIV. Information about the first six types is lacking, but it is assumed that they were copies of foreign aircraft. The Lebed VII, produced at the beginning of December 1914, was a copy of the Sopwith Tabloid, a single-bay biplane powered by an 80-hp Gnome rotary engine. The 21st Corps Air Detachment received two Lebed VIIIs. The plane attracted the attention of the Grand Duke Aleksandr Mikhai- lovich—Patron of the Imperial Russian Air Service—who inquired about the Lebed-VII as a fighting machine and also how soon it could be produced in quantity. Military pilots reported that the Lebed VII was capable of attaining the same speed as Morane Saulnier G, had better pilot visibility, and was easier to land. On the negative side, the single-seat was less desirable for military purposes. That estimation probably determined why the plane did not enter serial production and the remaining copies were transferred to the Gatchina flying school. The last ones remained at that flying school until the middle of 1916. The two aircraft assigned to the 21st Corps remained until May 1915. Lieutenant Vernitsky made more than thirty combat reconnaissance flights in them for the Sixth Army Corps. The longest flight, on April 2, lasted 2 hours 30 minutes.

In the spring of 1915, one Lebed VII flown by Lieutenant Semenov was assigned to the Grodnensky fortress air detachment. Another Lebed VII went to the Seventh Fighter Air Detachment in December 1916 for training, but crashed with Ensign Janchenko at the controls. Lieutenant Tsirgiladze damaged one of the last Lebed VII aircraft, works number (WN) 52, while landing at the Gatchina flying school on February 5, 1917.

A later attempt was made to improve the Lebed VII by installing a two-bay wing cell with ailerons at the upper wing and an undercarriage without anti-nose-over runners. The modified aircraft, designated Lebed VIII, failed to produce the increased load-carrying capacity expected and only two copies were built.

On July 5, 1915, due to the malfunction of its Mercedes 120 hp engine, a German LVG B II made a forced landing near the village of Stara Buda. The undamaged aircraft was turned over to the 27th Corps Air Detachment. While on a night flight from the nearby Kovna fortress, however, the plane was slightly damaged and sent to Lebedev's factory. Repaired in early 1916, it was subsequently sold to the Military Department under the designation Lebed IX.

In 1915 work began on the Lebed X aircraft. An original design, its scheme and structure envisioned for multipurpose use. The fuselage, undercarriage, and tail were the same for two variants. However, two different wing cell arrangements could be attached to the fuselage. The small wing set yielded as a single bay sesquiplane that could be used as a fighter. Its 16-sq. meter upper wing had ailerons, while the smaller, 13-sq. meter lower wing had none. A second variant, with large wings was produced as a standard double-bay biplane. Its two wings had the same wing span and almost the same area—upper wing 20 sq. meters, lower wing 19.4 sq. meters. Two of the aircraft, WN 100 and 101, with different wing-cells, were built at the end of 1915 and tested by Lebedev himself the following spring. Both performed poorly. The short-wing version was underpowered. The long wing variant, intended for reconnaissance, was a single-seater, with little load-carrying capacity. Lebed X did not enter serial production and in July 1917, WN 101 was transferred to the Gatchina flying school.

The Monocoque No. 11 (Lebed XI) was not an exact copy of the French Depredation Racer. Russian designers tried to convert the racer into a single-seat fighter, with a Gnome-Monosoupape 100-hp engine and a synchronized gun. Its design speed of 180 km/hr and armament made the aircraft a good prospect for Russian military aviation,
Aircraft WN 401, constructed during the first quarter of 1916, flew fairly well, but its machine gun had not been installed and the Military Department refused to buy it. In June 1917, Lebedev managed to sell his Monocoque to the Gatchina flying school. The plane was equipped with a Gnome Monosoupape 100 hp engine and an Integral type N 8470 propeller. It was also equipped with a spare set of wings and a set of skis for winter flights.

The designation Lebed XI was also assigned to a typical two-seat reconnaissance biplane with different versions of wings and engines. In fact, different versions of trophy Albatros were produced under this name from 1915 until 1916. Six varieties of wings (two and three-bay biplanes) had wing spans from 13 to 14.5 meters and wing areas from 39 to 43.6 sq. meters. Lebed XI aircraft were equipped with a variety of captured Mercedes, Benz, and Maybach engines. Later versions of the plane had Salmson 150 hp engines. The Lebed XIs were distinguishable by their propellers’ spinners and engines, which had collector rings to eliminate exhaust gases passing above the center section of the wing. In all, ten Lebed XI aircraft were built.

The Lebed XII

Work on the Lebed XII aircraft started in mid-1915. Flight testing began in December with Lebed XII WN 325 powered by a Salmson 130-hp engine, that was later replaced with a slightly more powerful 140 hp engine. Lieutenant Sleptsov, from the Grenadier Corps Air Detachment was the test pilot. On December 29, he telegraphed to the head of aircraft and aeronautics in the Army in the Field, Grand Duke Aleksander Mikhailovich: “Lebed-XII with Salmson engine is the best of all the existing airplane[s]...urgent order for fighting tests is necessary.” During the tests the plane attained a speed of 120 km/hr, rose to a height of 2,900 meters in 22 minutes, while carrying a 350-kg. load. However, the tests also revealed some defects and Sleptsov recommended that the exhaust pipes be modified to divert exhaust gases that streamed into the cockpit; that the wind screen in the pilot’s cockpit be enlarged; the resistance at the control wheel be lowered; and that armor be provided for the pilot and observer.

The tests were interrupted by bad weather. The experimental airplane continued the tests on a railway platform first at Kiev and then at Odessa. A Lebed XII was delivered to the A. A. Anatra aircraft factory in Odessa on February 11, 1916. Flight testing was completed four days later, but after landing and while taxiing, the aircraft overturned. It would have taken two weeks to repair, but Lebedev was afraid of competition and demanded that the aircraft be returned to Petrograd. Two months later, Grand Duke Aleksandr Mikhailovich inquired about the status of the experimental airplane. He learned that instead of repairing the plane, a new one was built. Differing from its predecessor, the new Lebed XII’s testing was planned for June. On February 23, during the flight testing of the first Lebed XII, the Grand Duke had placed an urgent order for 400 airplanes. But negotiations between the head of Russian aircraft, Central Military Technical Department and Military Department were prolonged and a contract was not signed until April 19, and the number of planes requested dropped to 225, without engines or propellers. The same contract envisaged delivery of 245 sets of spare parts and ten dummy Lebed XII airplanes. The total cost was 5,153,500 rubles.

Testing of the modified Lebed-XII started in July 1916. On the 31st Lieutenant Barbas flew one of the experimental aircraft (WN 457) from Petrograd to the front. It took him three and a half hours to reach Pskov. The engine performed well
and there were no complaints about the aircraft. In Pskov Barbas obtained a new map, fueled up, adjusted the engine and flew on to Dvinsk, where he landed after a two-hour, twenty-minute flight. His general impression about the airplane was good, but he noted that “the [aircraft] during the flight pulled downwards and it was necessary to [hold it level with the] control handle.”

On September 13, Lebedev asked for a postponement due to technical difficulties. The problem was that the experimental airplane had been designed for the Salmson 130-hp engine, while the production model was equipped with 140 hp and 150 hp versions. Because the latter engines were heavier, they altered the airplane’s center of gravity. In addition, the attachments for the radiators and engines required modification. At the end of September, however, the modified planes resumed flight testing. On September 27, factory pilot Mikhailov took off in aircraft WN 444, with a 150-hp engine, carrying a 350-kg load to test horizontal speed. On the same day another aircraft (WN 497), with a 140 hp engine and a new exhaust system underwent testing.

At the beginning of October, taking advantage of good weather, factory and military pilots carried out almost all the tests of the Lebed XII. It achieved a speed of 133 km/hr and the aircraft climbed to 3,000 meters, with a 350-kg load in 56 minutes. However, it also had excess weight, a small useful load, and insufficient ceiling. Factory pilots Mikhailov and Goncharov and military pilots Captains Zhokhov, Modrakh, Jablonsky, and Lieutenants Kalashnikov, Korvin-Krukovsky, and Lerkhe participated in the work of the test commission. In their October 10 report, they acknowl-
edged the Lebed XII fit for reconnaissance in the nearest rear units, reported its maximum permissible loading to be not more than 300 kg, and recommended sending the aircraft to frontline corps and air detachments to replace Voisin airplanes.

The Lebedev XII featured a four-sided plywood fuselage without internal bracing. The fuselage walls were made of 3-mm plywood; its sheets attached to a four-longeron framework with brass wood screws, nails, and joiner’s glue. The fuselage had great rigidity and durability; was simple and cheap to produce, but carried some excess weight in comparison with wire-braced fuselages with canvas covering. The wings’ profile was thin and concave, pinewood box spars were connected by struts that, together with a wire anchor, formed a closed biplane-box. The upper wing angle setting was positive, while the lower wing was negative. Later, it was discovered that the plane had difficulty in climbing out of a dive, the cause of several crashes. The tail unit was flat, its welded frame made out of steel pipes with a cloth covering. The standard undercarriage featured V-shaped struts formed from steel tubes of elliptical section. Two wheels 760 by 100-mm set on steel axes had steel rims and spokes and sometimes were covered with aluminum axle caps. The pilot’s seat, at the front, was placed over the fuel-tank, the observer’s cockpit was framed with a wooden ring, which served as the base for the machine gun mounting. The training version of the aircraft was distinguishable by the student’s seat being located in the front and instructor’s behind it.

A 140 or 150 hp Salmson engine was mounted on a rigid steel engine bed and covered with an aluminum cowling. Only the valve heads remained open to promote cooling. According to Lebedev’s assertion “owing to the bonnet [the] engine constantly worked at [a] good temperature, carburetors got warm air and stayed in [a] warm room.” The plane’s powerplant, together with cabin construction, tubular steel engine bed and undercarriage formed a closed rigid system. The firm attachment of the engine reduced vibration to a minimum. The fuel (270 liters) and oil tanks (26 liters) were made of red copper or brass and were self-sealing. The radiators were a tubular type, made of 240 brass tubes, arranged in ten sections (24 pieces in each), and were placed at the outside of the fuselage sides. The radiators caused considerable frontal resistance. The control handle operated the ailerons and elevator, pedals worked the rudder.

The new airplane met contract specifications, and Lebedev soon placed it into serial production. At that time some structural defects were eliminated and slight improvements introduced. The Lebed XII was turned over to the army equipped only with machine gun mountings, but without machine guns or ammunition boxes. The Air Fleet Department, however, insisted that the machine guns be installed. In mid-October 1916, some additional changes were introduced as a result of testing to improve stability. First, the angle of attack of the upper wing was increased by 1 degree and 10 angular minutes and moved 35 mm forward. Second, to eliminate exhaust gases from the cockpit, vent pipes from the crankcase were installed and additional air holes were drilled in the cowling and fuselage.

Serial production of the Lebed XII began in November 1916, but only 28 airplanes were turned
out by the end of that year, including the ten dummy planes. Deliveries to the front proceeded slowly, despite of the acute shortages of airplanes in the air detachments. By January 1, 1917, only six planes were in the Army in the Field (all at the Northern front in the XIIth Air Division) and one airplane was kept in the 4th Aircraft Park. In 1917, 164 aircraft were built and turned over; in 1918, 24 airplanes were delivered. The Lebed XII served in the 1st, 5th, 10th, and 12th Air Divisions in the following air detachments: 10th, 13th, 15th, 23d, 25th, 29th, 33d, and 38th Corps and the 5th Army.

The plane was used for reconnaissance over enemy rear units, photographing and bombing enemy positions, and artillery spotting. Frontline pilots’ opinions of the aircraft were that it was difficult to control, and it could get into situations where it could not be brought out of a dive. Another serious drawback was that exhaust gases penetrated the cockpit, causing a risk of fire in the air. On February 1, 1917, for example, Lebed XII (WN 483) of the 13th Corps Air Detachment burned because of an engine fire. The pilot made a forced landing and survived, but the aircraft did not. On June 17, during a test flight a Lebed XII (WN 540) belonging to the 5th Army Air Detachment caught fire in the air. The pilot glided down safely, but the aircraft burned down. Pilot Ensign Tikhomirov received slight burns, but the observer escaped unharmed. An explosion in the carburetor started the fire. Crashes and fires of the Lebed XII, traced to structural defects, resulted in a temporary production stoppage.

In June, a special investigative commission was organized under the chairmanship of Professor Georgy Botezat. Pilot Ensigns Bazilevich-Knizhkovsky from the 29th Corps Air Detachment and Lieutenant Levchenko from the 29th Corps Air Detachment participated on the commission. The commission concluded, after several test flights, that it was impossible to improve the aircraft, it was not desirable to send it to front, and that the aircraft might be used only in the flying schools. The training version of the Lebed XII, with the 140 hp engine, had even worse performance, was dangerous to fly, and not fit for flying schools. Factory pilots A. Goncharov and V. Mikhaïlov, engineers L. Shkulnik and L. Kolpakov disagreed with the commission’s report, however. The two factory pilots had logged 250 hours on the plane, both of them had tested 160 aircraft of that type, and they considered it to be a good reconnaissance plane with slight drawbacks.

Lebedev and his colleagues concluded that the commission’s tests had been carried out by inexperienced pilots and that its conclusions were subjective. To resolve the dispute another commission consisting of representatives of frontline pilots, the Gatchina flying school, the Air Forces Department, and Lebedev’s factory was established. In a report dated October 2, 1917, the new commission declared the Lebed XII unfit, outdated not only with low load-carrying capacity, but by its inadequate speed and found several structural drawbacks in the engine’s fuel and cooling systems. The commission concluded that “further construction is not desirable” and serial production was profoundly curtailed. Trying to improve the Lebed XII’s performance, Vladimir Lebedev substituted the Hispano-Suiza 140 hp engine for the Salmson. He also made several structural modifications, such as directing the exhaust pipes upwards. One copy of the altered plane was built and designated the Lebed XII bis.

The Last Lebed Series

The next type, the Lebed XIII, was scheduled to be produced in March 1916, but no information exists on its construction. The Lebed XV biplane, featured a tractor propeller and Renault 225 hp engine, and Lebedev promised that it would appear at the end of March 1916. But it also remained only a project. Engineer and inventor Leonid Kolpakov created the Lebed-XIV Le Grand. Started in 1915, it was a three-bay biplane, with two 150 hp Salmson engines and tractor propellers, designed for a rated speed of 140 km/hr. Though its official name was the “large fighter,” it was more typical of a mid-size bomber. Three machine guns provided almost 360-degree protec-
tion. In his telegram dated January 16, 1916, Vladimir Lebedev reported to the Chief of Russian aviation, Grand Duke Aleksandr Mikhailovich: “at the end of February [we will] test [a] two-engined fighter ‘Lebed XIV’ of 900 kg load carrying capacity.” However, by the second half of 1917, the plane was not yet built.

In 1916, the three-seat, two-engined reconnaissance Lebed-XVI was built. A two-strutter biplane, it was equipped with two 80-hp Le Rhone engines, with tractor propellers. The engines were mounted on struts and covered with cowlings with fairing. The observer’s cockpit, with a machine gun was located at the front, behind the cockpit and the tail gunner’s cabin. Tests carried out at the beginning of 1917 by A. Gorshkov. The results were encouraging, but no orders were placed and work on this aircraft soon stopped.

More advanced than its predecessors, the Lebed-XVII was a giant step forward. Designed by Sergei Gurevich it was a single-bay, two-seat reconnaissance biplane equipped with a streamlined cowl covering a 150-hp Salmson engine. The upper wing had a center-wing section; two tubular radiators were attached to shaped front struts; the fuselage sides at the front were rounded to fit the engine’s contour. The airplane was distinguished by good aerodynamics. In August 1917, it passed flight testing with satisfactory results but was never placed into serial production, although several copies of that aircraft type were built by the end of the year.

In January 1917, Lebedev prepared a plan for a two-seater reconnaissance Lebed-XVIII based on the German Albatros type, with a 230-hp Fiat engine. He proposed to the Military Department to build 300 copies of that aircraft but failed to receive an order. Seven copies of the two-seat reconnaissance Lebed-XXI were built in the autumn of 1917. The aircraft took 20 minutes to climb to 2,000 meters. On the whole, the plane’s flight performance of the aircraft was disappointing and it was not placed into production. Some copies of the plane flew until 1921. The Lebed-XX IV remained an experimental project, as delivery of the 230 hp Fiat and 200 hp Hispano-Suiza engines destined for the aircraft were stopped by the Russia’s allies in the second half of 1917.

Major Expansion

By the middle of 1917, Lebedev managed to raise productivity to 50 aircraft per month by dipping into the factory’s capital reserves and acquiring new equipment. The factory also built skis, propellers, and spare parts for its own aircraft, and for aircraft turned out by other companies. Lebedev soon had no room in Petrograd to enlarge his factory. Consequently, his joint stock aeronautic company built factory branches in Taganrog and Penza. The planned capacity of the Taganrog branch was to be 40 aircraft a month by year’s end. An assembly shop was constructed for two parallel production lines, one for land aircraft, another for hydroplanes. Two buildings were attached to an assembly shop. The Taganrog factory included a modern conveyor belt assembly line. Located near to the Azov Sea, there was a potential for expansion, thanks to the presence of metallurgical and fuel bases, waterways, railway communications, and skilled workers. Unfortunately, the economy was in shambles, transportation was paralyzed, and revolutionary chaos prevented implementation of plans. Thanks to the efforts by workers and
engineers, however, productivity at the Taganrog branch reached 25 aircraft a month.

Construction of a branch in Penza, planned to produce more than 20 aircraft a month was also adversely affected by war and revolution. Thus, the main burden of fulfilling orders from the Military Department remained with the Petrograd factory. Lebedev received orders for hundreds of aircraft from the Military and Navy Departments. In the spring, he contracted with the Military Department for 200 Albatros airplanes, equipped with the 200-hp Hispano-Suiza engine. However, the order fell through when Russia's allies, England and France stopped delivering the engines during the second half of 1917. Lebedev also won an order from the Military Department for 260 Sopwith 1-1/2 Strutter type aircraft, with a Clerget 130 hp engine, but only five copies were built. The Penza aircraft factory, which specialized in producing propellers, received a contract from the Military Air Fleet to deliver sixty training Albatros-VIIs. However, this order, too, was not filled.

Epilogue

In 1917, Vladimir Lebedev was elected president of the All-Russian Aero-Club. And, despite his preoccupation with industrial strife, Lebedev was also appointed to head the flying school, the Komendantsky airfield, and the hydroplane station at Krestov Island in Petrograd. After the Bolshevik revolution in October, the new government confiscated Lebedev's factory and other properties—the airfield, test station, and workshops—and the capitalist Lebedev was declared “an enemy of the people.”

The Bolsheviks nationalized Lebedev’s factories in Petrograd, Taganrog, Yaroslavl, and Penza. Lebedev's plant in Taganrog became aircraft factory No. 32 of Narodny Komissariat Aviatsionnoi Promyshlennosti (NKAP) (the People's Commissariat of Aviation). Lebedev's Petrograd factory was merged with the Aviation Department of the Russko-Baltic Carriage Works and renamed state aircraft factory No. 3 Gosudarstvenny Aviatsionny Zavod (GAZ). Later it was renamed Krasnyi Lyotchik (Red Pilot), then aircraft factory No. 23.

Forced to flee for his life, Lebedev escaped to southern Russia, where he remained throughout the civil war in 1918-1920. There he became a minister of trade and industry in the government of the White Russian General Denikin. Lebedev tried to start aircraft production at a factory in Taganrog, but failed amid the chaos of the civil war. Following the defeat of the White Russian forces, Lebedev fled to Serbia, where he worked for a time as a representative of French firms, selling the Gnome and Le Rhone engines. In 1926, he moved to Paris, where he continued to work in the aircraft industry. His contributions to the development of French aviation were recognized by the award of the Legion of Honor. He died in Paris on February 22, 1947.

Throughout its existence, Lebedev’s company
produced some 700 aircraft of Russian and foreign design. His Russian engineers created about 20 Russian aircraft designs, notably the reconnaissance Lebed-XII.

Part of the problem concerned labor unrest. In March, strikes broke out as workers made economic demands, including an eight-hour day, which was introduced at Lebedev’s factory in April. Also, sharp increases in the cost of materials affected airplane production. The factory continued building the Lebed XII until the end of 1917, when it had become hopelessly obsolete. The numbers and types of airplanes constructed at Lebedev’s factory in Petrograd from 1914-1917 is tabulated to the left in Table 1.

The Red Army also used the Lebed-XII during the Russian Civil War in 1918-1920. The planes were in the inventory of the 2d Petrograd Avia Group, Tverskaya Avia Group, 1st Socialist Air Detachment, 3d Separate Navy Air Detachment, Belomorsky Hydro Air Detachment, 3d Latvian Air Detachment, and others. Fewer Lebed XIIs served in White Army air detachments. Thus, in the aviation of the Siberian Army of Admiral Kolchak there were only two Lebed XIIs (WN 535 in the 6th Air Detachment, and WN 585 in the 5th Air Detachment). Copies of the Lebed XII remained in service for several years after the end of Civil War. The last Lebed-XII were used in civil aviation, including the Baku section of the Obshchestvo drazei Vozdushnogo Flota (Society of Air Fleet Friends, ancestor of the Soviet Aeroflot Airlines). In May 1925 two of the aircraft (WN 703 and 717) were still in service, flying propaganda missions in Azerbaijan (North Caucasus).

