INTELLIGENCE, SURVEILLANCE & RECONNAISSANCE (ISR)

Part 1 - Through World War II

1 Introduction

The National Museum of the United States Air Force began in 1923, not as a tourist attraction, but as an educational tool for Army engineers to study aeronautical engineering techniques from around the world. In the ensuing years, the museum also served as a place to study the application of air power, ballistic missiles and the contributions the Air Force made to the space race. Since 1996, the National Air and Space Intelligence Center (NASIC) has used the museum as a place to educate analysts and visitors on the evolution of intelligence, surveillance and reconnaissance (ISR). Anyone from Air Force intelligence organizations or from the Intelligence Community will find the museum an excellent place to study the role of intelligence in modern military history. The NASIC History Office created a tour of the museum that focused on the intelligence lessons the collection taught. The lessons learned in the study of intelligence history applied better to the complicated ISR mission of the 21st century when taught in such an environment. Today's intelligence analysts use the museum as a means of understanding the challenges faced by their predecessors and the technical innovation and dedicated analysis it required to overcome them.[1]

The NASIC tour follows the museum chronologically, beginning in the Early Years Gallery. The selected examples only represent a small fraction of the possible stories and the verbiage remains under constant scrutiny for accuracy and applicability. The tour script is a living document. Due to time restrictions with traveling through a massive museum, each lesson remains brief, although citations provided in the text enable further research into topics of interest. This first volume covers the years 1783 to 1945. I'm Rob Young, the NASIC historian.

Early Years Gallery

2 Stand in front of the Wright Flyer

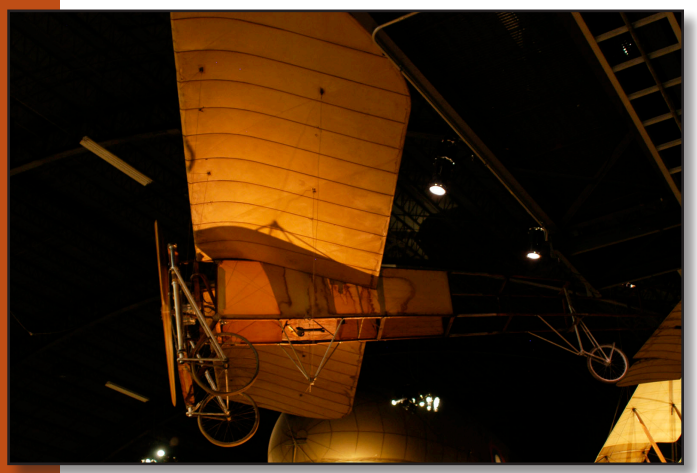
Air intelligence did not begin with the Wright Brothers. It initially became possible because of the Montgolfier brothers' first manned balloon flight on 21 November 1783. Count Pilatre de Rozier and Marquis d'Arlandes ascended up to 3,000 feet in a hot air balloon and traveled for five miles (see model above you). Eleven

[1] Fact Sheet, U.S. Air Force, "History of the National Museum of the U.S. Air Force," 5 March 2012.

years later, the French first used the balloon in combat. The Battle of Fleurus took place in June 1794, during the French Revolutionary Wars. The French defeated the Austrian Army, in part, because they could see the enemy's troop movements from above. The gas-filled balloon L'Entreprenant stayed at 1,700 feet for over eight hours, delivering messages in bags with ballast on rings down the tether lines and via semaphore. During the American Civil War, men like Thaddeus Lowe also used the balloon to collection intelligence. Like today's satellites and remotely piloted aircraft (RPA), the intelligence sensor collected what the warfighter needed and delivered it down the line, enabling the leaders to correctly deploy troops in response and win the battle.[2]

The Wright Brothers understood the potential of air intelligence. After Wilbur made the first "practical" long, circular flight at Huffman Prairie in October 1905, the property's owner, Torrence Huffman, asked him, "What's it good for?" Wilbur answered, "War."[3] Even the Wright Brothers realized their new invention's potential reconnaissance value. When the Army purchased the Model 1909 Flyer in 1909, the first fixed-wing military aircraft became a reality. The 1909 Flyer put the U.S. Army in the history books as the first operator of a fixed-wing reconnaissance aircraft. However, it was the Italians that first used fixed-wing aircraft in combat.[4]

3 Move under the Bleriot XI



Wilbur Wright enabled the first use of airplanes in combat by teaching two Italian officers to fly in 1909. The Italians used airplanes in Libya during the Italo-Turkish War of 1911. That conflict marked the first use of reconnaissance aircraft (a Bleriot XI on 23 October 1911) and the first bombing attack (a German Etrich Taube on 1 November 1911). The Italians even took photographs from their newly-discovered intelligence platform. However, many nations, including the U.S., lacked vision as to the airplane's potential. Although U.S. Army aviators fired the first machine gun off an airplane in 1912, the Army General Staff commented that "thoughts of air battles were purely the product of the young fliers' fertile imaginations."[5] As the world entered a major conflict in 1914, the airplane and the art of air intelligence took on an entirely new significance.[6]