<table>
<thead>
<tr>
<th>Year built</th>
<th>Aircraft Type</th>
<th>Number of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>1914</td>
<td>Farman IV and Nieuport IV</td>
<td>34</td>
</tr>
<tr>
<td>1914-1915</td>
<td>Depredation</td>
<td>63</td>
</tr>
<tr>
<td>1914-1917</td>
<td>Voisin LA and LAS</td>
<td>153</td>
</tr>
<tr>
<td>1914</td>
<td>Farman XVI</td>
<td>20</td>
</tr>
<tr>
<td>1915</td>
<td>Farman XXIIbis</td>
<td>20</td>
</tr>
<tr>
<td>1914-1916</td>
<td>Lebed VII, VIII, IX, X, XI</td>
<td>15</td>
</tr>
<tr>
<td>1914-1916</td>
<td>flying boat FBA</td>
<td>34</td>
</tr>
<tr>
<td>1916-1917</td>
<td>Lebed XII</td>
<td>216</td>
</tr>
<tr>
<td>1916-1917</td>
<td>Lebed XIII, XV, XVI, XVIII, XXIV</td>
<td>10</td>
</tr>
<tr>
<td>1915-1917</td>
<td>Morane-Saulnier type L</td>
<td>30</td>
</tr>
<tr>
<td>1915-1916</td>
<td>Morane-Saulnier type G</td>
<td>20</td>
</tr>
<tr>
<td>1916</td>
<td>floatplane Lebed</td>
<td>3</td>
</tr>
<tr>
<td>1916-1917</td>
<td>Nieuport X</td>
<td>10</td>
</tr>
<tr>
<td>1917</td>
<td>Sopwith 1-1/2-strutter</td>
<td>5</td>
</tr>
<tr>
<td>1914-1917</td>
<td>French and English acft</td>
<td>10</td>
</tr>
<tr>
<td>1914-1917</td>
<td>Trophy aircraft</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>673</strong></td>
</tr>
</tbody>
</table>
### Technical performance data of the major aircraft types produced at Lebedev's factory

<table>
<thead>
<tr>
<th>Lebed-VII</th>
<th>Lebed-XII</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engine</strong></td>
<td>Gnome 80 hp</td>
</tr>
<tr>
<td><strong>Length of the aircraft</strong></td>
<td>7.77 m</td>
</tr>
<tr>
<td><strong>Height of the aircraft</strong></td>
<td>2.57 m</td>
</tr>
<tr>
<td><strong>Wing span</strong></td>
<td>6.10 m</td>
</tr>
<tr>
<td><strong>Wing area</strong></td>
<td>22.3 sq. m</td>
</tr>
<tr>
<td><strong>Take off weight</strong></td>
<td>481 kg</td>
</tr>
<tr>
<td><strong>Maximum speed</strong></td>
<td>130 km/h</td>
</tr>
<tr>
<td><strong>Practical ceiling</strong></td>
<td>3000 m</td>
</tr>
<tr>
<td><strong>Flight duration</strong></td>
<td>2.5 h</td>
</tr>
</tbody>
</table>

**Lebed X**

- **Engine**: Le Rhone 80 hp
- **Length of the aircraft**: 7.06 m
- **Fighter wing span**: 10.5/8.75 m
- **Reconnaissance wing span**: 13.125 m
- **Fighter wing area**: 29.0 sq.m
- **Reconnaissance wing area**: 39.4 sq.m
- **Empty weight**: 415 kg
- **Maximum speed near the surface**: 135 km/h

**Lebed XI (biplane A 1 type)**

- **Engine**: Mercedes Benz 100 hp
- **Length of the aircraft**: 8.0 m
- **Height of the aircraft**: 3.25 m
- **Wing span**: 13.0 m
- **Wing area**: 40.8 sq.m
- **Empty weight**: 735 kg
- **Capacity of the lower/upper fuel tank**: 240/20 l
- **Oil tank capacity**: 20 l
- **Weight of the fuel + oil**: 160 kg
- **Useful load**: 350 kg
- **Take off weight**: 1,085 kg
- **Wing loading**: 26.7 kg/sq.m
- **Power loading**: 7.3 kg/hp
- **Load ratio**: 32 %
- **Maximum speed near the surface**: 110 km/h
- **Practical ceiling**: 3,000 m

**Lebed-XI (later series)**

- **Engine**: Salmon 150 hp
- **Length of the aircraft**: 8.0 m
- **Wing span**: 14.5 m
- **Wing area**: 43 sq.m
- **Empty weight**: 820 kg
- **Weight of the fuel & oil**: 130 + 23 = 153 kg
- **Useful load**: 350 kg
- **Take off weight**: 1,170 kg
- **Wing loading**: 26.3 kg/sq.m
- **Power loading**: 7.8 kg/hp
- **Load ratio**: 30 %

**Lebed-XII**

- **Engine**: Salmon 150 hp
- **Length of the aircraft**: 7.963 m
- **Height of the aircraft**: 3.25 m
- **Wing span**: 13.15/12.0 m
- **Wing area**: 42 sq.m
- **Empty weight**: 840 kg
- **Useful load**: 350 kg
- **Take off weight**: 1,212 kg
- **Wing loading**: 29 kg/sq.m
- **Power loading**: 8.1 kg/hp
- **Fuel tank capacity**: 210/60 l
- **Oil tank capacity**: 26 l
- **Maximum speed near the surface**: 133 km/h
- **Time to climb the height of 1000 m**: 8.5 min
- **3000 m**: 56.0 min
- **Practical ceiling**: 3500 m
- **Take off and landing run**: 100 m

**Lebed-XIV (Le Grand)**

- **Engines**: two Salmon 150 hp
- **Length of the aircraft**: 11.0 m
- **Height of the aircraft**: 3.6 m
- **Wing span**: 24.0/16.0 m
- **Size of undercarriage wheels**: 900 x 100 mm
- **Rated speed**: 140 km/h

**Flying boat LM-2 (Lebed Morskoi-2) or FBA**

- **Engine**: Gnome-Monosoupape 100 hp
- **Length of aircraft**: 8.0 m
- **Height of the aircraft**: 2.93 m
- **Wing area**: 33.5 sq. m
- **Empty weight**: 535 kg
- **Weight of fuel & oil**: 120 + 30 = 150 kg
- **Useful load**: 305 kg
- **Take off weight**: 840 kg
- **Wing loading**: 25 kg/sq. m
- **Power loading**: 8.43 kg/hp
- **Load ratio**: 36.4 %
- **Maximum speed near the surface**: 105 km/h
- **Landing speed**: 70 km/h
- **Time to climb the height of 1,000 m**: 15 min
- **2,000 m**: 40 min
- **Practical ceiling**: 2,500 m
- **Flight duration**: 4 h

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IN THE DEVIL’S SHADOW: DON NICHOLS AND U.S. AIR FORCE SPECIAL AIR MISSIONS
Michael E. Haas
If I were called upon to name the most amazing and unusual man among all those with whom I was associated during my military service, I would not hesitate for a second in picking out Donald Nichols as that individual. I have often referred to him as a one man war.

Gen. Earle E. Partridge, Commander, Fifth Air Force, 1948

Maj. Gen. Earle E. Partridge first met MSgt. Donald Nichols in 1948, soon after the general arrived in Japan to assume command of the Fifth Air Force. And though Partridge received periodic briefings from the Counter-Intelligence Corps sergeant during the subsequent two years leading up to the war, the general later admitted his sparse knowledge of Nichols's activities in Korea during this prewar period. Little wonder, considering that Nichols's world was found in the mean streets and back alleys of prewar Seoul, a long way from the plush offices found at Fifth Air Force headquarters in Tokyo. The war gave Partridge cause to take a deeper look into Nichols's operation in the summer of 1950, and he was astonished at what he found.

For what the gruff, burly Nichols had established on the Korean peninsula during the prewar years was not simply an intelligence organization, but the genesis for what would become the most successful special operations unit of the war. It was by any account a bizarre organization to be run by the "wild blue yonder" air force. But then again, neither the newly arrived Central Intelligence Agency (CIA) nor the Far East Command's (FEC) army intelligence team could compete with the quality of sensitive information generated by Nichols's contacts, deep penetration agents established years earlier throughout Korea. By 1950, Nichols was a man with access twenty-four hours a day to both General Partridge and South Korean president Syngman Rhee, not to mention a host of shadowy Asian characters whose names will never see print.

Possessing only a sixth grade education but fluent in the Korean language, Nichols was the spymaster whose warnings accurately predicted within days the North Korean invasion of South Korea, only to watch his warnings fall on deaf ears at MacArthur's headquarters. This former motorpool sergeant was also the combat leader who personally conceived, organized, and led a daring helicopter mission deep into enemy territory to strip parts off a downed MiG–15 fighter, then the most highly sought after intelligence prize of the war. But Nichols's world had a darker side as well, a side visited by Partridge and others time and again when the urgent need for results became too important to question the methods used, when the need was too sensitive to put in writing. For this brand of warfare Nichols coined a new term, something he called "Positive Intelligence."

Nichols himself admits that he created the term Positive Intelligence in prewar Korea, where he was already well on the way to establishing a powerful intelligence apparatus throughout the entire peninsula. In his autobiography How Many Times Can I Die? Nichols writes, "By this time [1947-1948] our unit was really moving in 'high, very high' South Korean government circles. All doors were open to us. In those days no one in this area knew or even thought about Positive Intelligence (PI). We invented it for this area and taught others, as we saw fit, for our own benefit."

“Our unit” was Sub-Detachment K, 607th Counter-Intelligence Corps (CIC), stationed at Kimpo Airfield on the western outskirts of Seoul. After reporting to the sub-detachment in June 1946, Nichols soon began making extensive and effective use of Korean civilians to establish a covert network throughout the length of the politically troubled peninsula. Moreover, as President Rhee's trust in Nichols grew, the president took the highly unusual step of placing selected South Korean coast guard and air force personnel under the unquestioned command of the American sergeant. But what really swept Positive Intelligence beyond the scope of previous U.S. counter-intelligence operations, was the historical coming together of "the man and the moment" as Nichols went to war in the summer of 1950. He would emerge three years later a legend in South Korea's most powerful military and intelligence agency circles, an enigma even to the American special operators who worked for him and to this day an unknown to the American public.

Nichols's sub-detachment had become a well-oiled machine by 1950, its effectiveness stemming from
largely from its deep penetration, political contacts throughout both South and North Korea. One measure of this effectiveness was demonstrated the month before the war started, when his agents persuaded a North Korean pilot to defect with his Soviet-built IL–10 ground-attack fighter. It was the first aircraft of its kind to fall into U.S. hands, and extensive debriefs of the willing pilot proved extremely valuable to the air force’s Air Technical Intelligence experts. The plane itself was promptly dismantled for shipment back to the Zone of the Interior, as the continental U.S. was then known in military parlance.

But before this rare intelligence prize could be shipped back to the United States, Nichols’s team and all other Americans in Seoul were forced to flee for their lives when 100,000-plus North Koreans poured over the thirty-eighth parallel like a huge swarm of killer bees. Leaving “a bloody wake of massacred civilians to mark their rapidly advancing line,”5 the North Korean People’s Army forced his team to abandon their hard-earned IL–10 acquisition. Staying behind on his own volition to destroy abandoned equipment and aircraft at Kimpo Airfield, Nichols himself barely escaped at the last minute by clinging to the side of a small boat crossing the Han River, just south of Seoul.

The experience was a bitter glass of wine for the man who had repeatedly warned FEC headquarters in Tokyo of the impending North Korean attack. But his warnings had been sent in vain, for as the Fifth Air Force commander later observed, “Nichols’s reports were suppressed and disregarded.”6 His last report actually predicted within seventy-two hours the “surprise” attack that subsequently stunned a totally unprepared Truman administration. Not so surprising, it was Nichols’s terse report from Seoul on the morning of June 25, 1950, that gave MacArthur’s headquarters its first official notification of the North Korean invasion.7

After catching up with the retreating American embassy staff south of Seoul, Nichols learned of both his promotion to the rank of warrant officer and his next assignment. Amid the confusion at the American camp, he was recognized by U.S. ambassador John J. Muccio, who immediately asked him to maintain personal contact with the South Korean military service chiefs. Nichols served in this role for the following month before being relieved for appointment as a special representative to the director, Special Investigations, Far East Air Forces, a move designed for no other purpose but to free him for bigger things. And the bigger things came fast, as General Partridge was a man in a hurry that summer.

For his first task Nichols was sent to secure “by any means possible” one of the Russian-built T–34 tanks with which the Russians had equipped the North Korean army. Despite its extensive support to Russia during World War II, the United States had somehow missed getting an example of this highly successful weapon for study. One result of this omission was the very disagreeable surprise experienced by Fifth Air Force pilots as they watched the rugged T–34 withstand their cannon and rocket attacks on the vehicle. Following the general’s orders, Nichols promptly borrowed a tank retriever vehicle from a frontline army unit and secured, under enemy fire, an abandoned T–34. A grateful Partridge promptly awarded Nichols a Silver Star medal for valor, along with another tasking.
If the general’s first request seemed more suitable for one of the army’s tank officers than an air force intelligence operative, Partridge’s second request seemed more suitable for an infantry officer. The general’s problem concerned the Communist guerrillas harassing Fifth Air Force planes operating from Taegu Airfield, a vital resupply base in South Korea. Could Nichols do something about the guerrillas? Partridge asked. Nichols responded by personally leading twenty South Korean soldiers into the hills around the airfield, at night, to attack the guerrillas in close quarter’s combat. Nichols’s surprise attack brought a sharp reduction in guerrilla activity around the important airfield, and yet another request from Partridge. In response to the general’s need for information Nichols infiltrated forty-eight South Koreans by parachute behind enemy lines on thirteen different missions, to supply the Fifth Air Force with its most complete target list to date of enemy installations. Later that year he also sent parachutists behind enemy lines to rescue the surviving aircrew from a downed B–29 bomber.

Nichols’s parachutists came from a crude jump school set up earlier by him for just such missions. As he later recalled with humor, little did he know at the time that he himself would become one of its graduates. After all, he had sent parachutists behind enemy lines to rescue the surviving aircrew from a downed B–29 bomber. Nichols determined to set the example by donning a parachute himself and warning the students of the consequences if they refused to follow him out of the aircraft. Nichols relates in his autobiography, “I really didn’t at this time think that it would be necessary for me to jump. However, after we became airborne, I noticed all eyes were on me. When we went over the Drop Zone, old man Nichols jumped. I was quite elated to see the blossoming of every other chute on the plane spread out above me as I dropped.”

By this time Positive Intelligence had obviously evolved into a special strike force of some unknown hybrid. If Fifth Air Force headquarters was not sure how “air force blue” it was, General Partridge knew he liked it, and that he had the final “vote” on the issue. Regardless of its unorthodox activities, the time had clearly come to give Nichols’s force the organizational support it needed to reach its full operational potential. This support was initiated in March 1951 with a Fifth Air Force headquarters letter that provides a rare insight into that command’s wide-open approach to aggressive intelligence collection. The letter tasked Nichols’s newly activated Special Activities Unit Number 1 to:

Provide intelligence operations of a positive nature designated to meet the objectives of this command.
Perform operations (sabotage, demolition and/or guerrilla) necessary to accomplish destruction of specific objectives.
Assist allied agencies responsible for providing evasion and escape facilities to downed UN airmen.
Coordinate with other allied UN intelligence agencies as required by existing directives.

The Fifth Air Force was soon compelled to delete “guerrilla warfare” from this task list, in deference to the fierce outcries from army and CIA organizations already conducting such operations. That administrative deletion appears to have been offered only out of bureaucratic politeness, however, as the air force “blue suiters” had no intention of surrendering any of their operational prerogatives. For by this time Nichols was providing the Fifth Air Force with “one stop service” for requirements ranging from sensitive HUMINT (the mili-
tary acronym for human intelligence collection), to airborne-Ranger-type assaults against high-priority targets. On April 17, 1951, Nichols earned America’s second highest medal for valor by personally leading a dangerous mission against an intelligence target so secret that the citation to his Distinguished Service Cross would describe it only as “information of inestimable value.”

Indeed it was: the wreckage of a Soviet-built MiG–15, the most advanced Communist fighter entered in the war and a major threat to all UN aircraft flying over North Korea. To defeat this threat the U.S. Air Force badly needed technical information on the MiG, but despite the high priority assigned this task, no example of the fighter had yet fallen into Allied hands. Although the wreckage was too far—some one hundred miles—behind enemy lines to retrieve, technical intelligence experts could still glean considerable information by studying its most important parts. To this end, Nichols and five Korean specialists “proceeded behind enemy lines in an unarmed helicopter...despite fragmentation hits scored on the engine and intense anti-aircraft and automatic weapons fire...landed in an area only a few miles from a major enemy supply depot[,]...photographed the materiel, recorded all inscriptions and technical data, and supervised dismantlement of vital parts [for loading] aboard the helicopter. Although suffering serious damage to the rotor blade, the crippled aircraft flew 80 miles over the Yellow Sea to make an emergency landing on a friendly island.”

The “friendly island” was Chodo, just off North Korea’s western coast. Itself located some 100 miles behind enemy lines, the island was one of Nichols’s primary operating bases in enemy territory and in fact his point of departure for the final flight into the MiG–15 crash site.

The following July Nichols mounted another, much more complex and ultimately more successful operation to retrieve the wreckage of a downed MiG–15 lying in the coastal mud flats northwest of Pyongyang. So high was the priority accorded the capture of a MiG fighter, that the UN supported Nichols with a combined U.S.-British-South Korean air force saboteurs on a parachute infiltration mission to blow up two railroad bridges. Enemy uniforms, equipment, weapons, and identification papers were carried by the teams should they need to bluff their way past enemy challenges. But despite Nichols’s attention to detail and planning, both missions failed as all the saboteurs were captured by the Chinese, a rare total loss for Nichols.

Moving beyond this setback Det 1’s mission soon reverted to the more traditional technical intelligence and POW interrogation roles. It was during this transition that Nichols moved over to assume command of Det 2, later acknowledged as the most aggressive U.S. Air Force intelligence unit of the war.

Unlike Det 1’s mission, which could usually be accomplished within established military intelligence channels, Det 2’s Positive Intelligence mission took it far beyond any channels familiar to the U.S. Air Force. In particular, the detachment’s Top Secret activities led to its description by one post-war study as “the first covert collection agency of a tactical nature in the history of the U.S. Air Force.” Activated in Seoul on July 25, 1951, the detachment began its operations with seven offi-
As noted earlier, the latitude of its mission was extremely generous in an operational sense. In a wide-ranging mission summary, Nichols was authorized to:

direct intelligence operations behind enemy lines with special emphasis on...positive intelligence[...coordinate with allied intelligence agencies[...gather positive intelligence on the effectiveness of (allied) air operations...vital points of the enemy's transportation system...revetment hide out areas[...plan and direct such special operations as may be required to support...the Fifth Air Force and Far East Air Forces Intelligence missions. 21

Most of these missions could be accomplished only by “eyes on target,” a reconnaissance tactic requiring the operative to personally observe the target at close range—obviously at great risk to the observer’s life. What the summary did not specify was exactly whose eyes were to take such great risks, how they were to conduct surveillance in the target area, and most important to the owner of these eyes on target, how to stay alive in the process. The answer to the “whose eyes” question could be found in the personnel statistics for this most unusual U.S. Air Force detachment. By January 1952 only 5.7 percent of the detachment’s 665 personnel were American, officers representing a minuscule 1.2 percent of the total. 22 But Det 2 had to deal with one overwhelming operational reality that no number of Americans could remedy. Flatly stated, no Caucasians could hope to survive in the detachment’s target areas, and official air force records leave little doubt as to why this was so.

According to one 6004th AISS unit history report, “The main difference between its (Det Two) mission and that of Det One, is that Detachment Number 2 generally works north of the bomb line.” 23 By July 1952 twenty-three of Nichols’s subdetachments were “sending a steady stream of radio reports back to Nichols’s headquarters from behind enemy lines.” 24 By year’s end this number grew to thirty-two sub detachments as Nichols sent still more eyes into North Korea. 25 To support this growing effort (and replace casualties) the detachment grew to a strength of 900 Koreans, 178 of whom came from the South Korean air force. 26

Most of the remaining Koreans were recruited from the ranks of the UN partisan forces, 27 who brought with their proven valor in combat something else not as useful for intelligence work. 28 For as their American supervisors soon learned, most of these former partisans were far more interested in fighting than intelligence gathering, an admirable quality anywhere else but in Det 2. Stringent supervision by their Korean sub-detachment commanders proved necessary to keep the problem under control. One problem definitely not under control, however, was the rising death toll of these agents in the field. As the Chinese and North Koreans began to comprehend the political reality that UN forces would not attack north of the thirty-eighth parallel again, they began releasing more frontline forces for internal security duty in areas where the agents had previously operated successfully.

As Nichols’s agents soon learned to their bitter cost, routine missions became tough and the tough ones became one-way missions. The agents were not the only ones to suffer from this new and deadly reality. In his haunting memoirs, Nichols describes the price tag for knowingly sending men to their death, about lonely, dark nights in which he confesses:

I hate to call myself a man. I had to be the one to give the actual orders when I knew someone was going to be killed. Maybe some of my bosses could have told me how to go about filling some of those requirements; however, I doubt it. They wanted little to do with them. They wanted the answers, and in some cases didn’t want to be told how I got them. They knew it meant lives; sometimes many.

It’s easy to give an order such as ‘I want a MiG–15’ or ‘I want some enemy officers, a few enemy tanks to experiment with, some of their tank 85mm tank ammo,’ etc. However, filling these requirements is another problem, which requires lives. 29

With 900 Koreans in the field conducting Positive Intelligence not found elsewhere in the U.S. Air Force, it was imperative that the detachment set up its own training program for its unique operations. Unfortunately, the pace of field operations and the deaths of some of its most experienced agents delayed this program until the second half of 1952. Once operating, however, the training center comprised three schools run by both American and Korean instructors. The curriculums included:

Interrogation: Agent-trainees were taught the fundamentals and techniques for interrogating both prisoners of war and Koreans they would encounter in the target area while operating behind enemy lines.

Agent: Trainees learned techniques for accurate intelligence gathering on enemy airfields, aircraft, and radar. Small arms training and guerrilla warfare skills were also included and physical fitness was emphasized.

Paratroop: As parachute infiltration was a primary means of entering enemy territory, a jump school was organized to teach the basics. 30

Both in size and importance to FEC’s joint-service intelligence community, Det 2 was clearly growing beyond what anyone could have anticipated early in the war. This growth had not gone unnoticed by the army and CIA. In 1952 both began to suggest which organization should control the detachment’s growing operations. To fend off such bureaucratic predators Far East Air Forces headquarters retained a tight grip on the detachment, while the Fifth Air Force continued to
providing general administrative and logistical support for the unit. Actual mission coordination was usually conducted through the Combined Command Reconnaissance Activities, Korea (CCRAK), the Far East Command’s clearing house for all unconventional warfare operations in North Korea after December 1951. CCRAK also provided Nichols’s agents with mission-specific equipment drawn from its warehouses by special arrangements established through the Fifth Air Force.31 This latter arrangement further confirmed Det 2’s secondary mission, which called for it to support selected unconventional warfare missions beyond the scope of Fifth Air Force requirements.32

The air force had no objection to the detachment’s common sense cooperation with CCRAK, but it objected strongly when the army-dominated organization promptly set out to secure operational control of this valuable air force asset. As important as these bureaucratic struggles were at the top levels, they remained of little interest to the agents in the field who remained focused on more important (to them at least) issues. And foremost among these issues was the life-or-death problem of getting to and from the target area without being detected; a problem that continued to grow as the Communists further consolidated their territory. For Nichols and his sub-detachment commanders it was a continual game of trying to outfox the Communists, who of course were playing the same game against their agents.

Infiltration by parachute would continue to be the primary, if not the only, practical means of long-range penetration into North Korea’s mountainous interior. The early-war experiences had proven the effectiveness of radio-parachute teams, and Nichols’s agents were frequent users of Fifth Air Force assets dedicated to supporting military (and CIA) operations behind enemy lines. But for all the different air force units flying his teams north of the bomb line, there remained throughout the war virtually only one way back to safety for these agents—the slow and dangerous journey on foot. The one viable exception to this long-range, air infiltration was Operation Salamander—agent insertion by sea.

The Korean peninsula offers thousands of miles of remote, rugged coastline for those seeking discreet entry onto the mainland. And the road and rail traffic running through the flat coastal areas adjacent to the coastline make ideal targets for both partisans and agents. But although partisan raiders could make good use of the fast, armed gunboats provided by the U.S. Air Force’s crash boat crews, stealth and deception remained the keys to mission success—not to mention survival—for Nichols’s agents. And to that end the always-creative Nichols found the money to acquire local, shallow-water craft identical to those used by Korean fisherman.

By the close of 1952, Det 2’s fleet had grown to “thirty vessels of all descriptions and sizes” to support its combat and resupply missions throughout the partisan-held islands.33 Nichols also maintained access to much larger vessels to support his island activities, including for the biggest loads one of the U.S. Navy’s amphibious assault ships. This support was critical because as it turned out there was a lot of activity on these islands. Located only a few miles from the shoreline, forested and far too many in number for the Communists to control at any one time, the islands provided...
exceptional launching platforms for unconventional warfare operations against the mainland. And the islands offered still something else of particular interest to Fifth Air Force leaders and their combat aircrews.

United Nations pilots flying over North Korea knew that a bailout from their crippled aircraft over the peninsula’s rugged interior meant almost certain capture and torture. To stand any chance of rescue their best, if not only, hope was to get at least as far as the offshore islands, where partisan forces (including Nichols’s teams) operated. The air force designated these islands as “safe havens,” a place for the pilots to head if bailing out over enemy territory appeared unavoidable. But if the safe haven concept sounded plausible and made for good pilot morale, in practice it rarely justified the pilots’ hopes. Despite air force reports crediting partisans or friendly Koreans with helping pilots evade capture after being downed in enemy territory, further investigation makes clear that luck, not an effective escape and evasion program, account for many of these rescues. One well-publicized rescue in particular underscores the lack of communications that crippled the escape and evasion program throughout the war.

On May 1, 1952, U.S. Air Force Col. Albert W. Schinz, an F–86 fighter pilot and deputy commander, 51st Fighter Interceptor Wing, parachuted from his battle-damaged plane into the sea near one the small islands off North Korea’s western coast. Before bailing out, he contacted Air Rescue with his position and was told to hang on for the night to await pickup the following day. Making it safely to a nearby island and knowing that the Fifth Air Force knew his general location, he awaited pickup—for the next thirty-seven days. In his paper, “Special Operations in Korea,” Col. Rod Paschall, director of the U.S. Army’s Military Institute, graphically describes what happened next: “Thirty-seven days later, near starvation and thoroughly disgusted with the US escape and evasion system, Schinz crawled into his hut but for another lonely night of waiting, only to be rudely awakened at two a.m. as he found himself staring into a flashlight and a gun barrel. To his further astonishment, he heard “Whooppee! American colonell” spoken in English by [CCRAK] partisans who were deployed in the area.”

Although relieved to be picked up at last, Schinz’s relief turned to anger upon learning that the partisans in these air force-designated safe havens were not issued receivers that could pick up distress calls from the survival radios issued to the pilots. In fact, Schinz’s rescue was purely a matter of luck. The partisans were actually out looking for another pilot they believed had bailed out over the area days earlier. Although Schinz was safe, his rescue would bring tragedy to the partisans who found him. During Schinz’s subsequent debriefing at the Pentagon he named the island on which he was rescued by the partisans. Headquarters, U.S. Air Force released the story to Life magazine, which published the saga in its July 28, 1952 issue. The Chinese probably read the story too, for shortly thereafter a large raiding party stormed the island, killing all partisans present.

Schinz’s misadventures in 1952 confirmed how little progress had been made in the escape and evasion program since a very frustrated Fifth Air Force had designated Det 3 (6004th AISS) as its focal point for such operations a full year earlier. In fact, Det 3’s activation was born of a still earlier air force frustration with the CIA’s failure to establish a clandestine program in enemy territory. General Partridge’s dissatisfaction in this regard is made clear in a Fifth Air Force paper, “Evasion & Escape Historical Synopsis,” summarizing the situation during the first four months of the war. Upon asking his staff when an effective escape and evasion network could be established to assist airmen evading through enemy territory, the unhappy commander was told, “All clandestine activities in connection with Evasion and Escape are delegated to an agency not under the operational control of the Air Force, and that repeated assurances of substantial covert operations within the near future had been received from this agency...but as yet no agents had been placed in the field.”

By this stage of the war, the clandestine escape and evasion mission had already been institutionalized within the CIA’s jurisdiction, and Fifth Air Force efforts to reclaim the mission met stiff resistance from the agency. Although a joint military-CIA meeting held later that year added manpower to the program the agency maintained its bureaucratic primacy for the mission. Despite everyone seemed to want the mission, none of the “players in the game” could find the resources needed to give it the day-to-day priority devoted to higher profile, unconventional warfare missions. Overall, the covert escape and evasion program in North Korea continued to represent the low point of military and CIA operations in North Korea, that continued to grow steadily in other areas. And like the other organizations, the 6004th AISS continued to grow too.

In proposing yet another expansion for the 6004th in September 1953, one air force report describes Nichols’s unit simply, but accurately, as “the primary collection agency of FEAF.” Noting the unit’s liaison as an organizational equal with the Documents Research Section (the CIA liaison with FEC), the report assessed the squadron’s bureaucratic position relative to other military intelligence organizations within FEC: “While an exact parallel...cannot be drawn, it may be noted that in Korea we now have a detachment operation [Det 2] on an equal basis with a CIA operation of regimental strength and a Navy operation equivalent of a Group.” Considering the senior rank of officers normally commanding regimental or group-size operations, the air force’s decision to allow the relatively low-ranking Nichols (by now a major) to retain command of its most important intelligence asset was indeed remarkable.

Although anecdotal sources have their obvious limitations, they do provide rare, personal sket-
Nichols never rotated out of the combat zone during the war. The first thing I noticed was the presence of a large number of Air Force security police outside Nichols’ building; usually it was just Korean military police. As I entered Nichols’ room it was so dark it took a minute for my eyes to adjust to the light coming from one small oil lamp of some sort. When they did adjust I saw the reason for the Air Force security police outside.... I was looking at General Partridge and General Doolittle! They, along with Nichols, were all sitting cross-legged on the floor, talking to [a casually dressed] Nichols.42

One of the most enduring aspects of special operations units, for better or worse, is the impact of enigmatic figures such as Nichols. Seldom known to wear military rank and rarely a complete uniform of any type, the commander appeared to instill confidence in everyone ranging from field agents to the most senior commanders for whom he worked. Sgt. Ray Dawson of the U.S. Air Force, serving with CCRAK in 1952, recalls the night he went to Nichols’ compound in downtown Seoul to discuss operations with him:


NOTES

1. The Fifth Air Force reported to Headquarters, Far East Air Forces, the senior air force component in General Headquarters, Far East Command.
2. For this mission Nichols received the Distinguished Service Cross, America’s second highest decoration for valor.
3. “Negative Intelligence” was the practice of denying the enemy from acquiring intelligence on U.S. forces, that is, the Counter-Intelligence Corps’ primary mission.
5. Ibid., p. 126.
6. Ibid., p. 5.
8. This was not part of the Pusan jump school established by FEC’s Liaison Group.
12. Ibid.
15. Ibid.
22. Ibid. p. 79.
24. Ibid. p. 40.
25. Ibid.
27. Virtually all the UN partisans were North Koreans who had chosen to flee south from the advancing Communists rather than live under their control. For the most sensitive intelligence missions CCRAK and Det 2 found the educated, Christian Koreans to be the most reliable agents.
31. Ibid., p. 45.
32. Ibid., p. 89.
39. Ibid.
40. Director of Intelligence, Fifth Air Force, September 12, 1953, subject: “Reorganization of the 6004th Air Intelligence Service Squadron.”
41. Ibid.
The AMST Program's Lasting Legacy
Although canceled in 1979, the Advanced Medium Short-Takeoff-and-Landing Transport (AMST) has an enduring legacy—the C–17 Globemaster III, the nation’s premier military transport plane of the twenty-first century. Initially, the AMST was slated to replace the Vietnam-worn C–130 tactical airlifter. However, politics, inflation, and national security priorities redirected the program. There were many similarities between the two programs: they shared the same acquisition philosophy, funding difficulties, and adverse politics. But more importantly, the AMST gave the C–17 its tactical and small austere airfield capabilities. Its YC–14 and YC–15 prototypes served as starting points for designing the new airlifter. Lastly, the AMST provided the impetus for a radical change in airlift doctrine, as limited resources, pressing mobility requirements, and technological advances eventually drove leaders to reject the rigid separation of tactical and strategic airlift so long maintained. The merging of these two missions resulted in the C–17 gaining its dual role. For these reasons, the AMST is significant.

**AMST Origins: Congressman Price’s Support**

Among the findings of the Air Force’s Project Forecast study of 1963-1964, were recommendations to develop a CX-Heavy Logistics Support Aircraft, that became the C–5, and a vertical-short-takeoff-and-landing aircraft (VSTOL) to fill the gap between the capabilities of C–130s and helicopters. However, the technology needed for a VSTOL aircraft had not matured. In their January 1970 congressional testimony before the House Armed Services’ Subcommittee on Military Airlift, Tactical Air Command (TAC) officers acknowledged as much to the chairman, Melvin Price (D-IL), a staunch supporter of airlift requirements. Additionally, TAC was willing “to take a realistic view and admit that the C–130 and its replacement should be operated more rearward to avoid heavy enemy fire, and that aircraft of lesser cost must handle the far-forward requirement.” A more forward role for the Air Force’s tactical airlift, however, was unlikely given the Army’s sizeable inventory of frontline helicopters. Thus, TAC opposed developing the light intratheater transport (LIT) to replace the C–7s and C–123s, even though Air Staff analysis supported a LIT; STOL, and conventional aircraft solution as best meeting future requirements. Had the Air Force persisted, the 1957 DOD directive on service roles and missions, and the 1966 McConnell-Johnson Agreement on fixed and rotary wing aircraft employment would have settled the mission dispute in the Army’s favor. Congressman Price and subcommittee members were receptive to TAC’s request for developing a turbofan STOL aircraft with greater payload and capabilities than the turboprop C–130. Originally, the basis for the request came from a USAF Tactical Airlift Center review of tactical airlift operations in Vietnam, that acknowledged the obsolescence of the light transports—the C–7 and C–123—and advocated replacing the aging C–130s, essentially the A and B models worn down by wartime use. That Gen. William W. Momyer, formerly the deputy commander for air operations and Seventh Air Force commander in Vietnam, was the commanding general of TAC at the time was not lost upon the subcommittee, as it completed its major review of military airlift. After all, Momyer had gained approval to form the 834th Air Division, to ensure the efficient management and control of airlift within Vietnam. No one was more qualified than Momyer to advise on future tactical airlift requirements.

General Momyer had participated in the tactical airlift modernization briefing to Gen. John D. Ryan and Robert C. Seamans, Jr., the Chief of Staff and Secretary of the Air Force, respectively, and had opposed the VSTOL LIT course, promoting a new STOL aircraft to replace the C–130. Based upon his wartime experiences, Momyer told Ryan and Secretary Seamans that the Army would continue supplying the front lines via heavy helicopters under its air mobile concept. As a result, intratheater airlift would operate into airfields farther in the rear; a STOL with takeoff and landing performances of between 1,500 and 2,000 feet would suffice. In the 1970s with larger and heavier self-propelled firepower, the Army needed the AMST to transport the 8-inch and 155mm self-propelled howitzers, Vulcan air defense gun, and Chaparral guided missile system. The Army noted that the AMST would transport 23 items, which the C–130 could not. Nor was the C–130 highly regarded as a STOL capable aircraft. The introduction of the strategic C–5A also had an influence, driving a need for a more efficient theater distribution system. A new AMST intratheater airlifter would ensure a rapid redistribution of supplies and equipment brought in by the
huge cargo-hauling C-5. The average payload of the AMST would be 14 tons while the C-130 could carry 10 tons and required a longer runway (3,500 feet). Additionally, with its wide body and STOL capabilities, a new tactical airlifter would be able to transport to the forward area 90 percent of an Army brigade’s combat essential vehicles. The C–130 could haul only 55 percent of the vehicles needed.1

The subcommittee report further noted that while the Military Airlift Command (MAC) had emphasized modernizing its strategic airlift capability by replacing the C–97s and C–124s with the more efficient C–141 and C–5 jet aircraft, “an approved program to modernize the Tactical Airlift Force appears to be nonexistent.”9 In his testimony, General Ryan had provided little on modernization plans, although there had been extensive discussions prior to the hearings. TAC had even written a draft required operational capability (ROC) statement for a medium STOL transport, with the vice chief of staff of the Air Force requesting comments from the overseas commanders.10 Ryan may have reasoned as follows. First, he realized that modernizing tactical airlift would take funding away from other Air Force programs. He indicated this was the situation in a March 1970 message. Secondly, while the LIT program was favored, it would face strong opposition from the DOD, as the LIT competed with the Army’s helicopters. The more service-acceptable STOL solution, however, meant the Air Force would concede part of the mission to the Army in the near term and would eventually have to accommodate the Army’s desire to coordinate its helicopter supply operations with the C–141 and C–5 at the large, safe air bases. Additionally, the C–5’s airlift capacity would be taken up transporting helicopters to the overseas combat theaters.11

By May 1970, TAC had finalized a required operational capability (ROC, 52-69) statement for a medium STOL transport. The command sought a rapid self-deployment capability and an employment capability that took a 14-ton load (tracked and towed equipment) into an austere14 airfield. Among the essential requirements were in-flight refueling, a 2,600-nautical mile unrefueled range with a 19-ton payload, a long-range cruising speed of at least .75 Mach above 20,000 feet, and the ability to operate with a 14-ton load (28,000 pound) load from a 2,000-foot-long by 60-foot-wide runway during the midpoint of a mission. The aircraft would have a cargo handling system compatible with the 463L pallet, ground loading height of 50-57 inches, and front on/offloading with rear unloading. It would be capable of airdrop operations. At this juncture, the AMST could not carry the outsized15 M-60A, the Army’s main battle tank. Later, the AMST specifications would serve as the baseline for developing the requirement documents for the much larger C–17.

Prototype Source Selection

The acquisition philosophy of the AMST program rested upon building demonstration airplanes or prototypes before the government would decide to proceed. David Packard, of Hewlett-Packard, championed the concept while serving as the deputy secretary of defense. Packard was well aware of the cost overruns of the C–5A acquisition program, which had discredited the total package procurement concept. Under the prototype philosophy, all of the engineering development and all of the technical uncertainties would be resolved ahead of a major production effort. This concept was commonly known as fly-before-you-buy.16 The AMST along with the Light Weight Fighter (later the F-16 and F-18) were the first programs selected by the Office of the Secretary of Defense for prototyping. The contract issued, as well as the management approach for the C–17, reflected Packard’s influence.

Lt. Gen. James T. Stewart, commander of the Aeronautical Systems Division, released the AMST requests for proposals at the end of January 1972. Each contractor was to provide a technology demonstrator. The Air Force would evaluate the design, technology, and military usefulness of the offers. There was no commitment for further devel-
opment of the prototypes. Refraining from designing the aircraft by issuing specifications, the Air Force, instead, provided goals, such as a STOL payload of 14 tons, airdropping 80 paratroopers, and a landing gear capable of a California Bearing Ratio (CBR)\(^{17}\) of 6—soil consistency of a golf course fairway. Imbued with Packard's philosophy, the Air Force sought the most for its money.\(^{18}\) In similar fashion, the Air Force provided guidance and mission performance goals for the C–17 but refrained from designing the aircraft.

AMST proposals came from Boeing, McDonnell Douglas, Fairchild, and Bell as well as a joint offer from Lockheed Martin-North American Rockwell. The Air Force completed source selection evaluations by the beginning of July. On November 10, 1972, after receiving OSD approval, Secretary of the Air Force Seamans authorized awarding the Boeing Company and the McDonnell Douglas Corporation contracts, each to build two AMST prototypes. The Air Force planned for a first flight thirty-five months after contract award. Initially, the contracts provided Boeing and McDonnell Douglas $96.2 million and $86.1 million, respectively. The contractors were to keep their designs to a unit cost goal of $5 million (FY 1972 dollars). If all went well, the Air Force planned to receive its first AMSTs in 1980.\(^{19}\)

**Obstacles**

From inception, not unlike the C–17 program, securing funding and support remained a problem. Both Boeing and McDonnell Douglas invested their own money in the program, believing commercial airlines and foreign countries would purchase the aircraft as well. Prospects of foreign military sales to Iran and Saudi Arabia existed. For the first two years, the program received $6 million (FY 1972) and $25 million (FY 1973), but then in December 1973, the House Appropriations Committee decreased the authorization for fiscal year 1974 from $65 to $25 million. Chaired by George H. Mahon (D-TX), the committee, was not convinced the AMST was necessary and stated that a modified C–130 could serve the long-term tactical airlift requirements.\(^{20}\) Politics factored in as well. Losing out in the AMST competition and with no C–130s in the Air Force's budget, Lockheed had sought congressional support.\(^{21}\) Lockheed's Aeronautics Company was located at Fort Worth, Texas.

This congressional action thoroughly disrupted the AMST program and raised legal concerns. The Air Force debated whether to proceed with two contractors but knew that it could not terminate one without jeopardizing the prototyping effort and facing criticism for its program management. There were also cost considerations. After much discussion, Air Force Secretary John L. McLucas decided to continue with the two contractors. A restructuring of the program in March 1974, reduced the funding request for fiscal year 1975, stretched out the program, and raised prototype development costs from $182.3 to $229.1 million.\(^{22}\)

There was also pressure to make the AMST a civil-military airplane. Senate Armed Services Committee member Lloyd Bentsen (D-TX) had impressed upon William P. Clements, Jr., the Deputy Secretary of Defense, that the AMST also needed to be commercially marketable, or Bentsen would withhold his support. So prompted, on June 22, 1973, Clements wrote a memorandum to McLucas. Although the Air Force had, in its con-
gressional testimony, talked of the AMST’s commercial application, Clements wanted to ensure it and requested that Boeing and McDonnell Douglas be so informed.23

Clements’ memo further disclosed service politics when he also directed McLucas to seek concurrences from the Army and the Navy on the AMST’s configuration, especially the size of the cargo compartment. The Army’s AMST project officer at the Air Staff had tried several times to reduce the cross-section of the AMST to that of the C–130’s and C–141’s and to reduce the landing/takeoff goals and flotation capability. Simply, the Army desired to protect its heavy-lift helicopter (HLH) from the AMST.24 A year earlier, General Momyer had drawn the same conclusion. “It is obvious what is going on—freeze Air Force out of the theater airlift and handle with a direct interface between the heavy lift helicopter and the C–5. The M [Medium] STOL is a real threat to the future of the heavy lift helicopter hence the challenge on any grounds.”25

Flight Test Program

The first prototype, McDonnell Douglas’ YC–15, flew on August 26, 1975; Boeing’s YC–14 did so on August 9, 1976. McDonnell was able to field its prototype sooner, as it had taken a “cut and paste” approach. For example, the landing gear came from the C–141. Along with a more conventional look, McDonnell had also selected less advanced technology. Boeing, on the other hand, took its YC–14 through seven separate design refinements. Boeing’s decision to refine its design resulted in a longer wing configuration, which gave the YC–14 a medium-range STOL capability as well as the longer range desired by the Military Airlift Command, that took over the program the end of 1974, as a result of the consolidation of tactical and strategic airlift management. The Military Airlift Command desired that the AMST transport a meaningful payload to the theater without relying on limited air refueling resources. As a result, the two prototype contractors evaluated pylon tanks, longer wings, and more powerful engines to meet the basic 2,600-nautical-mile, 19-ton deployment mission. Originally, the prototype contracts had primarily asked the contractors to investigate and demonstrate STOL technology and did not specifically request a deployment payload.26

AMST flight testing, comprised of a combined developmental test and evaluation and a limited initial operational test and evaluation, ended in August 1977, when Boeing completed its testing. McDonnell had finished its program a year earlier. During flight testing, the prototypes exceeded their performance specification goals. McDonnell Douglas’ YC–15 test program concentrated on confirming flight characteristics, performance of the externally blown flap, and STOL operations. As designed, the YC–15 demonstrated its ability to land on a 2,100-foot runway with no special requirements. The YC–15 flew cross-country, underwent ground loading of Army equipment, performed aerial refueling proximity tests, and laid the groundwork for heavy equipment air-drops. Testing also included airflow measurements of the cargo ramp and the troop door. During its year-long flight testing, the YC–15 made 292 flights, amassing 553.4 hours. Additionally in 1977, McDonnell Douglas tested a new wing to increase the range of the YC–15 and a high by-
pass turbofan engine capable of 22,000 pounds of thrust, an increase of 4,000 pounds per engine. Boeing’s two jet engines provided 50,000 pounds of thrust each.27

Beginning its test program a year later, Boeing adapted more to evolving requirements. Testing Boeing’s YC–14 included: load testing howitzers and the AN-1G attack helicopter, heavy equipment airdrops up to 20,000 pounds, STOL landings that exceeded the requirements, a maximum gross takeoff weight of 213,000 pounds, the ground loading of the Army’s M-60A main battle tank (108,000 pounds), semi-prepared soft-field runways with a combat offload of a 10,000 pound pallet, and aerial refuelings. The YC–14 with a gross weight of 160,000 pounds achieved a STOL stopping distance of just over 800 feet using thrust reversers at reverse idle. With the same weight using only the thrust reversers, the aircraft realized a stopping distance of 1,500 feet. In addition, the YC–14 performed STOL approaches with a glide slope of nearly six degrees with little or no flare used prior to landing. The YC–14’s landing configuration enabled sink rates of between five and eleven feet per second.28 During the 1995 reliability, maintainability, and availability evaluation, the C–17 showed off its YC–14 and YC–15 heritage by landing in less than 2,000 feet on an unimproved runway in the Mojave Desert.29

At the conclusion of the AMST test program in 1977, the commander of the Air Force Test and Evaluation Command, Maj. Gen. Howard W. Leaf, expressed his satisfaction with both the YC–15 and YC–14 prototypes. The Air Force Systems Command (AFSC) initiated the source selection process in September 1977, intending to award the production contract in April 1978.30 But events had already begun to overtake and then reshape the program.