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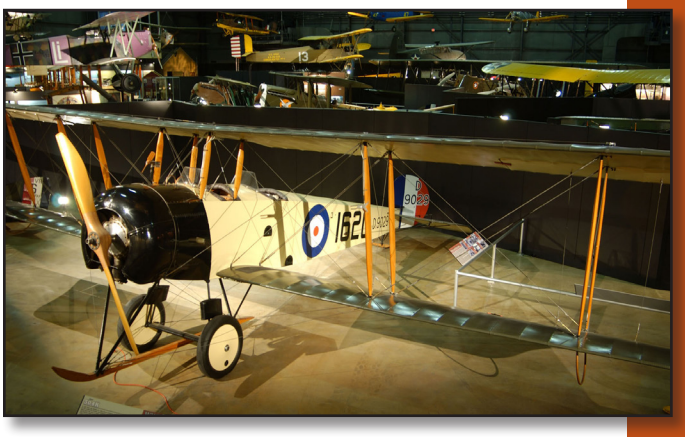
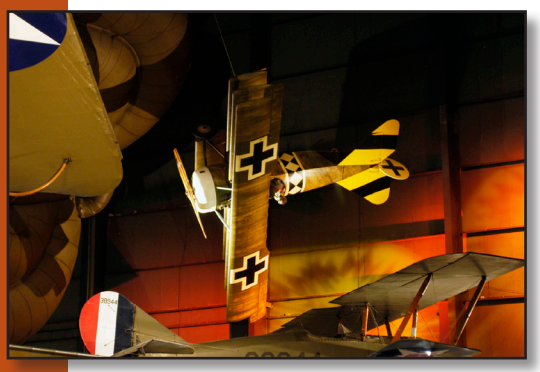
[2] Alfred G. Hildebrandt, *Airships Past and Present,* (London: Archibald Constable & Co. Ltd, 1908), pp 129-133.
[3] James Tobin, *To Conquer the Air,* (New York, N.Y.: Free Press, 2003), p 237.
[4] Fact Sheet, U.S. Air Force, "Wright 1909 Military Flyer," 25 August 2009.
[5] Fact Sheet, U.S. Air Force, "Machine Gun Fired From an Airplane," 5 June 2009.
[6] R.G. Grant, *Flight - 100 Years of Aviation,* (London: Dorling-Kindersley Limited, 2004), p 59.

4 Move to the Avro 504

When World War I started, all the warring powers had airplanes, but lacked in a complete understanding of their potential. British and French aviators made critical reconnaissance observations that helped save 100,000 British troops from capture at Mons and win the First Battle of the Marne. One of the most difficult tasks was getting ground commanders to believe them. The French aviators took up artillery officers to view German gun positions. They asked to bring their personal cameras and it became standard to use cameras. The military proved reluctant to invest however. After being asked for money to buy cameras, a French officer stated, "use a Kodak that you can purchase from a local shop…don't ask the government to pay for this."[7] A French general stated, "I already have a map, I don't care about your pictures."[8] Troops on the ground understood that an airplane overhead meant accurate, correctable artillery fire and they learned to hate early reconnaissance aircraft. The first fixed-wing aircraft ever shot down in combat was a British Avro 504 like the one here, lost to German rifle fire over Belgium in August 1914, while doing reconnaissance. The other main sources of intelligence in World War I were: human intelligence (HUMINT), which mainly came from spies, prisoners, repatriated troops and patrol reports; ground observation from infantry and artillery; captured documents; radio intercept and direction finding (SIGINT) and sound ranging (ACOUSTINT)/flash spotting from artillery. Photos validated everything gleaned from the other sources of intelligence.[9]





5 Move under the Fokker Dr. I

The Germans used basically the same rotary aircraft engine as the French and the British, because they licensed it before the war. As the Fokker Triplane's Oberursel engine became harder to replace later in the conflict, the German ace Josef Jacobs used Foreign Materiel Acquisition (FMA) to solve the problem. He offered a case of champagne to any soldiers that brought him an allied rotary engine from downed enemy aircraft in good condition. The ace not only had a good stock of engines, but the Sopwith Camel's 130-horsepower Clerget rotary and propeller combination gave the Dr. I 20 additional horsepower, resulting in increased speed and performance. Even one of Jacobs' American victims expressed astonishment at the speed of his Fokker.[10]