### Strategic Airlift Emerges

Within a year of the prototype source selection award, the Israeli-Arab Yom Kippur War of 1973 disclosed a need for the United States to possess a viable response capability for the Middle East. For its part, MAC, using its C–5 and C–141 aircraft, rushed supplies, ammunition, and equipment to Israel. Hampered by the vast distances (on average 6,450 miles one way), unavailability of en route facilities, and lack of an air refueling capability, the crisis pressed U.S. strategic airlift resources despite their good showing against Soviet airlift aircraft.

In the aftermath, a series of studies in the mid-1970s documented a need for more strategic airlift. Although there were initiatives to increase the strategic airlift capability, war plans still disclosed a shortage in strategic airlift.31 Given the documented need for more strategic airlift coupled with the recent events in the Middle East and Congress’ and OSD’s growing viewpoint that a C–130 might do just as well for less money, it was not surprising that MAC, when it published in December 1975 a revised required operational capability (MAC ROC 9-75) for the AMST, broadened the mission of tactical airlift: “The AMST will augment the strategic airlift forces during the initial stages of an international crisis.”32 Further,

The speed of the augmenting AMST is compatible with the block speeds of the strategic transport aircraft, while the AMST’s range and cargo-carrying capability allow it to carry increased payloads over
C-130E critical legs. The AMST will also be air-refuelable which increases its range, payload, and the number of missions flown during the period of time it is utilized in a strategic role. The best use of the AMST in augmenting strategic airlift is when full advantage is taken of the AMST's wide-bodied characteristic in conjunction with the cargo-carrying capabilities of the strategic airlift forces.33

Moreover, both MAC ROC 9-75 and the subsequent employment concept document for the AMST stated tactical airlift would airland supplies as well as airland/airdrop combat units over “extended distances,” specifically to or between theaters of operations. MAC ROC 9-75 also spoke of providing “direct insertion,” the seeds of the C-17’s direct delivery capability.34 A USAF headquarters (Studies and Analysis) study had concluded that tactical C-130E/H and AMST aircraft could augment the strategic airlift force until hostilities broke out during a NATO contingency. Using tactical assets in the strategic role reduced the procurement of that amount of strategic airlift.35 Military officials were keen on improving deployment closure times.

Erosion and Competition

Politics also persisted. In January 1976, Gen. Paul K. Carlton, the MAC commander, penned to his deputy chief of staff for operations: “We and the Army better defend the AMST Requirement better than we have or this [C-130] is what we will get! Comment.”36 Brig. Gen. Charles C. Irions’ staff replied that the Air Staff and the command continued to challenge Lockheed’s attempts to offer a modified C-130 to OSD and Congress. Of Lockheed’s military transport line, only the C-130 was still in production, and then mostly for foreign sales. The Air Force had not included the C-130 in its budget requests after 1973, and Lockheed had secured its production line by getting C-130s added to the military appropriations bill.37 As to the Army’s lagging support, Carlton was told the Air Force had pushed hard in the 1970s for the Army’s support of a new light intratheater transport and, after having secured the Army’s support, dropped the LIT in favor of the AMST. The C-5 program had also created some unfavorable impressions. Additionally, the Army’s heavy lift helicopter and the AMST had similar, hence competing, intratheater roles.38

In March, Carlton sent Air Force Chief of Staff Gen. David C. Jones letters to pass on to key Army commanders. Of concern was the Army’s input to the decision coordinating paper for the Defense System Acquisition Review Council Milestone II decision scheduled for September 1977. The decision before the council was whether to begin full-scale development of the AMST or cancel the program. The Army, however, was undertaking a review of its tactical airlift requirements, and until the results were published, senior Army leaders provided no support.39 The best Carlton could do was a statement from Vice Chief of Staff of the Army Gen. Walter T. Kerwin, Jr., who told the House Armed Services Committee in May that the Army “very badly needed the capability.”40 And there was erosion. In November 1976, the Research and Development Subcommittee of the House Armed Services Committee had conducted hearings on the state of military airlift. The subcommittee’s report, released in April 1976, revealed the AMST was no longer the sole replacement for the C-130. Chairman Price had compromised. “Lockheed provided an analysis of C-130 and AMST fuel comparisons. The analysis shows that for a typical 400 nautical-mile-radius, tactical airlift mission use of the C-130 provides fuel savings of about 250 million gallons a year and, at 42 cents per gallon, cost savings of over $100 million.”41 Now a mixture of AMSTs and C-130s were regarded as the “best bargain.”42
nations for supporting Israel and the United States' dependence on foreign oil, Lockheed had a powerful argument. Thus, the stage was set: Lockheed would repeatedly challenge McDonnell Douglas and then Boeing over the C–17 as well. Retrospectively, it was simply a matter of "business is business and companies are in business to make money."42

While Lockheed’s end run at the AMST could be faulted for the erosion, the AMST competed against other aircraft modernization and modification programs and had to accommodate evolving national security requirements. The Israeli airlift, during the Yom Kippur War, had highlighted a need for air refueling capabilities and for more strategic airlift to transport outsize loads of tanks and helicopters rapidly. MAC sought funding for an advanced tanker cargo aircraft (ATCA), what became the KC–10. The command also needed funding for stretching and adding an air refueling capability to the C–141, fixing the C–5’s wings, and procuring a C–XX43 strategic airlift replacement aircraft (civil-military partnership). On the latter, Carlton was especially proud of his several-year effort, believing the C–XX would nearly triple the nation’s airlift capability. Industry, however, embraced the C–XX in a lukewarm fashion.44 Carlton and his successor, Gen. William G. Moore, also devoted much energy to an enhancement program for the Civil Reserve Air Fleet, thereby gaining additional oversize cargo capacity. Congressional support had to be “worked.” P. K. Carlton laid out his need in the House to Congressmen Mel Price and in the Senate to Sam Nunn (D-GA), member of the influential Senate Armed Services Committee and champion of Lockheed’s interests.45 Thus, the inherited AMST was one of many programs advocated by MAC.

An Outsize AMST

In March 1976, the Air Staff queried AFSC and MAC about using an AMST derivative as a primary strategic, outsize cargo aircraft.

Could non-STOL derivatives of one or both of the AMST prototype designs be developed to meet the following intertheater airlift missions? (1) Transport without refueling any single type of equipment presently carried by the C–5 over the current unfueled C–5 range at maximum payload. (2) Transport on a routine basis an M-60 tank weighing 111,000 lbs over the following unfueled ranges: (A) 4,000 NM, (B) 3,000 NM, (C) 2,000 NM.46

As a result, the Aeronautical Systems Division studied the matter and concluded that a strategic derivative of the current AMST prototypes was not viable, due to insufficient cargo box size and range performance. A strategic derivative of a redesigned AMST was feasible, provided a larger cargo box, new wings, and more powerful engines were incorporated. MAC did not favor growing the AMST to carry more of the Army’s outsize equipment “unless it can be assured that these changes will neither degrade AMST STOL capability nor jeopardize the program’s completion.”47

MAC remained keen on maximizing the AMST and pushed its strategic airlift augmentation concept. Boeing and McDonnell Douglas had already redirected their efforts to this end, testing and conducting paper studies. In early April 1977, the command’s vice commander, Lt. Gen. John F. Gonge, informed Lt. Gen. Alton Slay, the DCS/R&D, that “to avoid degrading the acknowledged strategic shortfall, the AMST must be able to transport a meaningful self-support payload to the theater of operations, even though it would have to island hop.”48 This justified revising the minimum essential mission requirements stipulated in the 1970 ROC. The command would not accept less. Moreover, emerging Army concepts called for larger equipment, faster deployments, and more mobility within the theater. A compromised AMST program, offering a less than operationally capable aircraft, should not be presented as an option, General Gonge advised.49 Thus, it was not surprising two weeks later when the AMST Configuration Steering Group, that included representatives from the Air Force, Army, and Marine Corps and was chaired by General Slay, decided on a longer wing to increase range and on the capability to transport the Army’s main battle tank.50

In August 1977, the Army finally released its eighteen-month study of tactical airlift requirements. The main conclusion was already known. A tank-carrying AMST offered the Army the “most flexible and efficient tactical airlift system.”51 While the study found the C–130H/JV satisfactory for moving bulk supplies and light units, it “lacked sufficient box size to transport the Army’s primary combat vehicles, i.e., main battle tank (MBT) mechanized infantry combat vehicle, self-propelled artillery, division air defense gun (DIVAD Gun), and numerous combat service support (CSS) vehicles.”52 In the 1950s, when the C–130 was designed, the Army had more infantry than mechanized or armored divisions. Over twenty years later, the situation was reversed, and the C–130H could only transport between 35 and 55 percent of a mechanized or armored division’s combat vehicles. The C–5 provided the Army limited capability, as it lacked airdrop and STOL capabilities, possessed a small fleet size, and was primary a strategic airlifter. Assistant Secretary of the Army for Research, Development and Acquisition, Percy A. Pierre, recommended, in November 1977, that the Air Force proceed with the full-scale development of an outsize capable AMST.53 The Army soon found, however, that it had thrown its full support to a program on its way out.

Carter Cancels

A change in Presidents left the AMST unsupported. Inclined to reduce defense expenditures,
President Jimmy Carter withdrew funding for the costly AMST program in the fiscal year 1978 budget; it halted source selection and placed the program on hold. Support from key members of Congress, however, provided $5 million for source selection in the fiscal year 1979 DOD Appropriation Bill, to which Carter consented. But a year later the program was no more. Unit costs had doubled from the original $5 million and were expected to double again due to continuing inflation. As directed, AFSC halted source selection in January 1978, and cancelled the program on December 10, 1979. Besides the affordability issue of a $9 billion program, Defense Secretary Harold Brown rationalized that in a European conflict, rail and road transportation systems would compete favorably with the speed and responsiveness offered by a STOL tactical airlift system. He also judged the current Air Force and Navy tactical airlift resources along with the available short-range civil aircraft as sufficient for a global war. Thus, there was no immediate need to purchase additional tactical aircraft.

Before the December 1979 cancellation, proponents continued to work for the AMST. Against this background, the C–17 program emerged. The Army’s senior leaders were especially vocal in championing the AMST. They realized the only other aircraft available for outsized equipment was the C–5, and it could not operate into forward small austere airfields. Moreover, it was already heavily tasked in deployment plans. Army Chief of Staff Gen. Bernard W. Rogers told the Senate Armed Services Committee that the C–130 could not carry the XM-1 tank, proposed infantry equipment, and other self-propelled vehicles. The “AMST is needed and the STOL capability in particular is needed to get the equipment where we need it.” Gen. Alexander M. Haig, Jr., the Commander in Chief of United States Army in Europe, was equally direct before the House Armed Services Committee.

As to the Air Force’s efforts, General Moore, the MAC commander, in his quarterly report to Defense Secretary Brown, politely disagreed with President Carter’s decision to cancel the AMST. The previous quarter, Moore’s statement that the AMST was the replacement for the C–130 had elicited this reply from Brown: “What about new C–130H instead?”

In March 1979, Air Force leaders, appearing before the House Budget Committee, expressed concern over the ability to support forces or rapidly redeploy them within a theater. Air Force Secretary John C. Stetson and Chief of Staff General Lew Allen stated it was “essential to identify and produce a new wide-body tactical airlift aircraft to replace the C–130 and to keep pace with Army requirements.”

In September, as the situation deteriorated, Army Chief of Staff Gen. Edward C. Meyer threw in his personal endorsement of the AMST. Meyer remained adamant about retaining the tactical focus of the AMST, although he acknowledged an enhanced strategic capability made the AMST more attractive. In effect, the Army and Air Force were taking their case before Congress, as Defense Secretary Brown had already told Congress in February 1978 that the Carter Administration had decided to cancel further development of the AMST and would seek a more cost-effective program.

Dual Role

As the final months unfolded, it was obvious that the AMST had to be more and more a strategic airlifter with just some tactical capabilities. A shift in airlift doctrine was underway. While there was a sincere attempt to define the kind of airlifter needed for wartime requirements, politics and subjective views influenced the process as well. In March 1979, Headquarters USAF issued a program management directive on the “Advanced Medium STOL Transport (AMST) Transition Program.” This directive tasked AFSC and MAC to come up with range and payload combinations to add the strategic airlift capability desired by DOD officials. The joint service AMST Configuration Steering Group met to work the issue. Taking into consideration Army brigade and division movement and closure time requirements, minimum strategic design points were established: the ability to airlift 74,000 pounds of cargo for 2,600 nautical miles, 90,000 pounds for 2,000 miles, or 120,000 pounds for 1,300 miles. The 82d Airborne commander received assurances that airdrop operations would remain unaffected. The Marine Corps reiterated its interests in a tanker/cargo version of a strategically enhanced AMST.

In the spring of 1979, the Air Staff released a study, that advocated a “swing” concept for the AMST. While the MAC staff believed the AMST was capable of swinging between tactical and strategic airlift roles, they objected to the study’s force structure and flying hour reductions and continued to favor the strategic augmentation role. One staffer disclosed the real concern: “The ‘swing’ concept proposes an aircraft that will ‘do all,’ and raises a question about the need for future airlift modernization. The C–5 wing modification and C–141 stretch program may be affected, but most certainly the C–XX program will be threatened by ‘strategic’ AMSTs.”

Clearly, support was building within the upper levels of the OSD staff for a new aircraft. After a September briefing, Deborah P. Christie, OSD Director of Mobility Forces Division, previously an opponent of the AMST, found the new strategic capabilities attractive. Gen. Robert E. Huyser, the new MAC Commander-in-Chief, sensed the moment. To General Slay, now AFSC commander, he expressed:

I have followed your exchange of letters with the Chief on the AMST. I have had discussions with Dave Jones and Hans Mark and believe the time is right to move on this program. The desire seems to
be to have an aircraft with STOL capability and that will enhance the strategic lift end. I have gone over data from both companies—Boeing and McDonnell Douglas—if what they are putting out is correct, we can have such an aircraft without starting back at ground zero. They say they have what they need from the YC–14 and 15. I believe state-of-the-art technology has us at a point where we shouldn't define such an aircraft as tactical or strategic—we just discuss it as an airlifter capable of dual role.57

By the end of October 1979, the matter was over. Defense Secretary Brown had decided to improve the strategic airlift capability. He had met with the Air Force's General Allen and advised him to cease associated activities on the AMST program and proceed with the C–X program, emphasizing strategic airlift as the primary mission, an outsize cargo capability, and a fiscal year 1987 initial operational date.68 The Soviet invasion of Afghanistan two months later and events in Iran confirmed the course. The United States required a more rapid global response capability. Thus, over a four-year period, the shortfall in strategic mobility reinforced by world events altered the whole basis for justifying the AMST program. From these efforts to recast the AMST for a dual strategic–tactical role with an outsize cargo capacity the C–17 Globemaster III benefited. The C–17 owes much to the AMST. C–17 operations during Bosnia, Yugoslavia, and now Afghanistan, validate the worth of a dual-role airlifter.

NOTES

2. Ibid.
14. Then defined as semi-prepared surface.
15. Outsized cargo was defined as exceeding the capabilities of the C–141, but fitting on a C–5.
17. The California Bearing Ratio was the system used to classify landing surfaces for aircraft. Silt and clay surfaces rated as low as 3-5 while graded gravel and gravel sand mixes could range as high as 60-80.
18. George M. Watson, The Advanced Medium Short-Take-Off-And-Landing Transport (AMST) and the Implications of the Minimum Engineering Development (MED) Program, Air Force Systems Command Office of


24. Ibid., pp. 17, 19.


27. Watson, pp. 32, 57, 62, 64, 66, 69.


33. Ibid.


43. The C–XX became known as the advanced civil-military aircraft (ACMA) and should not be confused with the C–XC–17.


49. Ibid.


52. Ibid.


58. Ibid.


Taking Clodfelter One Step Further: Mass, Surprise, Concentration, and the Failure of Operation Rolling Thunder
More than a century before American involvement in Vietnam, the Prussian military theorist Karl von Clausewitz penned his famous axiom: “war is nothing but the continuation of policy with other means.”1 Success in war relies on the national leadership’s ability to employ its military forces as a political instrument, given the circumstances of the conflict at hand. In the years since the United States withdrew from Vietnam, historians and strategists alike have attempted to gain some meaning from the defeat. Operation Rolling Thunder—considered by many to be the greatest failed air campaign in history—has received much of this attention for its gradual approach to air power.

One of the most notable studies on this topic is Mark Clodfelter’s *The Limits of Air Power: The American Bombings of North Vietnam*.2 This book takes an in-depth look at why America failed to use air power successfully in Vietnam and concludes that it was not just political restraints or a military that misapplied air power doctrine, but the limits of air power as a political instrument that cost the U.S. the war. Insightful as it is, Clodfelter’s analysis must be expanded—there was another important contributor to the failure. The existing military theory of gradualism, advanced by Gen. Maxwell Taylor, USA, held that an enemy’s actions could be controlled by the gradual application of force. The gradual application of air power in Rolling Thunder violated many of the principles of aerial warfare learned over time. Failure in the skies over North Vietnam was a result of the decisions made by civilian and military leaders, not the limits of air power. From a Clausewitzian perspective, gradualism was unsuccessful because it denied air power its inherent advantages of flexibility, surprise, and concentration of forces across time.

The ghosts left over from the Vietnam War have haunted our military and shaped its educational and training philosophies. A need within the Air Force to vindicate itself engrossed leaders for twenty years until success in the 1991 Persian Gulf War seemingly, “kicked the Vietnam syndrome” once and for all.3 Even the media and American society at large have developed an acute fear of getting involved in “another Vietnam.” The first military defeat suffered by the U.S. left Americans with a bruised national image and shook the idea that America could exert its will in any corner of the globe. In the middle of the “American Century,” Americans were left wondering what their place in the world actually was. “The Vietnam disaster dimmed those concepts,” wrote Stanley Karnow in the epilogue to *Historical Atlas of the Vietnam War*, “leaving Americans baffled and ambivalent about their international role.”4 Many have deliberated over the “what ifs” of strict political restraints and their effect on Rolling Thunder. True understanding of the failure, however, comes from examining the gradual application of air power and its inability to achieve political goals in a Clausewitzian framework.

When Rolling Thunder began in 1965, the U.S. had been involved in Vietnam for over ten years. This involvement stretched from aiding the French in their effort to maintain Indochina as a colony, to military advisors, and Special Forces cadre sent to bolster the South Vietnamese. The conflict heated up when, in August 1964, North Vietnamese torpedo boats attacked a U.S. Navy vessel in the Gulf of Tonkin.5 The Gulf of Tonkin Incident gave President Lyndon Johnson the congressional support he needed to commit combat forces to Vietnam. The following winter, Viet Cong attacks at Pleiku and Qui Nohn resulting in the deaths of a number of Americans led to retaliatory air strikes against the North. Those raids, dubbed Operation Flaming Dart, led to a sustained, strategic air campaign against North Vietnam.

President Johnson expected Rolling Thunder to “signal that the United States planned to hold the North Vietnamese responsible for Vietcong activities in South Vietnam.”6 He felt that, “doing nothing was more dangerous than doing something.”7 The Johnson Administration hoped that showing Hanoi U.S. willingness to take the war to the North, the Communists would hesitate before giving further aid to the Viet Cong insurgency in the South. The Johnson Administration also hoped that the strikes would show the Saigon government that the U.S. was committed to the defense of South Vietnam. In return, Saigon would overhaul its corrupt government and commit itself to winning the war. Johnson later wrote,

*I saw our bombs as my political resources for negotiation a peace. On the one hand, our planes and our bombs could be used as carrots for the South, strengthening the morale of the South Vietnamese and pushing them to clean up their corrupt house by demonstrating the depth of our commitment to the war: On the other hand, our bombs could be used as sticks against the North, pressuring North Vietnam to stop its aggression against the South.*8

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Dr. Mark Clodfelter read this paper and offered historical clarifications on several points. Col. Mark Wells counseled me on the content and organization of my paper, proofread it, and gave advice on how to make it more unique.
He used this “carrot and stick” analogy as rationale for expanding the war. The President ordered the sustained bombing of North Vietnam on February 13, 1965. Despite dissent in both the State and Defense Departments, USAF and VNAF fighter-bombers flew the first Rolling Thunder air strikes on March 2. The American forces attacked an ammunition depot at Xom Bay and the Vietnamese struck the Quang Khe naval base. As presidential historian Doris Kearns Goodwin explains, Johnson decided to begin bombing the North because he believed that he could not afford to lose the war and that Americans could solve any problem. Additionally, Rolling Thunder prevented him from being regarded as powerless. It promised to end the war and allow him to go on with his plans for the Great Society.

At first, the intention was that Rolling Thunder would last only a few months. The original plan submitted by the Air Force projected a twenty-eight-day campaign. Shortly thereafter, the Joint Chiefs of Staff (JCS) extended the plan to three months. Although seen as weak by many generals and statesmen, no one could foresee that the North Vietnamese would withstand such an intense bombing campaign for over two-and-a-half years. For an evaluation of the strategy behind Rolling Thunder, Clausewitz’s definitive work, *On War*, is essential. This landmark book is considered one of the preeminent Western works on military operations and strategy because it looks beyond the quantifiable aspects of war to focus on the art and individual genius of the endeavor. Clausewitz breaks down warfare to its most basic level, “a duel on a larger scale.” He claims that war is “an act of force to compel our enemy to do our will.” Clausewitz explains that the means to the end in war is combat, and the key to combat is strategy. *On War* outlines several principles that are essential to successful strategy.

In *The Limits of Air Power*, Mark Clodfelter uses a Clausewitzian framework to assess the effectiveness of the air campaigns against North Vietnam. He writes:

> In the final analysis the supreme test of bombing’s efficacy is its contribution to a nation’s war aims. Clausewitz’s definition of war—provides the only true measure for evaluating air power’s effectiveness. My goal is to provide such a Clausewitzian appraisal of the air war against North Vietnam.

This goal is accomplished by identifying the political goals set forth by the civil and military leadership, and then evaluating how well the three air campaigns of the war—Rolling Thunder, Linebacker I, and Linebacker II—achieved their goals, given the restraints placed on them by the politicians, commanders, the environment, and the enemy. A full Clausewitzian appraisal of Rolling Thunder must be taken one step further by considering ideas that Clausewitz advances such as surprise, flexibility, and concentration of forces across time.

These ideas can be used to illustrate the defects of gradualism in warfare, especially when an air campaign is employed. The element of surprise can be achieved easily by air forces because of their speed and range, as well as their flexibility and versatility. Because of these characteristics, air planners can dictate when and where an attack will occur, giving the enemy minimal advance warning. Clausewitz considered surprise, “the means to gain superiority,” over the enemy. He also wrote that, “surprise lies at the root of all operations without exception.” These advantages are largely nullified when the enemy knows in advance when and where an attack is to take place. During Rolling Thunder the gradual approach denied the element surprise by attacking targets in a progressive manner. The gradual approach dictated that initial air strikes were limited to certain targets in certain areas. The target list would expand if the North Vietnamese did not bend to the will of the U.S. It did not take long for the North Vietnamese to realize this. Once they did, they could concentrate their air defenses in the areas they knew would be attacked, and use “off limits” areas as safe havens for military forces.

Flexibility has long been defined as the key to air power. Current Air Force doctrine defines it as
The Super Sabres attacked Operation Flaming Dart. The Super Sabres attacked an ammunition depot at Xom Bay, and would see more action as Rolling Thunder took shape.

The negative objectives that frustrated the airmen who negative objectives to avoid escalating the conflict to a point where the Soviets or the Chinese might intervene. Not only did this fear demonstrate the administration’s failure to understand the conflict in broader terms, but it was also these negative objectives that frustrated the airmen who were flying into harm’s way.

While he did not consider this lower level of the air campaign strategy, Clodfelter’s explanation of the American failure to achieve national objectives through Rolling Thunder is fitting. In a review of *The Limits of Air Power* in the Army War College publication, *Parameters*, Elliot Cohen praises Clodfelter for his, “courage to study the war and reject, politely but firmly, the stab-in-the-back theory that one occasionally hears from even today from serving officers.” In another review in the *Journal of American History*, Michael Sherry of Northwestern University lauds “Clodfelter’s historical interpretation and strategic advice are so carefully reasoned and dispassionately offered that his book commands attention.”

The bombs of Rolling Thunder mission packages were dropped according to a regimented targeting plan that allowed no room for alteration or improvisation. President Johnson and his civilian advisors tightly controlled the target selection process. Decisions on what to bomb—and what not to bomb—were made at the infamous Tuesday Morning Luncheons. President Johnson, Secretary of Defense Robert S. McNamara, Secretary of State Dean Rusk, National Security advisor McGeorge Bundy, and Press Secretary Bill Moyers attended these exclusive meetings. Not until October 1967 was a member of the military included in this process. Ironically, this lack of flexibility did not pervade the Air Force. In response to Vietnam, the Air Force established new missions and modified old ones. Among these were the Misty FACs and B-52s used to provide close air support for ground troops, as well as new combat search and rescue tactics involving helicopter pararescue forces supported by propeller-driven A-1 “Sandys” and SARCAP forces. Unfortunately, this atmosphere of ingenuity was neither seen nor allowed in the bombing of the North.

Finally, Rolling Thunder was unable to concentrate forces across time. This failure resulted in an inevitable violation of economy of force; fragmented command and numerous bombing halts precluded efficient use of available assets. Forces flying in Rolling Thunder missions were strung out temporarily and geographically. North Vietnam was divided in to six route packages for scheduling air strikes. The route package system made concentration of the forces impossible by parceling them out to different commanders—not only in different services but locations as well—who did not coordinate air strikes among themselves. Navy and Marine missions fell under the command of the 7th Fleet at Yankee Station in the Gulf of Tonkin. They were responsible for coastal regions, Route Packages 2, 3, 4, and 6B.

Route Packages 5 and 6A, in the northwestern area of North Vietnam, were given to Seventh Air Force Headquarters in Saigon that utilized aircraft based out of South Vietnam as well as Thailand. Finally, Route Package 1—located just north of the DMZ—was under Gen. William Westmoreland at Military Assistance Command, Vietnam. A difficult objective coupled with the gradual approach led to a piecemeal pattern of air strikes that lacked any decisive effects on North Vietnam. According to Clausewitz, “the simultaneous use of all means intended for a given action appears as an elementary law of war.” Apparently, this idea was lost on U.S. military leaders.

Both the Johnson administration and the JCS were liable for having launched a campaign that was doomed from the start. Failing to keep in mind the lessons of the Korean War, they looked instead to the lessons of strategic bombardment from World War II. The bombings of Germany and Japan became a template from which later air campaigns would be designed. Air campaign planners, using the industrial web theory from the days of the Air Corps Tactical School, developed Rolling Thunder to target the “vital centers” of North Vietnam hoping that they could crush the enemy’s war making capacity and induce them to abandon the Southern insurgency.

President Johnson hindered Rolling Thunder in a way unlike that of previous strategic air campaigns. Thus, the Johnson Administration established negative objectives to avoid escalating the conflict to a point where the Soviets or the Chinese might intervene. Not only did this fear demonstrate the administration’s failure to understand the conflict in broader terms, but it was also these negative objectives that frustrated the airmen who were flying into harm’s way. The negative objectives led to the restricted areas near the Chinese border and around Hanoi and Haiphong, as well as rules of engagement that banned any attacks on
bridges on the Chinese border, ships entering or leaving Haiphong Harbor, aircraft on the ground, and idle air defense sites.\textsuperscript{30}

In hindsight, it is hardly surprising that the North could and, indeed would, endure a bombing campaign that lasted for almost four years. The U.S. strategic goal to persuade Hanoi to bend to its will, by making the war too costly to them, proved fruitless, despite (or perhaps because of) bombing halts and negotiations. Clausewitz addresses this strategy as an alternative to directly attacking an enemy’s forces or territory. Clausewitz states that, “making the war more costly to [the enemy],” is achieved by forcing him to waste forces in combat or by occupying his territory.\textsuperscript{31} Rolling Thunder did not seek to occupy territory and it did not force Hanoi to waste its forces. In fact, the Politburo was able to use the American bombings as justification to ask for more support from the Soviets and the Chinese.\textsuperscript{32} The original goal of forcing Hanoi to the negotiating table using an air campaign of gradual response was quickly perceived as unachievable and it soon became apparent that the U.S. pursued a tactical goal—interdiction. Rolling Thunder, with its restrictions and bombing halts served only to strengthen the North’s will to defeat the U.S.\textsuperscript{33} Hanoi was not suing for peace, as both military and civilian planners had expected. Only a month into the Rolling Thunder campaign, doubts began to surface among the President’s civilian advisors.

An air campaign alone could not achieve the stated national objective set forth by NSAM 288, of “a stable and independent noncommunist government,”\textsuperscript{34} in South Vietnam. During the years of Rolling Thunder, from 1965 to 1968, the Vietnam War leaned more toward an insurgency, and less toward a conventional conflict for which the U.S. had prepared. Destroying the industrial base of a preindustrial nation would have done little to stop the Southern insurgency. The industrial base was not a \textit{center of gravity} in the Clausewitzian sense, as U.S. leaders believed. The true North Vietnamese center of gravity—its allies, the Soviet Union and Communist China—was not considered until President Richard Nixon’s trip to China and the beginning of détente with the Soviets. Additionally, the Southern insurgency did not require many outside supplies, much less an industrial base to sustain Viet Cong operations. To their credit, the American civilian leadership realized and attempted to redirect Rolling Thunder. National Security Advisor McGeorge Bundy convinced President Johnson to sign NSAM 328 on April 6, 1965.\textsuperscript{35}

This directive altered the objective of Rolling Thunder into an interdiction campaign aimed primarily at North Vietnamese lines of communication.\textsuperscript{36} Instead of singularly winning the war by breaking the North’s will to fight, Rolling Thunder would now hinder Hanoi’s ability to aid the insurgency in the South. Rolling Thunder missions increasingly targeted truck convoys, rolling stock, roads, rail, bridges, marshalling yards, supply depots, and POL reserves to curb the North’s ability to export war-making materials to the South.
This action showed the civilian and military leadership’s belief that coercion of the Politburo in Hanoi through gradualism would not work, and that North Vietnam’s center of gravity was not its industrial base, but rather its physical link to South.

These attempts would prove to be as fruitless as those that preceded them. In a RAND study evaluating the economic and political effectiveness of the first year and a half of Rolling Thunder, Oleg Hoeffding concluded:

> It is our impression that so long as the present constraints on objectives and operations remain as strong as recent Administration statements indicate, it becomes increasingly doubtful that the advantages of continuation or intensification of the attacks outweigh the potential net gains from, or at least, drastic and demonstrative de-escalation.\(^{37}\)

The Air Force simply could not effectively interdict North Vietnam’s supply routes to the South.

In Clausewitzian terms, Rolling Thunder failed because it was not an effective political instrument—it did not achieve its stated goal of compelling the North Vietnamese to do our will. A strategic air campaign that targeted North Vietnam’s industrial base, such as it was, could not sway their determination to fight, nor could it interdict supply lines designed to support an insurgency. These targets were not centers of gravity for North Vietnam, and thus their destruction could not break the enemy. Furthermore, the conduct of Rolling Thunder aided the failure with its lack of massive application of force, surprise to the enemy, and concentration of forces.

American leaders incorrectly assumed that an enemy fighting by unconventional means could be defeated with a conventional military response. By placing negative objectives alongside unattainable positive ones, President Johnson worsened the situation. Mark Clodfelter explains:

> Despite frequently stating that the Communist were conducting guerrilla warfare, [civil and military leaders] assumed that destruction of resources necessary for conventional conflict would weaken the enemy’s capability and will to fight unconventionally.... The absence of limited war experience in an unconventional environment, combined with smug self-assurance, led to a misplaced faith in Rolling Thunder. Instead of facilitating victory, the air power convictions of civilian and military chiefs served as blinders obscuring the true image of the Vietnam War.\(^{38}\)

It is important when pointing out the failures of U.S. leadership—which were many—during the Vietnam War, that one does not use the failures to wholly question the validity of air power. As proven by the Combined Bomber Offensive in Europe during World War II, the Linebacker Campaigns later during the Vietnam War, and Operation Instant Thunder during the 1991 Persian Gulf War, air power can be an effective tool in achieving political objectives with military forces.

*On War* outlines several aspects of strategy that are crucial to victory. The failed American attempt to use air power against North Vietnam can be linked to three of these. Surprise was compromised after aircraft repeatedly struck the same targets in the same areas, allowing the Communists to concentrate air defenses and protect important assets. Flexibility was neglected due to strict target plans that allowed no alterations. Concentration of forces across time was lost to the fractured nature of the organization of forces. All of these characteristics are vital to strategy, and especially to air power because of its unique characteristics of speed and range.

There is more to the failure of Rolling Thunder than just hard-to-obtain or negative objectives. A closer look at Clausewitz exposes the importance of strategy to military victory. Before using the air war against North Vietnam as a case to discredit air power or political interference in warfare, it is
important to note that Rolling Thunder violated almost all principles associated with aerial operations that the Air Force had learned throughout the twentieth century. Those who criticize air power—specifically the usefulness of strategic bombing in achieving political objectives—fail to make the distinction between the actual application of air power and its potential, given that it is used in a manner that is consistent with the lessons learned over time.