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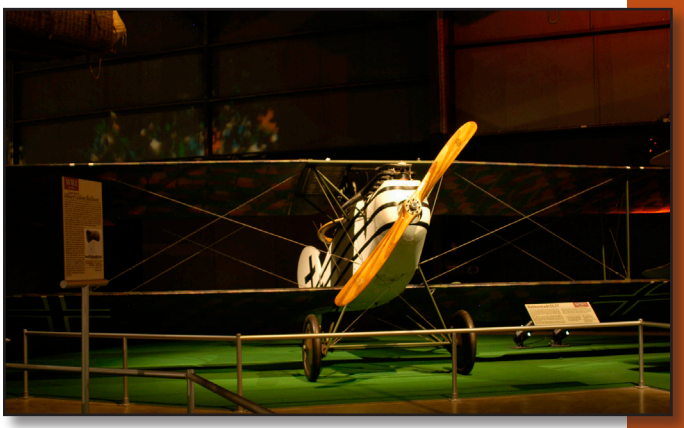
[7] Terrence J. Finnegan, Col, USAFR Ret, *Shooting the Front: Allied Aerial Reconnaissance and Photographic Interpretation on the Western Front – World War I,* (Washington DC: National Defense Intelligence College Press, 2006), p 34.
[8] Ibid.
[9] Finnegan, pp 19, 21, 23-25, 33, 172.
[10] Norman Franks and Greg VanWyngarden, *Fokker Dr I Aces of World War I,* (Oxford: Osprey Publishing, 2001), pp 72-73.

6 Move to the Sopwith Camel

One Foreign Materiel Exploitation (FME) story during the war involved the synchronized machine gun. French pilot Roland Garros and his mechanic armored his prop with steel plates to enable a machine gun fire through it. He said about one in 10 bullets would ricochet. Garros downed several German aircraft with it before going down behind enemy lines. The Germans tried to copy his design with disastrous results because the French used copper-jacketed bullets and the Germans used steel-jacketed ones that shattered the wedges and the props. Anthony Fokker's engineers fully realized the idea of the mechanically synchronized machine gun to fire through the prop. They made it work thanks to basic engineering and more dependable German ammunition. The Fokker Scourge ensued, where the Fokker Eindecker fighter wreaked havoc on Allied aircraft for a number of months. The British also developed mechanically synchronized gear, but took a different approach as well. Using the Theory of Sonics developed by Romanian physicist George Constantinescu, they used vibrations transmitted through a mixture of kerosene and oil to outperform mechanical systems. As a bonus, when German engineers tried to copy it they failed, believing it was a simple hydraulic system. The truth remained a secret until after the war.[11]

7 Move to the Halberstadt CL IV



Although the museum's German Halberstadt CL IV is technically an attack aircraft, it looks like the standard observation aircraft of the First World War, with pilot in front and armed observer in back. Early in the war, it became obvious that the aircraft and the artillery battery required the same map to be successful. The British developed a pair of maps with numbered and lettered 400-yard squares known as a "squared map." The observation aircraft could drop instructions on the battery. Later, the use of the wireless telegraph enabled the air crews to exactly target enemy positions. A 120-foot long wire antenna that extended out the back of the aircraft increased the range of the early radio sets. The Germans believed the observer, not the pilot was really the guy in charge. He ran the collection mission, took the photos, handled the wireless and shot the rear guns.[12]

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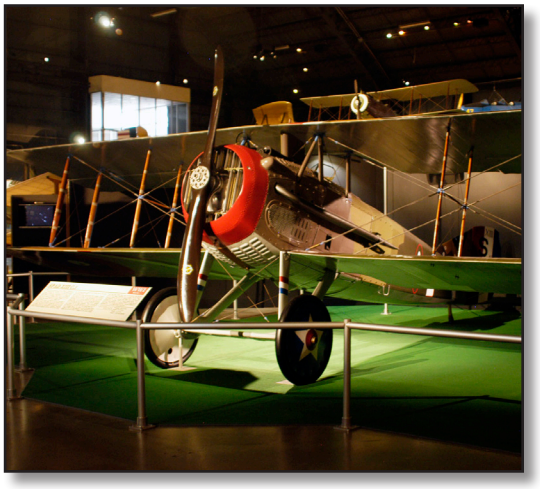
[11] D. Edgar Brannon, *Fokker Eindecker in Action,* (Carrollton, Texas: Squadron/Signal Publications, 1996), pp 11-13; Jon Guttman, *Sopwith Camel,* (Oxford: Osprey Publishing, 2012), pp 16-17.
[12] Finnegan, p 31.