NOTES

33. Tilford, *Crosswinds*, p. 76.
## Slangnaze

Brian S. Gunderson

Part V: Letters S-Z

<table>
<thead>
<tr>
<th>Royal Air Force Term</th>
<th>U.S. Army Air Forces Equivalent/Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sally</td>
<td>A member of the Salvation Army</td>
</tr>
<tr>
<td>Saloon Car</td>
<td>A deluxe sedan automobile</td>
</tr>
<tr>
<td>Sand Boys</td>
<td>RAF airmen who served in units in North African Desert</td>
</tr>
<tr>
<td>Sandra</td>
<td>A British system using searchlights to guide disabled RAF and USAAF aircraft to home airfield or to an emergency airfield</td>
</tr>
<tr>
<td>Saturated</td>
<td>Without personality</td>
</tr>
<tr>
<td>Scarecrow</td>
<td>An explosive canister filled with gunk fired by Germans into Royal Air Force bomber command formation during nighttime to create illusion that bomber aircraft had collided or exploded, thereby spooking new, inexperienced crews and cause them to deviate from their course to target or abort the mission</td>
</tr>
<tr>
<td>Scarecrow Patrons</td>
<td>Patrols by Royal Air Force pilots in de Haviland (DH-82) unarmed tiger moth aircraft over water to frighten any German submarines on the surface of the sea/ocean charging their batteries, thereby causing them to dive under the surface prematurely</td>
</tr>
<tr>
<td>Schräge Musik</td>
<td>A jazz music codename for upward-firing cannon on German Luftwaffe fighter interceptor aircraft</td>
</tr>
<tr>
<td>Scoff</td>
<td>Eat quickly</td>
</tr>
<tr>
<td>Scramble</td>
<td>A fast formation takeoff by fighter aircraft</td>
</tr>
<tr>
<td>Scraper</td>
<td>Run off, run away, leave formation</td>
</tr>
<tr>
<td>Scraper</td>
<td>The thin ring in an RAF’s squadron leader’s (major’s) rank braid between two wider bands</td>
</tr>
<tr>
<td>Scratch Crew</td>
<td>An aircrew made up of personnel from several crews and/or spares</td>
</tr>
<tr>
<td>Screamed</td>
<td>Executed a power dive in an aircraft</td>
</tr>
<tr>
<td>Screechers</td>
<td>A person who is very drunk</td>
</tr>
<tr>
<td>Screw</td>
<td>A propeller on an aircraft engine</td>
</tr>
<tr>
<td>Scrimshank</td>
<td>A person who shirks assigned duties</td>
</tr>
<tr>
<td>Scrub</td>
<td>Cancel a planned mission</td>
</tr>
<tr>
<td>Scuppered</td>
<td>Cancelled</td>
</tr>
<tr>
<td>Second Dickie</td>
<td>A co-pilot of an aircrew</td>
</tr>
<tr>
<td>Sector Calling</td>
<td>Ground control calling fighters with information—e.g. “scratch calling matchstick (codename for squadron) there is trade (enemy aircraft) at angels 15 (15,000 ft altitude).”</td>
</tr>
<tr>
<td>Shaken Frigid</td>
<td>Astonished, scared flabbergasted</td>
</tr>
<tr>
<td>Shakey Do</td>
<td>A rough, risky, scary mission</td>
</tr>
<tr>
<td>Shot Down</td>
<td>Lost an argument, reprimanded</td>
</tr>
<tr>
<td>ROYAL AIR FORCE TERM</td>
<td>U.S. ARMY AIR FORCES EQUIVALENT / DEFINITION</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>SIGNALS</td>
<td>RADIO MESSAGE TRAFFIC</td>
</tr>
<tr>
<td>SILENCER ON A CAR</td>
<td>A MUFFLER</td>
</tr>
<tr>
<td>SISTER</td>
<td>A MILITARY NURSE/USUALLY THE SENIOR NURSE ON A WARD</td>
</tr>
<tr>
<td>SKEW-ELL</td>
<td>AN RAF SQUADRON LEADER (EQUIVALENT TO A MAJOR)</td>
</tr>
<tr>
<td>SKIPPER</td>
<td>AN AIRCRAFT COMMANDER, SENIOR PILOT ON AN AIRCREW</td>
</tr>
<tr>
<td>SKY PILOT</td>
<td>A MILITARY CHAPLAIN</td>
</tr>
<tr>
<td>SMACKER</td>
<td>ONE POUND STERLING</td>
</tr>
<tr>
<td>SMALLS</td>
<td>LADIES LINGERIE</td>
</tr>
<tr>
<td>SMARMY</td>
<td>FLATTERING</td>
</tr>
<tr>
<td>SMASHING</td>
<td>MARVELOUS, SUPER, WONDERFUL,</td>
</tr>
<tr>
<td>SNAKE ABOUT</td>
<td>PERFORM OPERATIONAL AEROBATICS</td>
</tr>
<tr>
<td>SPAPPERS</td>
<td>AN ENEMY FIGHTER AIRCRAFT</td>
</tr>
<tr>
<td>SNOGGING</td>
<td>SLEEPING</td>
</tr>
<tr>
<td>SNOWDROP</td>
<td>A TERM USED TO DESCRIBE AN RAF POLICEMAN-REFERS TO WHITE COVER ON THEIR PEAKED HATS</td>
</tr>
<tr>
<td>SNUGGERY</td>
<td>WIRELESS/RADIO OPERATORS POSITION ABOARD THE AVRO LANCASTER BOMBER AIRCRAFT—CONSIDERED TO BE THE WARMEST POSITION ABOARD THE AIRCRAFT</td>
</tr>
<tr>
<td>SOAKING GLASS OF WET</td>
<td>A GLASS OF GIN AND TONIC</td>
</tr>
<tr>
<td>SOD OFF</td>
<td>GO AWAY, BEAT IT</td>
</tr>
<tr>
<td>SODDING TEMPER</td>
<td>A BAD TEMPER</td>
</tr>
<tr>
<td>SOGGY</td>
<td>MUSHY, SLOW TO REACT, AS WITH AIRCRAFT CONTROLS</td>
</tr>
<tr>
<td>ROYAL AIR FORCE TERM</td>
<td>U.S. ARMY AIR FORCES EQUIVALENT/DEFINITION</td>
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<tr>
<td>----------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>SQUADDIE</td>
<td>A BASIC RECRUIT, A PRIVATE</td>
</tr>
<tr>
<td>SQUARE BASHER</td>
<td>AN ADMINISTRATIVE OR TRAINING OFFICER OR AN N.C.O. RECORD KEEPER</td>
</tr>
<tr>
<td>SQUIRT</td>
<td>A SHORT BURST OF GUNFIRE FROM AN AIRCRAFT</td>
</tr>
<tr>
<td>STALLS</td>
<td>ORCHESTRA SEATS IN A THEATER OR MUSIC HALL</td>
</tr>
<tr>
<td>STANDING</td>
<td>AN AIRCRAFT PARKING HARDSTAND</td>
</tr>
<tr>
<td>STARBOARD</td>
<td>RIGHT SIDE</td>
</tr>
<tr>
<td>STATION</td>
<td>AN RAF AIRFIELD OR AIRBASE</td>
</tr>
<tr>
<td>STATION MASTER</td>
<td>A COMMANDING OFFICER OF AN RAF AIR STATION</td>
</tr>
<tr>
<td>STEEPLE/STEEPLING</td>
<td>THE EFFECT CAUSED WHEN SEVERAL ENEMY SEARCHLIGHTS LOCK-ON TO AN INCOMING BOMBER; CONING</td>
</tr>
<tr>
<td>STIFFENER</td>
<td>A BORE</td>
</tr>
<tr>
<td>STONE</td>
<td>USED IN MEASURING AN INDIVIDUAL'S WEIGHT IN GREAT BRITAIN (ONE STONE EQUALS 14 POUNDS)</td>
</tr>
<tr>
<td>STOOGING AROUND</td>
<td>FLYING AIMLESSLY AROUND, CIRCLING, WAITING TO LAND AN AIRCRAFT</td>
</tr>
<tr>
<td>STOPPERS</td>
<td>THE BRAKES</td>
</tr>
<tr>
<td>STRIPPING</td>
<td>BEING DISCIPLINED, CHEWED OUT</td>
</tr>
<tr>
<td>STUFFED CLOUD</td>
<td>A CLOUD COVERING A HILL OR A MOUNTAIN</td>
</tr>
<tr>
<td>SUSS</td>
<td>TO RECONNOITER, TO CHECK OUT</td>
</tr>
<tr>
<td>SWALLOW</td>
<td>NICKNAME GIVEN TO GERMAN MESSER-SCHMITT JET FIGHTER ME- 262</td>
</tr>
<tr>
<td>SWATS UP</td>
<td>STUDIES HARD PREPARING FOR A TEST/EXAM</td>
</tr>
<tr>
<td>ROYAL AIR FORCE TERM</td>
<td>U.S. ARMY AIR FORCES EQUIVALENT/DEFINITION</td>
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<tr>
<td>----------------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>TATE AND LYLE</td>
<td>WARRANT OFFICER'S BADGE OF RANK THAT RESEMBLES TRADE-MARK OF BRITISH COMPANY'S FAMOUS GOLDEN SYRUP</td>
</tr>
<tr>
<td>TATTY</td>
<td>UNTIDY, CHEAP, RAGGED</td>
</tr>
<tr>
<td>TEAR OFF A STRIP</td>
<td>SEVERELY REPRIMAND OR DRESS-DOWN A SUBORDINATE</td>
</tr>
<tr>
<td>THRASH</td>
<td>A BEER PARTY</td>
</tr>
<tr>
<td>THROWS IN THE TOWEL</td>
<td>AN ENEMY FIGHTER BEING SUCCESSFULLY ATTACKED BY AN RAF FIGHTER INDICATES DEFEAT BY INVERTING HIS AIRCRAFT AND BAILING OUT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ROYAL AIR FORCE TERM</th>
<th>U.S. ARMY AIR FORCES EQUIVALENT/DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>THRUPPENY/THREE PENNY BIT</td>
<td>A VERY SMALL BRITISH SILVER COIN (3 PENCE=6 CENTS)</td>
</tr>
<tr>
<td>TICK OFF</td>
<td>A MILD DISCIPLINARY ACTION, A CHEWING OUT</td>
</tr>
<tr>
<td>TICKING OVER</td>
<td>AN AIRCRAFT ENGINE THAT IS IDLING</td>
</tr>
<tr>
<td>TIDDLY</td>
<td>INTOXICATED</td>
</tr>
<tr>
<td>TIDDY OGGY, TIDDIE OGGLE</td>
<td>A CORNISH PASTY (BACON, ONIONS AND POTATOES IN A PASTRY)</td>
</tr>
<tr>
<td>TIFFIN</td>
<td>AFTERNOON TEA</td>
</tr>
<tr>
<td>TIGGY</td>
<td>WWII RAF DE HAVILLAND TIGER Moth Trainer Aircraft</td>
</tr>
<tr>
<td>TILL</td>
<td>A CASH REGISTER</td>
</tr>
<tr>
<td>TIP AND RUN RAID</td>
<td>A RECONNAISSANCE FLIGHT</td>
</tr>
<tr>
<td>TIPPING</td>
<td>TERM USED TO DESCRIBE AIRCRAFT SORTIES WHEREBY RAF FIGHTERS WOULD FLY ALONG SIDE GERMAN V-1 FLYING BOMBS, PLACE A WING TIP UNDER THE WING TIP OF THE V-1 AND FLIP IT OVER SO THAT IT WOULD CRASH HARMLESSLY IN AN OPEN AREA</td>
</tr>
<tr>
<td>TOAD-IN-THE-HOLE</td>
<td>A LARGE YORKSHIRE PUDDING STUFFED WITH BANGERS (SAUSAGES) AND SERVED WITH ROASTED POTATOES</td>
</tr>
<tr>
<td>TOFF</td>
<td>A DISTINGUISHED PERSON, UPPER CLASS PEOPLE</td>
</tr>
<tr>
<td>TOFFEE NOSE</td>
<td>A SNOB</td>
</tr>
<tr>
<td>TONNE</td>
<td>A METRIC TON OF 1000 KILOS</td>
</tr>
<tr>
<td>TORBEAU</td>
<td>WWII RAF TORPEDO-CARRYING BRISTOL BEAUFIGHTER AIRCRAFT</td>
</tr>
<tr>
<td>TORCH</td>
<td>A FLASHLIGHT</td>
</tr>
<tr>
<td>TOUCH BOTTOM</td>
<td>CRASH</td>
</tr>
<tr>
<td>TRAPPER</td>
<td>A FLIGHT EXAMINER, A FLYING INSTRUCTOR</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Trades</td>
<td>Enlisted personnel specialty classifications (e.g. mechanic, electrician, etc.)</td>
</tr>
<tr>
<td>Treacle</td>
<td>Syrup, molasses</td>
</tr>
<tr>
<td>Trolley-accumulator</td>
<td>A hand-pulled starter battery for starting aircraft</td>
</tr>
<tr>
<td>Trumpeter</td>
<td>A bugler</td>
</tr>
<tr>
<td>Trunk call</td>
<td>A long distance or toll telephone call</td>
</tr>
<tr>
<td>Trunk road</td>
<td>A main road, a highway</td>
</tr>
<tr>
<td>Tse tse's</td>
<td>Nickname for ground crew personnel who maintained RAF de Havilland Mosquito aircraft</td>
</tr>
<tr>
<td>T-trolley</td>
<td>An aircraft tow-bar on two small wheels</td>
</tr>
<tr>
<td>Tube</td>
<td>London's underground railway system</td>
</tr>
<tr>
<td>Twiggled the whole thing</td>
<td>Put everything together</td>
</tr>
<tr>
<td>Tyro</td>
<td>A new, inexperienced airman in a unit</td>
</tr>
<tr>
<td>Umbrella man</td>
<td>An aircrew member who had bailed out</td>
</tr>
<tr>
<td>Undercart</td>
<td>An aircraft's undercarriage, main landing gear</td>
</tr>
<tr>
<td>Upkeep</td>
<td>“Bouncing bomb” designed by scientist-boffin Dr Barnes Wallis to be used by Royal Air Force bombers to breach the Mohne, Eder and other dams in Germany</td>
</tr>
<tr>
<td>Uxb</td>
<td>An unexploded bomb</td>
</tr>
<tr>
<td>Vapour trails</td>
<td>Condensation trails</td>
</tr>
<tr>
<td>Vector 90</td>
<td>Instructions from ground control to aircraft to steer due east-090 degrees</td>
</tr>
<tr>
<td>Vegetables</td>
<td>Aerial mines dropped from RAF aircraft</td>
</tr>
<tr>
<td>Verge, swerved on to</td>
<td>Swerved on to the shoulder of a road</td>
</tr>
<tr>
<td>Vic</td>
<td>A V-shaped formation of aircraft</td>
</tr>
<tr>
<td>WAAF</td>
<td>A member of the Royal Air Force's Women's Auxiliary Air Force</td>
</tr>
<tr>
<td>Wack</td>
<td>Attempt, try</td>
</tr>
<tr>
<td>Wacked out</td>
<td>Tired out</td>
</tr>
<tr>
<td>Wacking over drafts</td>
<td>Overdrafted at the bank</td>
</tr>
<tr>
<td>Wad</td>
<td>A bun, a piece of cake or a sandwich</td>
</tr>
<tr>
<td>Waffled</td>
<td>An aircraft zigzagging in flight</td>
</tr>
<tr>
<td>Wag</td>
<td>A wireless/radio operator gunner aboard an RAF bomber aircraft</td>
</tr>
<tr>
<td>Wallah</td>
<td>A person</td>
</tr>
<tr>
<td>Wallop</td>
<td>A beer, an ale or other liquor drink</td>
</tr>
<tr>
<td>Wastage pool</td>
<td>A person in transit, awaiting posting/assignment</td>
</tr>
<tr>
<td>Watch tower/office</td>
<td>An airfield control tower</td>
</tr>
<tr>
<td>Water closet</td>
<td>A toilet/lavatory</td>
</tr>
<tr>
<td>Web foot</td>
<td>A British fleet air arm aircrew member</td>
</tr>
<tr>
<td>Wellings, wellies</td>
<td>Rubber boots</td>
</tr>
<tr>
<td>Whiff</td>
<td>Breathe oxygen</td>
</tr>
<tr>
<td>White knuckle stuff</td>
<td>In a tight or tough situation</td>
</tr>
<tr>
<td>Wick, on one’s</td>
<td>Get on someone’s nerves/back/or case</td>
</tr>
<tr>
<td>Wicket, on a sticky</td>
<td>In a mess</td>
</tr>
<tr>
<td>Wigging</td>
<td>Reprimanding</td>
</tr>
<tr>
<td>Wilde sau</td>
<td>Code name for Luft-waffe tactic of freelance (roaming) by fighters, infiltrating a bomber stream</td>
</tr>
<tr>
<td>Wimpy</td>
<td>WWII RAF Vickers Wellington Twin-engined bomber nick-named after Popeye’s overweight friend J. Wellington Wimpy</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Windscreen</td>
<td>A Cockpit windshield</td>
</tr>
<tr>
<td>Window</td>
<td>Radio/Radar Countermeasures Chaff made of metallic strips of various lengths to cover different frequencies</td>
</tr>
<tr>
<td>Windy</td>
<td>Apprehensive, scared; also means to talk a lot of hot air</td>
</tr>
<tr>
<td>Wingco, Winco</td>
<td>An RAF wing commander (equivalent to a Lt. Colonel)</td>
</tr>
<tr>
<td>Wing Tip to Wing Tip</td>
<td>Description of large mustaches worn by many RAF fighter pilots</td>
</tr>
<tr>
<td>Wireless</td>
<td>Radio</td>
</tr>
<tr>
<td>Wizard/Wizard/Wizzo</td>
<td>Excellent, well-done, the best, first class</td>
</tr>
<tr>
<td>Wog/Wogette</td>
<td>Wireless operator on ground receiving radio message traffic from aircraft</td>
</tr>
<tr>
<td>Wonders and Blunders</td>
<td>Air Ministry Work's Directorate responsible for the construction of RAF airfields</td>
</tr>
<tr>
<td>Wonky</td>
<td>On the blink, inoperative (e.g. compass, GEE, radio, radar)</td>
</tr>
<tr>
<td>Wooden Wonder</td>
<td>WWII RAF de Havilland Mosquito fighter/bomber aircraft</td>
</tr>
<tr>
<td>Wop</td>
<td>A wireless operator aboard an aircraft</td>
</tr>
<tr>
<td>Wren, WRNS</td>
<td>A member of the Women's Royal Naval Service</td>
</tr>
<tr>
<td>Write Off</td>
<td>Aircraft damaged beyond repair</td>
</tr>
<tr>
<td>Y-run</td>
<td>A cross-country air training flight using H2S Radar</td>
</tr>
</tbody>
</table>


I would like to like these books more than I do, especially the two that are clearly a labor of love. Unfortunately, it is precisely their partisanship that makes all of them less useful than they might be as contributions to the history of World War II. Dillon, Ottis, and Tanner all deal with the men in American (and in Ottis's case, British) airmen shot down over continental Europe, but the heroes of their books are different. In Dillon's case, the heroes are the ten crew members of a B–17 Flying Fortress; in Ottis's, the men and women of the French and Belgian underground who organized escape routes out of Nazi-occupied Europe for downed Allied airmen; and in Tanner's case, the Swiss government.

The most honest of the three authors is Dillon, who makes no secret of the fact that his book is an homage to his late brother-in-law, T Sgt. Sam Honeycutt, and his nine fellow B–17 crewmen. Dillon's publisher, unfortunately, was less honest in subtitling the book on its cover, "The Courage of the Mighty Eighth Air Force," the book is not a history of the Eighth Air Force, but the story of one B–17 crew, as the author's subtitle makes clear.

This is not a critical discussion of air power in World War II. In some respects, it is a scrapbook. Dillon made a promise to his brother-in-law, who battled Parkinson's disease and died in 1992, to tell the story of his crew's wartime experience. They trained together, fought together, and were POWs together in Germany for the last year of the war. From the personal recollections of surviving crew members, relatives of those who have died, and their published and unpublished letters and reminiscences, Dillon has compiled a record of their training, combat, and captivity.

Dillon recounts their experiences as a home scrapbook would record it, and as a scrapbook, there is a good deal that is right with this book. It contains many photographs of the interior of a Flying Fortress, pictures of life at an air base in Britain, excerpts from letters home and from official telegrams, and abundant quotes from crew members describing their experiences in the air and as POWs. But as with any family's scrapbook, the story that this one tells is one-sided.

People do not compile scrapbooks to remember the bad times, but to preserve the high points of their lives. In looking back at the records we keep of our own lives, we do not find photos of shouting matches or tearful encounters—that is not what we wish to remember; and those shades of gray will not be found in this book, either. For Dillon, there was no gray. These men wore the white hats in a battle between good and evil; that is how he sees them and how he unabashedly portrays them. And of course, in the overall scope of the war against Nazi Germany, he is right. But he would have done these men a service by portraying their flaws, fears, and failures. As history, that would have been a better and more interesting book.

But the comment is idle. Dillon was neither willing nor able to write such a book. That is not what he set out to do. These men have been his heroes since as a very young boy he listened to stories about World War II. He fulfilled his promise to T Sgt. Honeycutt by paying tribute to them with a scrapbook recording the great adventure that ten young men shared together—as they and he wish to remember it.

As history, Sherri Greene Ottis's book suffers from much the same problem. Although of a much younger generation than Dillon, she, too, has found her heroes in the men (and, in her case, women) who fought in World War II on the Allied side. Her admiration for the personal courage of members of the Belgian and French underground is not misplaced, but it has led her, like Dillon, to write an homage to people to whom she feels a strong personal connection, rather than a history. Indeed, although she describes Dillon as "a fascinating panorama of the war," he describes as "a fascinating panorama of heroism from the personal to the national level," in which "a small democracy was able to offer safety to individual fighting men of a larger one." Well, yes; sort of.

For American air crews, internment in Switzerland was clearly preferable to becoming a POW in Germany. The tortuous ambiguity of Swiss neutrality did not concern them, but it should concern Tanner. He has a greater responsibility than Dillon and Ottis, who are trying to convey their sense of admiration for ordinary people. Tanner puts his hyperbole in the service of a nation with a wartime record that is far more checkered than he is prepared to admit. He persists in referring to the United States and Switzerland as "sister republics," admiring the "courage [that] was displayed by an entire nation...alone in the very center of the continent, unbowed and defiant." Claiming that neutral Switzerland was "a unique case in Nazi-held Europe" (Sweden? Portugal? Spain?), he also waxes lyrical on the contemporary Swiss "handsome but not ostentatious in clothing or behavior; scrupulously honest but always exacting in transactions; hardworking but unaggressive." What bill of goods is being sold here?

This book is unpalatable in many respects. Here is Tanner on Britain's "finest hour": "In retrospect, the Battle of Britain can be viewed not as a life-and-death struggle for national survival, but as
simply the most visually spectacular of an
historical string of colorful battles between
European states in which both sides were
evenly matched.” Too bad that Tanner was
not there to tell the young RAF pilots flying
without rest for weeks on end that they were
merely engaged in a visual spectacle.
Not that they would have believed him.
Unfortunately, today’s younger readers
with little previous exposure to the history
of World War II might.
Imbedded in Tanner’s political agenda,
which is apparently the rehabilitation of
the American image of Switzerland after
what he euphemistically calls “the ‘gold’
controversy of the late 1990s” are stories of
individual air crews and their experience of
Swiss internment. Like the personal stories
recounted by Dillon and Ottis, they
deserve to be told. Had Tanner stayed focused
on those tales of individual courage, he
might have fallen victim to the hero worship
that colors Dillon’s and Ottis’s writings, but it would have been a more
noble flaw than the one to which he succumbed.

From 1995-2001, Edicina Campbell was a professor of grand strategy at the Industrial College of the Armed Forces, National Defense University.


Bradley University history professor Tim Maga has chosen as his subject a rather neglected aspect of the history of post-World War II prosecutions of Axis war criminals. All of these war crimes trials are of interest to specialists in and general readers of military and legal history. And because many of these trials involved crimes against Allied airmen, they are of particular interest to aviation history scholars and enthusiasts.

Dr. Maga’s too-short book offers small, often fragmented snapshots of a large, complex picture, and his study is both broader and less exhaustive than its title would suggest. His focus is diffuse, and his chapters offer general discussions of a few of the early U.S. Army trials; the International Military Tribunal for the Far East (IMTFE) trial; some of the U.S. Navy trials; the influence of the trials on postwar relations between Japan and the United States; and recent efforts to establish an international permanent war crimes court.

Maga aims not at providing “an encyclopedic account” of all of the trials; his emphasis is, rather, on the trials conducted by the IMTFE and the most important military courts. (p. xii) Because he focuses almost exclusively on American military courts and the U.S. trial program, he virtually ignores the efforts of other nations to bring Japanese war criminals to justice.

Unfortunately, Maga has neglected to place his story in clear historical context. Beginning as early as 1941, the Allied powers began to develop policies to hold accountable two types of Axis war criminals—the “major” offenders and the “minor” offenders. The major offenders were high-level civilian and military leaders, policymakers whose crimes had no particular geographical location; the minor offenders were those, often lower-level, civilian and military personnel who committed crimes in a particular location, for example, in a prisoner of war or concentration camp. Eventually, both major and minor Axis war criminals were tried. The minor trials constituted the vast majority of postwar trials and were conducted in a great number of locales, by a large number of nations, in a variety of tribunals, national and international, military and civilian. Maga’s story belongs in the wider context of the history of post-World War II war crimes trials.

Maga’s presentation of these trials, their controversies, and their legacies is more impressionistic than systematic, and his book is at times marred by questionable organization and footnoting, disrupted lines of argument, awkward writing, and even factual errors.

Examples of some of these problems can be found in the author’s discussion of the IMTFE case against former minister of war and premier Gen. Hideki Tojo. Maga coherently and vividly presents the arguments of the defense (pp. 45-50, 51). But he then divides the arguments of the prosecution, thereby diluting them. Maga begins with a seven-line paragraph on prosecution arguments on the aggressive war charge and atrocity allegations against Tojo (p. 51). The seven paragraphs that follow provide a rambling discourse on Tojo’s relationship with his eldest daughter and concerns for his family, his respect for Hirohito, his views on gardening and on the success of the new Japanese yen, his statement of sympathy to the family of Hermann Goring, his criticisms of the aggressive war charge, and the Japanese atomic bomb project. Buried at the end of the seventh paragraph are two sentences in which Maga finally returns to the prosecution argument that linked Tojo to “specific battlefield atrocity accounts...actions so ghastly that the tribunal was physically disturbed by them.” (p. 52)

Maga’s “general thesis” is that there were “good intentions behind the Tokyo trials” and that the trials did “good work.” (p. ix) But how is one to judge the work of any trial court? In his outstanding analysis of the work of the International Military Tribunal (IMT) at Nuremberg, Bradley F. Smith wrote, “To assess the judgment in a trial, we must first know who is doing the judging, who is being judged, and what are the charges and the system of law in use.” (Bradley F. Smith, Reaching Judgment at Nuremberg (New York: Basic Books, Inc., 1977), p. 3.)

Regrettably, Maga does not discuss any of these basic—but essential—elements in a systematic or complete way. Who were the judges who sat on the IMTFE? Maga waits until page 43 to reveal that eleven men sat on the court, including presiding judge Sir William Webb of Australia. The reader must wait until page 60 to learn the names and nationalities of three of the other judges; the final seven are not mentioned. Here, as elsewhere, an appendix would have been helpful.

Who were the defendants who faced the IMTFE? Twenty-eight “Class A” defendants were originally indicted; three of these escaped judgment through death or mental collapse. The remaining twenty-five Class A defendants, sitting together in one dock—as Goring, et al., did at the IMT Nuremberg proceedings—received judgment by the IMTFE tribunal. The IMTFE proceedings constituted one trial—as did the IMT Nuremberg proceedings—in spite of Maga’s persistent use of the word “trials” to describe the work of the Tokyo court. Class A Japanese war criminals were the equivalent of “major” German war criminals and faced similar charges; Class B and Class C Japanese war criminals were the equivalent of “minor” German war criminals and faced similar charges, though there were striking differences between the two classes. Maga mentions none of this, nor does he give a full definition even of Class A criminals or the charges that they faced in court. He does not mention the Class B or C criminal categories until page 128, and he does not describe the types of individuals who fell into those categories or the types of charges that they faced.

Maga does reveal that the IMTFE found all twenty-five defendants guilty and sentenced Tojo to death (p. 53) and sixteen others to life imprisonment (p. 60). But we must wait until pages 134-35 to learn about the specifics of some of the sentences the IMTFE passed. An appendix listing this information in a complete form would have been helpful and might also have corrected the multiple errors that the reader will encounter on those pages.

Maga believes that the postwar prosecution of Japanese war criminals should be investigated as a topic sui generis, independent of the trials of German war criminals “in Nuremberg.” (p. x) Here, Maga presumably means the IMT trial at
Nuremberg, though he does not say so. Maga maintains that his book is about “the Tokyo trials”, and he makes note of “Nuremberg...when it makes sense to do so.” (p. x) His point is well taken, but it is precisely on the question of basic definitions, jurisdictional parameters, types of defendants, rules of evidence, trial procedure, and sentence review that a Nuremberg-Tokyo compare-contrast model might have been most helpful. Such an approach would have been particularly effective in refuting the critics who believe that the trials of Japanese war criminals were racially motivated.

Dr. Priscilla D. Jones, Air Force History Support Office


The authors of this book provide a well researched and easily read overview of four major Allied weapons of World War II—the British Submarine Spitfire and the American DC—3 (C—47 Dakota), Sherman tank and the amphibious truck, DUKW, known as the “Duck”. Given the book’s title, a reader might expect to find a comprehensive review of most of the “decisive” weapons of the greatest and most catastrophic conflict in human history, a conflict that saw the introduction of many new weapons. At the very least, it could have had a number of representative “decisive” weapons from both Allied and Axis countries. Some readers might believe any book about “decisive weapons” would be, at worst, presumptuous and, at the very least, selective—why were these four weapons selected over “obvious” others. Additionally, the book does not look at any enemy weapons, such as the German 88mm anti-aircraft artillery that also served as a very effective antitank weapon or the Japanese “Zero” that dominated Far East skies during the opening years of the war in that theater. Finally, the book does not review any weapons of the Soviet Union—for example, the Soviet T-47 tank, touted as the best all-around tank of the Second World War. Fortunately, given all of these issues, the authors do provide a very readable and informative account of the four “decisive” weapons that they chose, that helped turn defeat to victory for the Allies during World War II. All of these weapons were the product of Allied technology, production, and ingenuity and, in their own way, greatly contributed to the ultimate Allied victory over Nazi Germany. Although less numerous than the Hawker Hurricanes during the Battle of Britain, the Submarine Spitfire came to exemplify the bravery of “those few who gave so much for so many” during Britain’s “finest hour” against the German Luftwaffe in the summer of 1940. The pre-war commercial Douglas DC—3 became the military C—47 that saw service in every theater of operations and dropped thousands of paratroopers over occupied France in the early morning hours of June 6, 1944, paving the way for the greatest invasion force in history. The Sherman tank, although inferior in gun caliber and armor to its German counterparts, made up in numbers what it lacked in quality to spearhead the Allied breakout from the Normandy beaches. Finally, the funny little amphibious truck, known as the “Duck,” well demonstrated its ability to deliver...
supplies from offshore ships to inland areas, a capability that the U.S. Army did not initially want.