8 Move to the Caquot Balloon

The stationary observation balloon, or aerostat, had an advantage over aircraft in that it had a direct telephone line to the artillery battery, giving near real-time reconnaissance feedback during an attack. The armies deployed them no closer than three miles from the front, and two observers normally ascended to 3,600 feet. While fixed-wing aircraft used square maps, the balloon used fan-shaped maps due to their specific field of view. Armies did not begin an offensive without their balloon intelligence sensors on station. The old term "when the balloon goes up" meant an engagement was about to begin. Because it was a very important static reconnaissance platform with a telephone directly to the artillery batteries, they became important targets for fighters.[13]



9 Move to the SPAD XIII

The German fighters of World War I inflicted tremendous losses on the opposing photo-reconnaissance sorties. To counter those losses, France began configuring single seat fighters, such as this SPAD XIII for high-speed reconnaissance. The mission did not call for extreme fighter-like maneuvering, but very fast, level flight, at high-altitude. The 94th Aero Squadron had one aircraft configured for the high speed reconnaissance mission.[14]

10 Move under the Fokker D.VII

The Fokker D.VII was arguably the best fighter aircraft of World War I. As a part of the Armistice Agreement, the U.S. received 142 Fokker D.VII aircraft as war reparation payment. Eleven of them came here to Dayton, Ohio, to the Engineering Division at McCook Field. There, engineers made extensive modifications to their powerplants by installing Liberty and Packard engines. They also gave them "P" designators, such as P-108 and P-127. The Army Air Service pilots all agreed that none of the U.S. modifications made the aircraft fly as well as the unmodified German version. None of the original McCook Field aircraft exist today, and only three of the original 142 brought to the U.S. remain. The museum's example is a reproduction.[15]

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[13] Finnegan, pp 37, 294, 334-335.
[14] Ibid., pp 338, 340.
[15] D. Edgar Brannon, *Fokker D.VII in Action,* (Carrollton, Texas: Squadron/Signal Publications, 1996), p 35.

11 Move to the DH-4

The U.S. developed an aircraft-mounted radiotelephone near the end of the war known as the SCR-68 (Set, Complete, Radio). This DH-4 has one, indicated by the generator on the wheel strut. That generator is a good example of linking a modification to a new capability: voice communication instead of telegraphy. The U.S. Army Signal Corps discovered many problems with it, primarily its inability to communicate beyond three miles. To communicate with the ground-mounted SCR-67, the observer extended a 300-foot, long wire antenna out the rear of the aircraft. The SCR-68 was one of the first steps towards developing more effective messaging system between pilots and commanders and opened a whole new challenge for signals intelligence (SIGINT).[16]

12 Move to the Caproni Bomber

Strategic bombing became a reality in World War I with both Zeppelin and fixed-wing crews attacking infrastructure targets and even civilian populations. Fiorello La Guardia, congressman from New York and future mayor of New York City, led about 100 Americans that flew Italian-built Caproni bombers for the Italian Air Force. While he used his political influence in ways few U.S. Army captains have ever experienced, he also trained and equipped bomber crews that flew 65 bombing missions for Italy. The bomber advocates became dedicated aerial reconnaissance advocates as well, because when the crews took their own strike photos, it validated their mission and existence. Intelligence people had to learn to interpret those strategic strike photos from bombers and zeppelins — that was the beginning of strategic Bomb Damage Assessment (BDA).[17]

13 Move to the O-47B

Moving into the World War II years, the circular radio directional finder antenna on top of the museum's O-47B recalls an interesting intelligence episode early in the war: The Battle of the Beams. Knickebein (Crooked Leg) was a German program that used two radio beams to accurately navigate and bomb at night. British intelligence at the Air Ministry, led by Reginald V. Jones, were aware of the system initially because a downed German bomber's Lorenz navigation system was analyzed and seen to be far too sensitive to be

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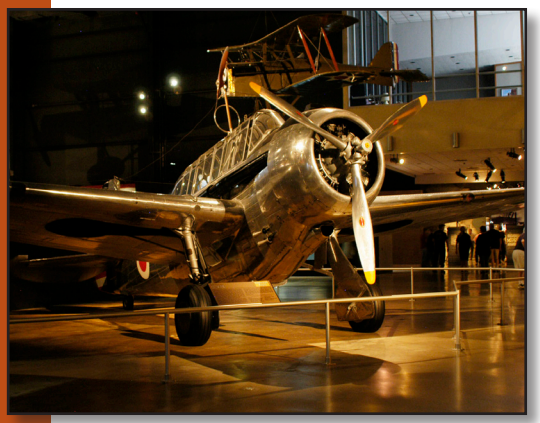
[16] Joseph O. Mauborgne, Major, U.S. Army, *Radio Communication for the Field Artillery,* (Fort Sill, Oklahoma: Field Artillery Journal, May-June 1921), p 273-274.

[17] James J. Hudson, *Hostile Skies: A Combat History of the American Air Service in World War I,* (Syracuse, N.Y.: Syracuse University Press, 1968), pp 242-249; Finnegan, p 312.



a mere landing aid. A search by the British found two German signals met over the Rolls-Royce engine plant at Derby, England. The British also secretly recorded transcripts from German POW pilots indicating the existence of bombing beams. In addition, Churchill received Ultra intelligence mentioning "bombing beams." The German signal used a Morse code dot for the area left of the correct heading and dashes for right and they blended into the beam when on course. The British used deception by placing false dots into the German signals to confuse the bomber crews and make them miss.[18]

World War II Gallery

14 Move to the Enigma, behind the B-18

The cipher machine known as Enigma encrypted and decrypted secret message traffic for the Germans in World War II. Although invented in the early 1920s, Germany used it before and during the war. The Polish Cipher Bureau earned the distinction of first breaking Enigma ciphers in December 1932. Beginning in 1938, the Germans increased the complexity of the Enigma system, which required the Poles to develop a calculating computer known as a Bomba. Realizing the German plans to invade their country, the Poles turned the Enigma secret over to French and British military intelligence in July 1939. With that information, British codebreakers decrypted almost 84,000 messages a month from 1943 until the end of the war. The Allies codenamed the intelligence collected by this SIGINT source, "Ultra." It provided critical intelligence that saved countless Allied lives and speeded the ultimate victory.[19]

15 Move to the Zero

One of the greatest Foreign Materiel Exploitation stories of World War II was the testing of a crashed Japanese Navy A6M2 Zeke, known as Koga's Zero. After the Japanese attack on Dutch Harbor, Alaska, in June 1942, a Zero piloted by an Ensign Koga, crash-landed on an island in the Aleutians. A PBY Catalina spotted the Zero. Navy personnel recovered it, buried the pilot and took the aircraft to San Diego. After making it flyable, the Navy conducted performance and vulnerability testing against all American fighter aircraft. They learned that the Sakae

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[18] Reginald V. Jones, *Most Secret War,* (London: Hamish Hamilton Ltd, 1978).
[19] Diane T. Putney, *ULTRA and the Army Air Forces in World War II: An Interview with Associate Justice of the U.S. Supreme Court Lewis F. Powell, Jr.,* (Washington D.C.: Office of Air Force History, 1987), pp ix-xii.

engine was carbureted and cut out in a negative G maneuver. The aircraft rolled faster to the left than to the right and that in a high speed dive the Zero's controls stiffened due to compressibility issues. By November 1942, all the intelligence went to the fleet and the tide turned against the Zero. It was an intelligence treasure and one of the great FME projects of the war.[20]

16 Move to the A-24 Dauntless

During the first months of the war in the Pacific, the Navy OP-20-G group broke the very complex Japanese Imperial Navy JN-25 code. In decrypted transmissions, they saw the code "AF" mentioned several times and thought it might mean an attack was coming on that location. To affirm it was Midway Island, they used a communications cable that ran on the bottom of the ocean and had the Navy send a "in the clear" radio message that said, "water distillation plant damaged…send fresh water." The JN-25 code then produced a message saying, "AF needs fresh water." They knew where and when the attack would happen as well as enemy strength because of SIGINT. It helped win the Battle of Midway and became one of the greatest intelligence coups in naval history.[21]

17 Move to the Macchi MC.200

The Italian aircraft on display is a Macchi MC.200 and it represented the British technical intelligence cooperation the US received in World War II. The aircraft transferred from a squadron in Italy to the 165th Squadron in North Africa during November 1942. The Italians abandoned it at Benghazi airfield following the battle of El Alamein and General Montgomery's forces captured it there. After the British completed their examination of it, the U.S. shipped the MC.200 here to Wright Field. From here, it went on a war bond tour around the country.[22]

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[20] Jim Reardon, *Koga's Zero: The fighter that changed World War II,* (Missoula, Montana: Pictorial Histories Publishing Company, Inc., 1995).
[21] John Keegan, *Intelligence in War: The value-and limitations-of what the military can learn about the enemy,* (London: Random House Group Ltd., 2002), pp 202-204; 210.
[22] Fact Sheet, U.S. Air Force, "Macchi MC.200 Saetta," 4 February 2011.