The authors cover each weapon in a lengthy chapter that takes the reader from the weapon’s genesis to its employment in combat. For each weapon the authors start with an in-depth background on the gene-
sis of the weapon as an idea, continue through the weapon’s design and production phases, and then end with the use of the weapon in a major campaign of World War II. A good portion of each chapter centers around the battle or operation in which the weapon particularly made itself known. For example, the center of the story about the Submarine Spitfire is the Battle of Britain, and, for the C—47, it is the transport of the Allied paratroopers over Normandy just after midnight June 6, 1944. For the Sherman tank, the central battle was the Allied breakout from Normandy where the Sherman’s speed and sheer numbers made it a significant oppo-
nent to the better gunned and armored German panzers. Finally, the Duck proved itself at Anzio and other beachheads when supplies and equipment had to be moved quickly from offshore ships to men ashore and in the heat of battle.

In addition to the regular commentary about each weapon system, the book also has other virtues. For example, the authors provide additional highlights in side sto-
ries about various personalities and other contemporary weapons without distracting the reader from the main story. For example, the reader gets a look at Air Marshal Dowding and his German counterpart, Air Marshal Goering. In the chapter on the Sherman tank, the authors give a “short” on the Detroit Arsenal. Also, the book is filled with numerous photographs that illustrate the stories about each of the weapons. Overall, Battle Stations is a well written, easily read, and profusely illustrated book whose only vice, at least to the scholar, is the lack of documentation.

Lt. Col. Robert B. Kane, USAF, Air War College.

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Wayne Thompson is currently Chief of Analysis at the Air Force History Support Office. He served as an Army draftee during the War in Southeast Asia, and subsequent to earning his doctorate in history, joined the CHECKMATE staff on the Air Staff in August 90. He also served as the senior historical advisor on the Gulf War Airpower Survey. More recently, he has studied air operations in the Balkans.

As implied in the title, this book deals with the use of air power against North Vietnam. Little attention is paid to the several other air wars being flown in South Vietnam and Laos. It concentrates on the Rolling Thunder, Linebacker, and Linebacker II operations.

The author skillfully develops the air war over the north chronologically, while simultaneously mixing in the develop-
ments on the home front. Not only are the political aspects of the planning and deci-
sion making discussed, but also the devel-
opment of the antiwar movement and how that affected the decisions made.

Thompson also devotes quite a bit of time describing the technical aspects of the
The air war between Rolling Thunder and Linebacker was characterized by these protective reaction strikes, under very restrictive rules of engagement. The controversy centered on how to interpret those rules of engagement. Lavelle claimed that he had been encouraged by his bosses to conduct raids outside the rules of engagement, and that the false reporting was a result of misunderstanding and overzealousness on the part of subordinates.

Thompson provides a balanced account of the events portrayed in the book. For example, he discusses both sides of the argument for how successful Linebacker I was as an interdiction campaign. He also deals with such sensitive Air Force topics as training, tactics, personnel assignment and rotation policies, and comparing Air Force versus Navy performance. He also discusses the organizational morass that hampered efficient application of air power during the war. While Thompson does not go as far in criticizing Air Force operations as did Mark Clodfelter, Marshall Michel, or Earl Tilford, he goes much further in discussing the good and the bad of Air Force operations than the “rah-rah” boosterism of Walter Boyne.

To Hanoi and Back has an extensive bibliography, covering an impressive list of sources of information on the subject. However, I thought the number of maps and photos was skimpy. Only three maps were provided, although the detailed one of the Hanoi area was not one that I had seen before and I thought was quite useful. There were forty-eight photos in the two photo sections. For a war so widely open to the media, I think more photos could have been provided. I also found the index a bit hard to use.

These last points are minor criticisms. The book was well written, and provided a very complete account of the air war against North Vietnam in a single volume, covering the controversial topic from the military, technical, human, and political aspects. I recommend it to readers who seek a deeper understanding of the events of the era.

Colonel Stetson Siler, Director of Test Support, AFOTEC, Kirtland AFB, NM

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Franck, with Charles O. Porter. Tucson, Illustrated by the Exploits of the

The highlight of Winter Journey is fighter-bomber operations, the Ninth’s central mission. Each Allied army in Northwest Europe was assigned its own tactical air force. “Pete” Quesada’s IX Tactical Air Force, for example, supported Hodge’s First Army, while “Opie” Weyland’s IX Tactical Air Force spearheaded Patton’s Third. Quesada was the innovator, who first convinced General Bradley to place Army Air Forces radios in tanks so that supporting pilots and controllers in the tanks could communicate and make possible the celebrated armored column cover tactic of the Normandy breakout and dash across France. Franck’s interview of Quesada captures the air commander’s charisma, outspokenness, and focus on maintaining control of his air assets. Weyland, who arrived in-theater after Quesada, benefitted from established procedures, yet proved a resourceful air commander in his own right whose partnership with Patton set the standard for air-ground pairings and cooperation. Tactical air doctrine called for centralized air control, the concentrated use of air power, and tactical missions flown in the prescribed order of air superiority, interdiction, and close air support. Both airmen demonstrated the flexibility of tactical air power and showed that doctrine must serve only as guide, not rigid formula.

Harry Franck directly confronted the issue of doctrine and air-ground relationships by raising the “seduction” charge, whereby a news reporter had accused the air arm of violating doctrine by acceding to army requests for close air support in lieu of interdiction requirements. Weyland’s response was characteristic: “I run my outfit—he [Patton] runs his.” Patton became a champion of air-ground cooperation and convinced Weyland it was enough. “We get along famously, don’t we, Weyland?” And they did. Weyland made every effort to fulfill Third Army requests, but stood his ground and refused to attack targets he considered unsuitable for fighter-bombers or compromise his control of his air elements. On the other hand, the achievement of air superiority made it possible for Weyland to focus more of his air power on close air support needs. Despite Patton’s strong personality, the Third Army commander never violated the prerogatives of his air commander or the mutual trust they had established early in the campaign.

After interviewing the commanders, Franck continued his odyssey with visits to two of the elite XIX TAC fighter bomber groups, the 354th “Pioneers” and 362d “Maulers.” There he received a primer on interdiction and close air support flying and praise for the air-ground relationship. Franck followed up his theme of air power effectiveness during interviews at the 5th and 90th Infantry Divisions, where he observed air-ground operations with air and ground liaison officers. Although acclaim for the air-ground relationship was the order of the day, no one avoided discussing two of the most controversial issues in the campaign—friendly fire incidents and bomb accuracy and assessment. Franck’s coverage of these sensitive, complex subjects is superb and correctly dispels conventional wisdom that friendly fire casualties and pilot reporting accuracy elicited little concern or attention from air and ground officers.

Winter Journey notes the overall strong cooperative relationship between air and ground personnel, the importance of centralized control of air resources by an air commander, and the effectiveness of tactical air power on ground operations. These lessons often seemed forgotten in the acrimonious atmosphere of the post-war years, which witnessed the creation of the independent Air Force and controversies over roles and missions. They had to be relearned in the Korean conflict, where Weyland, the Far Eastern Air Forces commander, faced enormous problems in coordinating air-ground operations and centralizing control of Air Force, Naval, and marine air. The Second World War’s central lesson for tactical air power is that air superiority, sufficient resources, and correct doctrine will not produce a successful air-ground program without the cooperation and good will of air and ground commanders and their staffs. Winter Journey also affirms this basic requirement.

Had Franck’s manuscript been published shortly after the war, as originally intended, it might have charted new ground. But General Vandenberg and War Department censors had reservations, which likely reflected concerns about the author’s strong criticism of American behavior in defeated Germany, rather than revelations about tactical air power procedures and problems. When the government cleared the manuscript in March 1946, it refused to publish it, and Franck could not find an interested commercial publisher. The manuscript gathered dust until recently, when family members succeeded in publishing it without revision. Despite the passage of time, Winter Journey Through the Ninth retains its sense of immediacy. It is an accurate, vivid tale of tactical air power in Northwest Europe. This is a story worth retelling, and one told by a superb storyteller.

Dr. David Spires, Colorado Springs, Colorado

The Infinite Journey: Eyewitness Accounts of NASA and the Age of
Air Power


At first glance, one might categorize The Infinite Journey by William Burrows as simply another colorful, coffee table book. Prepared in collaboration with the National Aeronautics and Space Administration, this large-format volume contains approximately 200 eye-catching photographs. The spectacular images invite casual observers to flip through the pages without paying serious attention to adjacent text. Viewing the product at this level, one might dismiss it as intellectually shallow and, therefore, of little scholarly worth. This would be a mistake.

The author, with editor Mary Kalamaras’ assistance, has crafted a truly informative history that combines introductory text, first-hand recollections of various participants, and images to explain the significance of thirty human and robotic NASA missions. Flight controllers, physicians, administrators, engineers, secretaries, and public affairs officers, as well as the astronauts themselves, supply thought-provoking, insightful reflections on key Mercury, Gemini, and Apollo flights. Others share memories of Skylab and the Apollo-Soyuz Test Project of the early 1970s. Of course, the shuttle Columbia’s inaugural flight in 1981, the Challenger disaster of 1986, and the shuttle program’s revitalization with Discovery’s return to space in 1988 receive due attention. Coverage of human space flight concludes with establishment of permanent outposts—shuttle missions to the Russian space station Mir, the prelude to construction of the International Space Station.

Approximately half of The Infinite Journey deals with robotic space missions—some looking outward, others earthward. These highlight the exploration of Mars from the Mariner and Viking flights of the 1960s and 1970s to the spectacular Pathfinder and Global Surveyor adventures of the 1990s. Other selections include Pioneers 10 and 11, Voyager’s grand tour of the outer solar system, the Hubble Space Telescope’s and Cosmic Background Explorer’s study of the farthest reaches of the universe, Magellan’s examination of Venus, and Galileo’s exposure of Jupiter and its moons. The remaining section focuses on how NASA’s development of earth-orbiting satellites, especially for communication and multi-spectral imaging, have directly benefited humans.

Burrows brought a wealth of experience to the crafting of this piece. He previously authored several volumes on space history, from Deep Black: Space Espionage and National Security (1987) to This New Ocean: A History of the First Space Age (1998), which won the American Astronautical Society’s prestigious Emme Prize and was a finalist for the Pulitzer Prize. His introduction to The Infinite Journey escorts the reader through the roots of space flight and establishment of NASA. His narrative, at the beginning of each of the book’s ten sections, provides sufficient context for readers to understand and appreciate the significance of both the accompanying photographs and first-hand recollections. The epilogue, a collaborative effort that includes remarks by Ray Bradbury, Arthur Clarke, the late Carl Sagan, Homer Hickam, and Daniel Goldin, frames the past as prologue to America’s civil space activities in the 21st century.

If anything is required to generate support for new space adventures through reflection on past achievements, this volume answers the call. It is a wonderful retrospective on what we have accomplished during the past half-century and an inspirational treatise on why we should do even more in the decades to come.

Dr. Rick W. Sturdevant, Deputy Director of History, HQ Air Force Space Command


Joes, a professor of political science and director of the international relations program at Saint Joseph’s University in Philadelphia, has written a useful overview of the war in Vietnam, from 1954-1975. As with most overviews, it should not be considered the final word on any topic dealing with that war. While avoiding the details and intricacies of battle planning and implementation, the author has provided a highly readable survey of the political events of the period. His work would make an excellent college survey textbook for a course on the history of the Vietnam War.

Arranged chronologically, the text begins with a discussion of French colonial involvement in Indochina. The author notes that the root cause of the revolution against the French lay with disgruntled Vietnamese intellectuals who were thwarted in their efforts to achieve equal status within the civil bureaucracy run by French officials. When Vietnamese did find work in the civil service or in private enterprise, they were often subordinates of less well-educated French citizens, and they received one-half to one-fifth of the salary paid to Frenchmen in similar positions. The principles of the French Revolution liberty, equality, and fraternity were not extended to the Vietnamese, who were, at best, second-class citizens in their own country.

In discussing the assassination of Diem in 1963, Joes assesses the leader’s weakness and strengths. The author notes that despite his faults, Diem came from an old, distinguished family and certainly possessed an impressive resume as an ardent nationalist. Joes argues that those who succeeded Diem could not match his political credentials nor his national and international prestige. Acknowledging that Vietnam needed military leadership following Diem’s demise, the author argues that the talents of his eventual successor, Gen. Nguyen Van Thieu, lay not in the latter’s skill on the battlefield, but rather as a skillful politician in an army uniform.

Another poignant issue for Joes was that members of the highly educated ARVN (Army of the Republic Vietnam) officer corps, mostly from the middle class, were out of touch with and unsympathetic to the country’s peasant majority, “among whom and over whom the war was being fought.” The author addresses the results of the 1968 Tet Offensive for both sides and he concluded that it was a victory for the United States and its allies. The Communists’ anticipation that Tet would result in a massive popular uprising to overthrow the puppet regime utterly failed, and the death of so many Viet Cong ultimately delivered much of the country-side into the hands of the Saigon government. Some Viet Cong even charged that the Tet Offensive was a plot by Hanoi not only to destabilize and discredit the ARVN, but also to engineer a massacre of the Viet Cong, “Killing two birds with one stone,” thereby removing all obstacles to Hanoi’s eventual takeover of South Vietnam. But it was a U.S. public opinion following Tet that eventually handed victory to the soundly defeated Communists. The U.S. public saw that the promised end of the war was nowhere in sight and thus turned against the conflict. This caused President Lyndon Johnson’s decision not to seek reelection. The Democrats would subsequently lose the 1968 election to Richard Nixon, who promised to end U.S. participation in and responsibility for the war through Vietnamization.

Nixon’s pledge to Vietnamize the war came to fruition during the Easter Offensive in 1972, when the North Vietnamese army suffered some 100,000 casualties and smashed their conviction that the majority of South Vietnamese wanted the North to win. The ARVN had developed into a proven fighting force that with U.S. replacement supplies and air support, especially B-52s, could indefinitely defend the independence of the South. But Nixon twisted Thieu’s arm to accept an unfair peace, pledging that the
United States would intervene with its mighty air force if the North openly violate
d the inequitable accords, and U.S. partici-
pation in the actual fighting came to an
end. However, with Watergate and Nixon’s
resignation, the promise of air interven-
tion, along with a continued pipeline of
supplies to the Thieu government, evapo-
rated. After a Northern attack into the cen-
tral highlands at Ban Me Thuot in 1975,
the South panicked, and its once re-
spectable Army uncontrollably dispersed
among the retreating body of hysterical
civilians—splintered, and disintegrated.

So, the real defeat of the South lay in
the departure of U.S. troops and supplies
and an invasion by the North’s convention-
al armies. The author notes that the ques-
tion of who was at fault for the defeat of
the South will be debated for generations
to come. His book will provide an excellent
basis to start any such future discussion.

Dr. George M. Watson, Jr., Air Force History
Support Office, Bolling AFB, Washington,
D.C.

MacArthur and the American Cen-
Lincoln and London: University of Nebras-

General Douglas MacArthur will
never fade away. Commemorations of World
War II and the Korean War have spurred
a new wave of interest in MacArthur’s career
and its controversial aspects. This “reader,”
edited by Prof. William M. Leary, a histori-
an of America’s military experience in Asia
and the Pacific, is intended as an introduc-
tion to MacArthur’s impact on the
“American Century.”

The volume easily falls into five parts:
Growth to Maturity, World War II, Japan,
Korea, and Assessments. Within each of
these sections, Leary has selected a piece
by MacArthur himself, along with views of
scholars, some critical of MacArthur, oth-
er favorable to the general, and still oth-
ers providing a more balanced perspective.
Also included are insightful essays by of-
cials who served with MacArthur during
various points in his career. The strength
of this approach resides in the breadth of
viewpoint, the weakness in the inherent
uneven quality and style of the contribu-
tions.

The World War II section is one of the
strongest, featuring Duncan Anderson,
David Horner, Stanley L. Falk, Stephen
Taaffe, D. Clayton James, Edward Drea,
Clark Reynolds, and Gerald Wheeler. The
picture that emerges here, as one might
expect, is mixed. David Horner, historian of
Australia’s role in World War II, paints
MacArthur as “a brilliant political gen-
eral,” whose influence on the political-mili-
tary sphere in Australia was enormous.

Stanley L. Falk, a noted historian of
the war in the Pacific, and a former chief
historian of the U.S. Air Force, argues that
after 1943, when Japanese forces had been
stopped in the Southwest Pacific theater,
the American commitment to this area
should have been ended. After this point,
“the continued Southwest Pacific commit-
ment was an unnecessary and profligate
waste of resources, involving the needless
loss of thousands of lives, and in no signif-
icant way affecting the outcome of the
war.” He concludes, however, that interser-
vice rivalries and General MacArthur’s
influence and reputation “made inevitable”
continued military operations against the
Japanese in the Southwest Pacific.

Other outstanding contributors are
John Killigrew (“The Army and the Bonus
Incident”); Ikuhiko Hata (“The Occupation
of Japan, 1945-1952”); D. Clayton James
(“Command Crisis: MacArthur and the Ko-
rean War”); and Russell Weigley (“Military
Biography Without Military History”).
Leary even includes an essay on “gender
analysis,” by Laura Belmonte, that
attempts to probe MacArthur’s masculini-
ty.

Overall, this volume succeeds as an
introduction to MacArthur and the unendi-
ning controversies surrounding his career.
It should stimulate interest and research by
a new generation of historians. As Leary
emphasizes, although “MacArthur can be
criticized, he cannot be ignored.”

Herman S. Wolk, Air Force History Support
Office, Bolling AFB, Washington, D.C.

Golden Legacy, Boundless Future:
Essays on the United States Air Force
and the Rise of Aerospace Power By
Rebecca H. Cameron and Barbara Wittig,

This is the proceedings from a sympo-
sium, held in May 1997, that marked the
fiftieth anniversary of the United States
Air Force. If I could have only one book in
my library on who we in the Air Force are
and how we got here, Golden Legacy,
Boundless Future would have to be it.

The symposium’s eighteen papers,
four speeches, and roundtable discussion
lay out a superb history of the USAF from
its earliest days in the U.S. Army Signal
Corps through modern times. They cover
not just our glorious operational history,
but the less celebrated areas of logistics,
technology, doctrine, and people. The con-
ference begins with the roundtable.

Individual presentations then fall into six
major categories: the road to indepen-
dence, roles and missions, combat support,
documentary for strategic air attack, the Air
Force at war, and advances in technology.

Interspersed are the four addresses.
At some symposia, attendees hear a few
papers that are real standouts—interest-
ing, thought provoking, and dynamic—
while others are fillers. There was not one
dud among the papers here. The eighteen
distinguished historians kept their topics
tight and to the point and had little over-
lap with other presentations. While it is
difficult to select favorites from superbly
written, top-notch papers on fascinating
topics, my personal interest leads me to the
discussion dealing with the road to an indepen-
dent USAF. Flying in the face of Air Force
lore, the reader will find little here on Billy
Mitchell. While certainly the loudest and
most flamboyant of the early advocates of
air power, Mitchell may have done as much
harm as good. These papers clearly show
that Mason Patrick, Hap Arnold, Dwight
Eisenhower, Lauris Norstad, and George
Marshall were the real architects of today’s
Air Force, often operating quietly—but
effectively—in the Washington bureaucrac-
try.

Also found in the papers are concise
histories of Air Force logistics, airlift,
reconnaissance, and space operations, as
well as new looks at World War II’s
Combined Bomber Offensive, command
and control, and the changes in the USAF
over the past several decades. Again, every
paper is first-rate and well worth reading.
Eight distinguished former USAF leaders
participated: Gen. Bryce Poe II (Air Force
Logistics Command) moderated the round-
table with Gen. Bernard Schriever (Air
Force Systems Command), General Jacob
Smart (EUCOM Deputy Commander), Lt.
Gen. Devol Brett (Commander, Allied Air
Forces Southern Europe), and Lt. Gen.
Thomas McInerney (Assistant Vice Chief
of Staff). Discussing the topic of “turning
points,” their views were varied and per-
haps surprising, but all were fascinating.
Former Secretary of the Air Force Eugene
Zuckert, Gen. John Chain (Strategic Air
Command), Gen. Ronald Fogleman (Chief
of Staff), and General Poe addressed sever-
al historical perspectives as well as the
future of aerospace power.

Whether enlisted, officer, or civilian;
active duty, Air National Guard, or Air
Force Reserve; active or retired; this is a
book that is a must read for every member
of the USAF’s Total Force.

Col. Scott A. Willey, USAF (Ret), Docent,
NASM’s Garber Facility


PROSPECTIVE REVIEWERS

Anyone who believes he or she is qualified to substantively assess one of the new books listed above is invited to apply for a gratis copy of the book. The prospective reviewer should contact:

Dr. Michael L. Grumelli
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**Volume 14**, History of Rocketry and Astronautics (18th and 19th IAA History Symposia), T.D. Crouch and A.M. Spencer, eds., 222p., hard cover $25.00; soft cover $17.50.


**Volume 16**, Out from Behind the Eight-Ball: A History of Project Echo, by D.C. Elder, 176p., hard cover $25.00; soft cover $15.00.

**Volume 17**, History of Rocketry and Astronautics (22nd and 23rd IAA History Symposia), J. Becklake, ed., 480p., hard cover $30.00; soft cover $20.00.