18 Move to the P-38

The P-38 played a critical role in applying the decisions of national policy makers after intelligence provided critical information. On 14 April 1943, the U.S. naval intelligence effort, code-named "Magic," intercepted and decrypted a message containing specific details regarding an upcoming inspection tour by Admiral Isoroku Yamamoto, the commander of Japan's Combined Fleet. The SIGINT collection provided arrival and departure times and locations, as well as the number and types of planes that would transport and accompany him on the journey. The message gave Yamamoto's 18 April flight information from Rabaul to Ballale Airfield on an island near Bougainville in the Solomon Islands. When presented with the intelligence, President Franklin D. Roosevelt ordered Secretary of the Navy Frank Knox to "Get Yamamoto." Knox instructed Admiral Chester W. Nimitz of Roosevelt's wishes. Admiral Nimitz then authorized a mission on 18 April to intercept Yamamoto's flight and shoot it down. Lockheed P-38 Lightnings from the 339th Fighter Squadron found Yamamoto and killed him as a result of the intelligence data that enabled policy makers to direct the attack.[23]

19 Move to the Spitfire

The Spitfire's PR, or photo reconnaissance, variant proved to be extremely successful in the imagery collection role. The camera-equipped fighter aircraft accomplished several key reconnaissance missions. For the high-altitude, highspeed area coverage missions, the pilot of a high-flying fighter kept constant watch on the rear-view mirror to make sure that a contrail did not reveal his presence. Once over the target, the pilot maintained a precise course and altitude setting to collect a wide-area view of the situation on the ground. If photo-interpreters identified an important target, such as a V-1 launch site, another mission flew in low. Those missions presented more danger than the high-altitude missions. At high-speed and low-altitude, the pilot lined up a black cross on the side of the canopy with a small black stripe painted on the wing. He had to focus in the face of anti-aircraft fire, fighters and the ground. Sometimes other sources of intelligence validated the photo-interpreter's analysis. After they assessed that there was a Focke-Wulf 190 plant working at Marienburg, Germany, technical intelligence verified it through the interpretation of data plates from crashed FW-190s and the Eighth Air Force destroyed the factory.[24]

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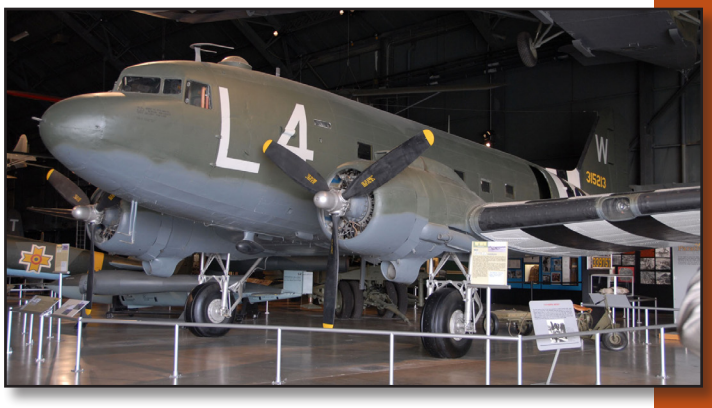
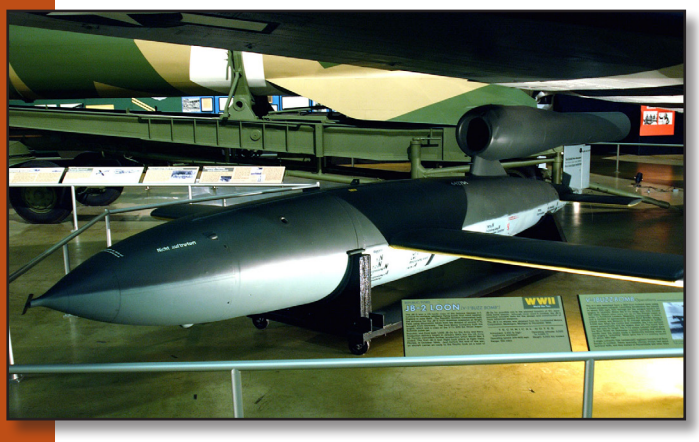
[23] John Kreis, *Piercing the Fog: Intelligence and Army Air Force Operations in World War II,* (Washington DC: Air Force History and Museums Program, 1996), pp 270-271.
[24] Ibid., pp 82-83.

20 Move to the C-47

OPERATION FORTITUDE was the Allied effort to deceive the Germans about the timing and location of the upcoming Allied invasion of Normandy. The plan called for intelligence to make the Germans believe that Norway was the primary target for the initial invasion. They also wanted to hide the buildup of forces in Southern England and to convince them that Pas de Calais not Normandy was the real landing site. In addition, once the invasion began at Normandy, they wanted the Germans to believe it was a deception before the real landings began at Pas de Calais. The Allies had to make the Germans believe an entire 250,000-man army was in Scotland. They used false radio transmissions, allowed German reconnaissance planes to photograph decoy ships and depended upon double agents to provide evidence that the fictitious Fourth Army existed (although it was only forty people). It tied up 27 German divisions that could have made Normandy worse. In Southeast England, deception efforts attempted to create a million-man army with Maj. Gen. George Patton in command. Huge tent cities with smoking camp stoves, roads to nowhere, fake landing craft, scripted radio transmissions and true, unimportant messages from double agents kept the Germans near Pas de Calais. It was the best case of Intelligence Preparation of the Battlespace (IPB) in history.[25]





21 Move to the V-1

When the V-1s began to fall in London in June 1944, Dr. R.V. Jones devised an ingenious plan to save lives. Knowing that German double-agents needed to provide at least some truth and that the V-1 flying bombs typically fell several miles short of Trafalgar Square, Jones determined that the spies needed to report the V-1 impacts to the north and west of London, along with the times of the ones that fell in the south and east. He did this in spite of the fact his home was south of London, right in the area the bombs would fall. Although Germany equipped a number of the V-1s with radio transmitters which confirmed that they had fallen short, the Germans chose to disregard it in favor of the more reliable human intelligence. The aircraft on display is actually an American reverse-engineered Republic/Ford JB-2 Loon.[26]

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[25] Lt. Col. Michael J. Donovan, USMC, *Strategic Deception: Operation FORTITUDE* (Carlisle Barracks, PA: US Army War College, 2002), pp 4-15.
[26] Jones, pp 420-422.

22 Move to the V-2

When intelligence indicated that the Germans planned to deploy a ballistic missile against England, one of Churchill's scientific advisors claimed it to be impossible since, in his expert opinion, it required solid propellant. According to Lord Cherwell, that made the missile too huge to hide, thus it was false intelligence. When the V-2s began falling in September 1944, an angry Churchill stated, "We have been caught napping!"[27] In that situation, one individual with a wrong idea created doubt in many of the analysts that held true information. That made them hesitant to share accurate data until absolute proof of its significance existed. Because of the accurate intelligence, the British did have a good idea about the characteristics of the missile before the first attack. The examination of a V-2 that crashed in Sweden, reconnaissance photos, a dummy missile and documents taken in Normandy and Enigma messages all led to a basic understanding of what they faced. The V-2 took about an hour to erect, fuel and launch. It flew about 200 miles in under four minutes. After reaching an altitude of 60 miles, it came in at nearly Mach 3, dug 30 feet into the ground and detonated its one ton warhead. There were two explosions in a V-2 strike: the first was impact, the second was the sonic boom. The mobile Meillerwagen transporter-erector made the system very difficult to find and destroy before launch.[28]

23 Move to the Ju 88

Sometimes technical intelligence personnel went to great lengths to recover enemy equipment and bring it back for exploitation. The museum's Ju 88D-1 defected from the Romanian Air Force to the Royal Air Force on the island of Cyprus in July 1943. The British flew it to Egypt and turned it over to American volunteer pilots at Cairo in October 1943. Those pilots flew it from Cairo to Dayton across the southern route of Sierra Leone, Ascension Island, Brazil, Guiana, Puerto Rico, Florida and Memphis. It received the nickname "Baksheesh" and the tail number of FE (foreign equipment)-1598. As a part of its testing, the Ju 88 underwent 36 hours of trial flights at Wright Field and was one of two Ju 88 bombers that operated here during the war.[29]

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[27] Keegan, p 286.
[28] Jones, pp 454-459; Tracy D. Dungan, *V-2: A combat history of the first ballistic missile* (Yardley, PA: Westholme Publishing, LLC, 2005), p 146.
[29] Phil Butler, War Prizes: *An illustrated survey of German, Italian and Japanese aircraft brought to Allied countries during and after the Second World War,* (Leicester, UK: Midland Counties Publications, 1994), p 164.

24 Move to the Bf 109G-10

American forces captured this Bf 109G-10 at an airfield near Munich at the end of the war. It originally belonged to Jagdgeschwader (JG) 52, the same unit the highest scoring aces of all time belonged to. American technical intelligence personnel trucked the aircraft to Cherbourg, France, where it went on board the H.M.S. Reaper, along with the museum's FW 190D-9 and Me 262. After arriving in Newark, New Jersey, in July 1945, the aircraft, then known as FE-124, went to Freeman Field, Indiana, for exploitation and display purposes. Germany built more than 30,000 Bf 109s, and combined with those produced in Czechoslovakia and Spain after the war, it became the most produced fighter aircraft in history.[30]