**Volume 18**, Organizing the Use of Space: Historical Perspectives on a Persistent Issue, R.D. Launius, ed., 232p., hard cover $30.00; soft cover $20.00.

**Volume 19**, History of Rocketry and Astronautics (24th IAA History Symposium), J.D. Hunley, ed., 318p., hard cover $30.00; soft cover $20.00.

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**Volume 21**, History of Rocketry and Astronautics (26th IAA History Symposium), Philippe Jung, ed., 368p., hard cover $30.00; soft cover $20.00.

**Volume 22**, History of Rocketry and Astronautics (27th IAA History Symposia), Philippe Jung, ed., 418p., hard cover $30.00; soft cover $20.00.

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2002

January 3-6

The American Historical Association will hold its annual meeting in San Francisco, California. This year’s theme will be “Frontiers.” Contact: Philippa Levine Dept. of History University of Southern California Los Angeles CA 90089-0034 Tel.: (213) 740-1670, fax –6999 e-mail: philipps@usc.edu

January 24-25

The Department of History at New Mexico State University and the New Mexico Farm & Ranch Heritage Museum are co-sponsoring a World War II home front symposium entitled Labor in the Southwest, 1943-46: A Symposium to be held in Las Cruces, N.M. Contact: Dr. Jon Hunner Department of History P.O. Box 30001, MSC 3H New Mexico State University Las Cruces, N.M. 88003-8001 e-mail: jhunner@nmsu.edu

February 13-17

The Southwest/Texas Popular Culture Association and American Culture Association will host their annual Atomic Culture in the Nuclear Age at the Albuquerque Hilton Hotel in Albuquerque, New Mexico. Contact: Scott C. Zeman, Assistant Professor of History Humanities Department New Mexico Tech 801 Leroy Place Socorro, New Mexico Tel.: (505) 835-5628, Fax x5544 e-mail: szeman@nmt.edu Website: http://www2.h-net.msu.edu/~swpca/

February 14-15


February 15-16

The 4th Annual Society for Military and Strategic Studies’ Student Conference is entitled “War & Security: Historical Perspectives, Contemporary Interpretations, and Science & Technology: Missing Dimensions.” The Conference will be held at the University of Calgary, in Calgary, Alberta, Canada. Contact: Jillian Dowding / Chris Bullock Centre for Military and Strategic Studies University of Calgary 2500 University Drive NW Calgary, Alberta T2N 1N4 Tel.: (403) 220-7091 Fax 282-0594 e-mail: smss@ucalgary.ca

March 6-9

The American Association for History and Computing will hold its annual meeting at the Nashville Marriott Hotel, Nashville, Tennessee. This year’s theme will be “Reading Clio’s Compass: Assessing Where We Are with History and Instructional Technology.” Contact: Ken Dvorak, Secretary and Director of Publicity AAHC Lansing Community College Lansing, Michigan, 40010 Tel.: (517) 483-1280 e-mail: kdvorak@lansing.cc.mi.us

March 7-9

The U.S. Military Academy will host a conference, “Making History: West Point at 200 Years,” in commemoration of its bicentennial. Contact: Capt Kevin Clark Dept. of History United States Military Academy West Point NY 10996 Tel.: (845) 938-5083 e-mail: kk7457@usma.edu

March 7-9

The Citadel will host a Conference on American Women and the Military in Charleston, South Carolina. Contact: Catherine Clinton 17 Sheepill Road Riverside, CT 06878 Tel.: (203) 637-7507 e-mail: redhead2@mail.idt.net
March 13-15
The **Women in Aviation International** 2002 Conference will be held at the Opryland Hotel in Nashville, Tennessee. Contact:

Women in Aviation, International  
P.O. Box 11287  
Daytona Beach, FL USA 32120-1287  
Tel.: (386) 226-7996, Fax 226-7998  
e-mail: wiai@wiai.org  
Website: http://www.wiai.org

March 14-16
The **Society of Experimental Test Pilots** will hold its 32nd San Diego Symposium at the Catamaran Resort in San Diego, California. Contact:

SETP  
P.O. Box 986  
Lancaster CA 93584  
Fax (805) 940-0398  
e-mail: setp@netport.com  
Website: http://www.setp.org

March 14-17
The **20th Annual Mephistos Conference** on Science and Technology History Studies will be held on the campus of Virginia Tech in Blacksburg, Virginia. Contact:

Mephistos 2002  
Graduate Program in Science and Technology Studies  
Virginia Tech  
131 Lane Hall  
Blacksburg, VA 24061-0227  
Tel.: (540) 231-6547, Fax x7013  
e-mail: meph2002@vt.edu

March 16-19
The **National Air & Space Museum** will host its 15th Annual Mutual Concerns of Air & Space Museums Seminar in Washington, DC. Contact:

Jane Pisano  
National Air & Space Museum - MRC 310  
Smithsonian Institution  
Washington DC 20560-0310  
Tel.: (202) 357-4473, Fax x4579  
e-mail: jane.pisano@nasm.si.edu

March 19-20
The **American Astronautical Society** will host its 40th Annual Goddard Memorial Symposium at the Greenbelt Marriott Hotel in Greenbelt, Maryland. Contact:

The American Astronautical Society  
6352 Rolling Mill Place, Suite 102  
Springfield VA 22152-2354  
Tel.: (703) 866-0020  
e-mail: info@astronautical.org  
Website: http://www.astronautical.org

**Time in April to be Determined**
A symposium on the **Falklands War** and its consequences entitled **The Falklands/Malvinas Conference: Twenty Years On** will be held in Portsmouth, England. Contact:

Dr Lucy Noakes, faculty of Media, Arts and Society  
Southampton Institute  
East Park Terrace  
Southampton, Hampshire SO14 0RF  
United Kingdom  
e-mail: lucy.noakes@solent.ac.uk

April 4-7
The **Society for Military History** will hold its 69th annual meeting at the Monona Terrace in Madison, Wisconsin. This year’s theme is “War and Remembrance: Constructing the Military Past and Future.” Contact:

Jerry Cooper  
Department of History  
University of Missouri-St. Louis  
Tel.: (314) 516-5735  
Website: http://www.smb-hq.org

April 11
The **Society for History in the Federal Government** will hold its annual meeting at the Library of Congress, Jefferson Building, Washington, DC. The program will be “A Dynamic Relationship: The Federal Legislature, Executive and Judiciary in Operation.” Contact:

Ray Smock, SHFG President  
6824 Nashville Road  
Lanham, MD 20706  
Tel.: (301) 552-3907, Fax x4907  
e-mail: RaySmock@aol.com  
Website: http://shfg.org/index.htm

April 11-12
The **American Institute of Aeronautics and Astronautics** will co-host the 1st AIAA/IAF Symposium on Future Reusable Launch Vehicles in Huntsville, Alabama. Contact:

AIAA  
1801 Alexander Bell Dr, Ste 500  
Reston VA 20191-4344  
Tel.: (703) 264-7500, (800) NEW AIAA,  
Fax 264-7551  
Website: http://www.aiaa.org

April 11-14
The **Organization of American Historians** and the **National Council on Public History** will co-host their respective annual meetings at the Renaissance Washington Hotel in Washington, D.C. The theme of their joint sessions will be “Overlapping Diasporas: Encounters and Conversions.” Contact:

Convention Manager  
Organization of American Historians  
112 North Bryan Avenue  
Bloomington IN 47408-4199  
Tel.: (812) 855-7311, fax –0696  
E-Mail: meetings@oah.org  
Website: http://www.oah.org/meetings/index.html

April 18-20
The **44th Annual Missouri Conference on History** will convene at the Marriott Crown Plaza Hotel in Kansas City, Missouri. The program will include a special session on the Korean War. Contact:

Tim Rives  
National Archives-Central Plains Region  
2312 E. Bannister Rd.  
Kansas City, MO 64131  
Tel.: (816) 823-5031, fax 926-6982  
e-mail: timothy.rives@nara.gov
April 19-21
The Annual Meeting of the Business History Conference will be held at the Hagley Museum & Library in Wilmington, Delaware. This year’s theme will be “Corporate Governance.” Contact: Roger Horowitz, Secretary-Treasurer Business History Conference P.O. Box 3630 Wilmington DE 19807 Tel.: (302) 658-2400, x244 e-mail: rh@udel.edu Website: http://www.hagley.org

April 24
The U.S. Naval Institute’s 128th Annual Meeting and 12th Annapolis Seminar will be held in Alumni Hall at the U.S. Naval Academy in Annapolis, Maryland. Contact: U.S. Naval Institute 291 Wood Rd Annapolis MD 21402 Tel.: (410) 268-6110, Fax 269-7940 e-mail: foundation@usni.org Website: http://www.usni.org

April 26-28
The 11th Annual Seminar of the Great War Society will be held at the Sheraton Newton Hotel in Newton, Massachusetts. This year’s theme is “The Russian Revolution, 1917-1921.” Contact: Mike Hanlon The Great War Society Box 18585 Stanford CA 94309 Website: http://www.worldwar1.com/tgws

May 8-9
Topics for the Nat’l Naval Aviation Museum’s 2002 Symposium will include “Naval Air War in Korea,” “Space Pioneers: The Mercury Astronauts,” “Naval Aviation: Issues and Answers,” and “Fighters!” Contact: National Museum Of Naval Aviation 1750 Radford Blvd. N.A.S. Pensacola, FL 32508 Tel.: (850) 452-3604 or (850) 452-3606, Fax x3296 e-mail: Naval.Museum@smtp.cnet.navy.mil Website: http://www.naval-air.org

May 11-15
The Army Aviation Association will hold its annual convention in Nashville, Tennessee. Contact: AAAA National Office 49 Richmondville Ave Westport CT 06880 e-mail: aaaa@quad-a.org Website: http://www.quad-a.org

May 16-19
The Historical Society will hold its third national meeting in Atlanta, Georgia. This year’s theme is “Historical Reconstructions.” Contact: The Historical Society Attn: 2002 Program Director 656 Beacon Street, Mezzanine Boston MA 02215-2020

May 20-22
The American Institute of Aeronautics and Astronautics will host its 1st Annual Conference and Workshop on Unmanned Aerospace Vehicles, Systems, Technologies, and Operations in Portsmouth, Virginia. Contact: AIAA 1801 Alexander Bell Dr, Ste 500 Reston VA 20191-4344 Tel.: (703) 264-7500, (800) NEW AIAA, Fax 264-7551 Website: http://www.aiaa.org

May 30
The Journal of Policy History will host a Conference on Policy History to be held in St. Louis, Missouri. Contact: Journal of Policy History Saint Louis University 3800 Lindell Blvd. P. O. Box 56907 St. Louis, MO 63156-0907 e-mail: dcritchlow@compuserve.com Website: http://www.slu.edu/departments/jph

June 6-7
Siena College is sponsoring its 17th Annual Conference on the 60th Anniversary of World War II. The focus for 2002 will be 1942. Contact: Professor Thomas O. Kelly, II Department of History Siena College 515 Loudon Road Loudonville, NY 12211-1462 Tel.: (518) 783-2512, FAX 786-5052 e-mail: legendziwie@sienna.edu Website: http://www.siena.edu/sri/wwii/

June 11-13
The American Helicopter Society will hold its annual convention and exhibition at the Montréal Convention Center, Montréal, Quebec, Canada. This year’s theme is “Vertical Flight Technology: Building Global Consensus.” Contact: AHS International - The Vertical Flight Society 217 N. Washington Street Alexandria, VA 22314-2520 Tel.: (703) 684-6777, Fax 739-9279 e-mail: Staff@vtol.org Website: http://www.vtol.org/index.html

July 9-11
The Association For Unmanned Vehicle Systems International will hold its annual symposium and exhibition at the Disney Coronado Springs Resort in Orlando, Florida. Contact: AUVSI 3401 Columbia Pike Arlington VA 22204 Tel.: (703) 920-2720, Fax x2889 Website: http://www.auvsi.org

July 10-14
The Council on America’s Military Past will hold its annual meeting at the Wyndham Old San Juan Hotel in San Juan, Puerto Rico. Contact: CAMP P. O. Box 1151 Ft. Myer, VA 22211 Tel.: (703) 912-6124; (800) 398-4693, Fax x5666 e-mail: nereyn@earthlink.net or camp@campart1@aol.com Website: http://www.campjamp.org/
September 5-8

The 45th Annual Tailhook Convention and Symposium will be held at the Nugget Hotel and Casino in Sparks (Reno), Nevada. Contact:
The Tailhook Association
9696 Business Park Ave.
San Diego CA 92131
Tel.: (858) 689-9223/(800) 322-4665
e-mail: thookassn@aol.com
Website: http://www.tailhook.org

September 16-18

The Air Force Association will hold its annual National Convention & Aerospace Technology Exposition at the Marriott Wardman Park Hotel in Washington, D.C. Contact:
Air Force Association.
1501 Lee Highway
Arlington, VA 22209
Website: http://www.afa.org

October 2-5

The Society of Experimental Test Pilots will hold its 46th Annual Symposium and Banquet at the Westin Bonaventure Hotel & Suites in Los Angeles, California. Contact:
SETP
P. O. Box 986
Lancaster CA 93584
Fax (805) 940-0398
e-mail: setp@netport.com
Website: http://www.setp.org

November 7-9

A Conference on Cities as Strategic Sites: Militarization, Anti-Globalism, and Warfare will be held in Manchester, England. Contact:
Stephen Graham
Professor of Urban Technology
School of Architecture, Planning and Landscape
3rd Floor, Claremont Tower
University of Newcastle upon Tyne
Newcastle upon Tyne NE1 7RU, U.K.
e-mail: s.d.n.graham@ncl.ac.uk
Tel. +44(0) 191 222 6808, Fax +44(0) 191 222 8811
Website: <http://www.ncl.ac.uk/cut/>

If you wish to have your event listed, contact:
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The readers of Air Power History know their airplanes—and their helicopters, too. Once again, readers correctly identified last issue’s “What Is It?” flying machine. But only about a dozen sent postcards, compared with the usual forty-five to fifty. Aren’t readers interested in helicopters?

Well, okay, maybe there’s another reason for the low turnout. How can we put this? We goofed. Although the photos are different, the aircraft used as our Fall 2001 History Mystery was an unintentional repeat, having previously appeared in the Winter 1998 issue of this journal.

The Sikorsky R-6 helicopter was developed in 1944, and was powered by a 255-hp Lycoming O-435 piston engine. Sikorsky and Nash Kelvinator built 193 for the Army Air Forces, the Navy and Coast Guard (as the HOS-1) and the Royal Air Force (as the Hoverfly Mk. II). The R-6 was replaced by the R-5 (redesignated H-5 in 1948), which became a familiar sight in the Korean War.

Our Fall 2001 mystery photo showed a Civil Air Patrol member in the cockpit of Nash R-6A no. 43-45399 at Bellows Field, Oahu, in 1948. The photo came from Lincoln Higa, historian for the 15th Air Base Wing at Hickam Air Force Base, Hawaii—but the photographer’s name is not known. Can anyone provide further details?

Our follow-up illustration is a Coast Guard photo of an HOS-1 model.

Our “History Mystery” winner is Thomas Hitchcock of Washington, Utah. Thanks to all who joined in our “name the plane” exercise.

Once again, we challenge our ever-astute readers. See if you can identify this month’s “mystery” aircraft. But remember the rules, please.

1. Submit your entry on a postcard. Mail the postcard to Robert F. Dorr, 3411 Valewood Drive, Oakton VA 22124.

2. Correctly identify the aircraft shown here. Also include your address and telephone number, including area code. If you have access to e-mail, include your electronic screen name.

3. A winner will be chosen at random from the postcards with the correct answer. The winner will receive a recently-published aviation book as a prize.

This feature needs your help. In that attic or basement, you have a photo of a rare or little-known aircraft. Does anyone have color slides?

Send your pictures or slides for possible use as “History Mystery” puzzlers. We will return them.
Medals Are Earned!

I was amazed to see Air Power History ("Air Force Historian Wins Silver Star," page 38, Vol. 48, No. 2) use the term “wins” for a combat medal! Yikes. I do hope you put something into your style manual about this to prevent future mistakes.

MSgt. David W. Menard, USAF (Ret.), Huber Heights, Ohio

Editor’s reply: Of course you are correct that combat medals are earned. In this case Bob Phillips earned the medal during the war, but it took him fifty years to win recognition.

John M. Fitzpatrick, McLean, Virginia.

The F-15 Eagle

Reading Jacob Neufeld’s excellent article on the F-15 development (Air Power History, Vol. 48, No. 1) brought back a lot of old memories and explained some of what happened long before I joined the F-15 program on December 17, 1969, or things that I had forgotten about as the years have passed.

Since I was involved in the engine work, I am compelled to point out a couple of technicalities. In the engine section, reference is made to the TF-30. Turbine engines never use a dash in the designation; it is TF30. I have been trying to tell people for thirty years that there is a lot of difference between an F-100 Super Sabre aircraft and an F100 engine.

Also, the author notes the common core engines, F100 and F401, “differed in the fan, afterburner, and compressor sections.” Actually, it was the fan, afterburner (or augmentor in its official designation), and turbine sections. The common core was the compressor, combustor, and high-pressure turbine. The Navy’s F401 had a larger fan (low-pressure compressor) to give it the extra thrust. It also had an extra stub stage to match it to the common high-pressure compressor. With the larger fan, they needed a larger, low-pressure turbine (one of five modules) to drive it.

Finally, two observations regarding the first F-15B flight: (1) the two-seater was a TF-15A for several years, as I’m sure the author knows. He probably used the later and current “B” designation for those who today would have no idea of what a “TF was, and (2) the reference to the “F-15B flight in July,” which coming right after the PFRT date of February 1972, implies July 1972. The first TF flight took place in July 1973.

Col. Scott Willey, USAF (Ret.)

Rex Barber Dies

Rex T. Barber, a famous World War II airman, died on July 26, 2001, in Terrebonne, Oregon. He was eighty-four.

On April 18, 1943, piloting specially-equipped Lockheed P-38 Lightnings, sixteen U.S. Army Air Forces fliers took off on a 400-mile mission to intercept Japanese Admiral Isoroku Yamamoto—the mastermind of the December 7, 1941 attack on Pearl Harbor. Intercepted over the Solomon Islands, Yamamoto’s plane was shot down and the admiral killed. Historically, the shootdown was shared
between Thomas Lanphier and Rex Barber. In 1986 the American Fighter Aces Association embarked on a quest to assign sole credit to Barber. However, the U.S. Air Force denied the claim and in 1996 a federal appellate court upheld the Air Force’s ruling.

Confederate Air Force Renamed

On October 5, 2001, members of the Confederate Air Force (CAF) voted on a new name for the organization. A year ago members of the CAF voted by a margin of four to one to change the name. More than 1,000 names were proposed. Of these, four names were chosen for the ballot: Heritage Flying Museum, Ghost Squadron, Heritage Air Force, and Commemorative Air Force. The winner will be announced on December 7th and become effective on New Years Day 2002.

Note: See the story in Air Power History, Summer 2001, Vol. 48, No. 2, pp. 60-61

Look it Up!

In his review of Laurie Mylroie’s book, Study of Revenge: Saddam Hussein’s Unfinished War Against America, [Air Power History, Summer 2001, Vol 48, No. 2, pp. 52-54] Dr. Mark Mandeles wrote:

This reviewer believes that Mylroie has correctly pinpointed Saddam Hussein as the source of terrorist attacks on Americans, including the World Trade Center bombing and the attempted assassination of former President George H. W. Bush. The Clinton Administration, wittingly or unwittingly, has chosen the path of self-delusion: to not investigate the matter seriously. In this way, unpleasant policy options have not been articulated and discussed. Yet, the failure of U.S. officials to address the question of state sponsorship of terrorism will have significant consequences. It encourages future terrorist attacks by eliminating the costs of retribution from the calculations of leaders such as Saddam Hussein.

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CALL FOR PAPERS

The Canadian Society for the History and Philosophy of Science (CSHPS) is holding its annual conference at the University of Toronto, May 26-28, 2002. The program committee invites historians, philosophers, and other scholars of the social sciences and humanities to submit paper, panel or session proposals. The proposals and papers may be in English or French, and should have a title, a brief abstract of 150 to 250 words, and the complete information for correspondence. We strongly encourage e-mail submissions. Information about registration and accommodations can be found at the Humanities and Social Sciences Federation of Canada website.

Please note that the CSHPS meeting, which takes place as part of the Congress of the Social Sciences and Humanities, overlaps with the meeting dates of a number of other societies, including the Canadian Society for the History of Medicine (May 24-26), the Canadian Philosophical Association (May 25-28), the Canadian Society for the History and Philosophy of Mathematics (May 24-26), and the Canadian Historical Association (May 27-29). The CSHPS program committee welcomes suggestions for joint sessions with these and other societies.

Program Website:
http://www.er.uqam.ca/nobel/r20430/schps_toronto_2002
Canadian Society for History and Philosophy of Science:
http://www.ukings.ns.ca/cshps
The U.S. Congress has chartered a Centennial of Flight Commission, charged with leading, coordinating, and publicizing public activities to celebrate the achievements of Wilbur and Orville Wright and commemorating a century of powered flight. Made up of senior government officials, the Commission is chaired by Gen. John R. Dailey, USMC (Ret.), director of the Smithsonian Institution’s National Air and Space Museum (NASM). Other members represent the First Flight Centennial Foundation of North Carolina, the Inventing Flight: Dayton 2003 Committee of Ohio, the Experimental Aircraft Association, the Federal Aviation Administration, and the National Aeronautics and Space Administration. The First Flight Centennial Federal Advisory Board, which will support the Commission, is composed of nineteen members and is chaired by Dr. Thomas D. Crouch of the Smithsonian Institution’s NASM.

The Commission encourages national and international participation. It seeks to publicize and encourage programs, projects, and events to involve, educate, enrich, and inspire the maximum number of people. One of its primary goals is to promote awareness of the centennial and of related centennial events. To assist in achieving that goal, the Commission has created a public web page that includes activities related to the centennial of flight celebration and the history of aviation. One can visit at: http://www.centennialofflight.gov

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