25 Move to the FW 190D-9

The FW 190D-9 on display surrendered to the Royal Air Force at Flensburg, Germany, up near the Danish border. It served with JG3 during the war. The American technical intelligence troops acquired it from the British and loaded it on board the H.M.S. Reaper for the trip back to the United States. As FE-120, the aircraft participated in six hours of flight testing here at Wright Field, before being stored at Freeman Field and later in Maryland. The D-9 was 20 inches longer than a standard Focke-Wulf, due to the large Jumo 213 bomber engine placed in it for greater performance. It could fly 426 miles per hour, putting on par with the P-51 and it featured a wooden propeller.[31]

26 Move to the Me 262

The world's first operational jet fighter was the Me 262A-1. On 16 May 1945, technical intelligence personnel found this aircraft at Munich-Riem airfield where fighter ace Adolph Galland's Jagdverband (JV) 44 left it behind as the unit fled to Austria. Personnel of the 54th Air Disarmament Squadron named it *Beverly Anne* and it became one of 10 Watson's Whizzers aircraft returned to the US at the end of the war. While being ferried from Lechfeld, Germany, to

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[30] Butler, p 212; Richard Cory, *FE-0124,* (Indianamilitary.org: n.d.), pp 3-4; Fact Sheet, U.S. Air Force, "Messerschmitt Bf 109G-10," 4 February 2011.

[31] Butler, p 211; Fact Sheet, U.S. Air Force, "Focke Wulf FW 190D-9," 4 February 2011.

Cherbourg, France it stopped at Melun, France. It was there that *Beverly Anne* became *Screamin' Meemie.* Lieutenant Bob Strobell named it that because of the sound it made. On 27 June 1945, this jet served as the lead ship in an aerial exhibition for General Carl Spaatz. After arrival in the U.S. it went to the U.S. Navy, along with four other Me 262s, serving at Patuxent Naval Air Station.[32]

27 Move to the OA-10 Catalina

The Catalina performed some of the most critical surveillance missions of World War II. An RAF Catalina located the German battleship Bismarck, enabling the Royal Navy to destroy it in May 1941. A Canadian Catalina warned the Royal Navy's Indian Ocean fleet of the approach of a Japanese carrier group in April 1942 before being shot down by a Zero. A Catalina also spotted the Japanese carrier force as it approached Midway Island in June 1942 and provided one of the most important radio messages of the war. This aircraft is a Consolidated OA-10 Catalina.[33]

28 Move to the B-29

The B-29's photo-reconnaissance capabilities yielded what Major General Haywood Hansell called, "probably the greatest…single contribution…in the air war with Japan."34 The Superfortress' photo-reconnaissance configuration was the F-13A. On 1 November 1944, one of the two F-13A aircraft that arrived from the U.S. just two days before flew from Saipan to Tokyo. Captain John Steakley's aircraft flew over Tokyo at 32,000 feet for 35 minutes taking 7,000 images. A Japanese fighter approached the F-13, but did not attack it. That was the first land-based American plane to fly over Tokyo since the Doolittle Raid in 1942. Those photos provided the XXI Bomber Command locations of Japanese aircraft manufacturing plants, helping the mission planners to choose targets for the coming B-29 onslaught. Steakley's F-13A became "Tokyo Rose" after that mission.[35]

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[32] Wolfgang W.E. Samuel, *Watson's Whizzers: Operation LUSTY and the Race for NAZI Aviation Technology,* (Atglen, PA: Schiffer Publishing Limited, 2010), pp 99, 133-137.
[33] Andrew Hendrie, *Flying Cats: the Catalina aircraft in World War II,* (Annapolis: Naval Institute Press, 1988), pp 24, 105, 121; Keegan, p 211.
[34] Kreis, p 80.
[35] Robert F. Dorr, *B-29 Superfortress Units of World War 2,* (Oxford: Osprey Publishing Ltd, 2002), p 25; Charles Griffith, *The Quest: Haywood Hansell and American Strategic Bombing in World War II,* (Maxwell AFB, Alabama: Air University Press, 1999), p 173.

29 Move to the N1K2 George

After being brought back from the Pacific Theater, this George went to a children's playground in San Diego, California. The museum received it in 1959 and in 2000 the museum began an extensive, eight-year restoration. They found serial numbers from four different aircraft during the disassembly. This beautiful restoration either came from several different aircraft brought back to the U.S. for exploitation after the war, or from the Japanese putting several aircraft together during the war. The serial number 5312 was most common and is now the number cited.[36]

This concludes Part 1 of the of the Intelligence Guide to the National Museum of the United States Air Force.

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[36] Fact Sheet, U.S. Air Force, "Kawanishi N1K2-JA Shiden Kai GEORGE," 4 February 2011; Ron Werneth, "Rebirth of a Forgotten Japanese Navy Fighter." *Flight Journal,* Volume 13, Number 3, June 2008, p 18.

Map of Podcast Locations