



# FLIGHT-WATCH



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## A TRIP TO ROYAL AIR FORCE MUSEUM IN

### COSFORD

I.

#### **WHY GO TO COSFORD?**

I have traveled to Great Britain a number of times and have visited the Royal Air Force Museum at Hendon and several campuses of the Imperial War Museum such as Duxford Airfield south of Cambridge and the central campus in London. I have also toured the American Air Museum and the Land Warfare Museum at Duxford. I have read that the British have in their collection of aircraft one or more captured Japanese aircraft from the Second World War. These aircraft are housed at RAF Museum Cosford. Unlike RAF Museum Hendon and the central campus of the Imperial War Museum, Cosford is some distance from London. As I have begun writing, I am en route by train early on a rainy Saturday morning to Cosford.

My journey began this morning on the London Subway. Departing from Gloucester Station, I took the Piccadilly line to Leicester Square Station where I changed to the Northern Line and exited at Euston Station. At 8:34 a.m., I bought my ticket for the train departing at 8:38 from platform five of the British Rail System. Running through the train terminal, I boarded the train moments before its departure. There is light rain and we have overcast skies with perhaps three or four miles of visibility as the train makes its way along the tracks that wind their way through the rolling English countryside.

I will have to change trains in Birmingham. I do not have a map, but have a general impression we are headed in a Northwest direction. The rain is heavier now, and the train has stopped at Milton Keynes Central. The ticket agent told me I would catch my connecting train at shortly after 11:00 a.m. Just how long this journey will take, I do not know. I told my wife and daughter I would meet them for dinner in London at 6:00 p.m. this evening. I am grateful to have an understanding family as well as functioning cell phone, since I may be late.

The train is underway again. The British Rail official making his way through the cars to collect tickets has told me I can catch a connecting train at Birmingham that will take me to Shrewsbury. As luck would have it, he has reported Cosford is having an air show today. We have just stopped at Coventry Station, and it is still raining. This does not bode well for the air show at Cosford.

As the train rolls along, there are electrical wires suspended over the tracks where pigeons look down on our passing train. As the train approaches Birmingham International, I am about to depart and by chance ask another passenger where he is headed. When I tell him I am going to Cosford, he tells me to get off at Birmingham New Street. Arriving at Birmingham New Street Station, a British rail official tells me to go to platform 3B to catch the train to Wellington (Shropshire) and Shrewsbury.



I just got aboard the train for Wellington (Shropshire) and Shrewsbury. The conductor said to get off at Wolverhampton. I got off at Wolverhampton and the British Rail Official said to catch the 11:15 a.m. train to Shrewsbury. I told him I just got off a train that called at Shrewsbury. He said it did not matter. That train does not stop at Cosford, but the 11:15 train does. It is now 11:19, over three hours into my journey and I have boarded the 11:15 train from Wolverhampton for Shrewsbury. Cosford is the fourth stop. I hope this trip is worth the effort.

I am aboard the third train in my journey. The conductor said if I left Birmingham New Street by 3:51, I would arrive at Euston Station in London by 6:02 p.m.

## II.

### ARRIVING AT COSFORD

Cosford is by appearances a rural community. The train station was deserted when I arrived. There was no phone and no restroom. The runway and airfield of Cosford Airfield were visible from the train station. As I walk down the stairs to the street, signs posted declaring Cosford Airfield was one-half mile away. As I walked along the perimeter of the airfield, the rain began to increase. As I walked along Quonset, huts and hangars were visible across the runway. Several hangars were covered in earth and bled into the green English countryside. I could clearly read number 12 written on one of the hangars. There appeared to be a depth of earthen material or other substance on Hangar Number 12 and adjoining hangars. Clearly, the construction of hangars at Cosford Airfield was intended to blunt the ability of Nazi bombers from destroying Royal Air Force aircraft during the Battle of Britain.



I walked by a Royal Air Force training detachment that was part of air traffic control. A sign declared that if red flags were displayed, there would be gunfire. I saw young men standing around who appeared to be taking a break. As I walked along, I came to a black iron gate. Inserted in each side of the gate in gold were the letters "RAF" in a circle in each side of the gate. The gate was heavy and each side had rollers that allowed the gate elements to be rolled as the gate was opened or closed. The overall appearance at Cosford Airfield was that this was an official and authentic military airfield. Later, I discovered that Cosford Airfield was employed for test flying and developing aircraft.

At last, I arrived in the reception area of the museum entrance. I was greeted by a young lady and mature gentleman. Admission was free but for 5 pounds, I could purchase a small book outlining the exhibits on display as well as a second book dealing with Cosford's Cold War Exhibit. I purchased the books and related that I had heard there was a Mitsubishi Ki-46 "Dinah" on display. The gentleman was alert to my interest in the Dinah and promptly took me to a map showing where it and other Second World War aircraft could be found in Hangar Number 2. I quickly made my way to that hangar.

## III.

### THE TREASURE IN HANGAR NUMBER TWO

I made my way to Hangar Number two. Upon entering the hangar, my eyes quickly fell on the Mitsubishi Ki-46 Dinah and its companion, a Baka Kamikaze rocket plane.

Although I had seen photographs of Dinahs, I did not anticipate how aerodynamically clean and aesthetically pleasing the aircraft would be. First, there were two massive engines about the size of a Wright Cyclone R-1820 or a Pratt & Whitney R-1830. Second, the nose of the aircraft was glass that blended into the structure of the fuselage. There was a forward compartment for the pilot and a rear compartment for an observer/gunner. A landing light was glazed into the nose of the aircraft that had the profile of a bullet. The airframe appeared to have a flush rivet structure, free of protrusions or bumps.

The upper surfaces of the Dinah were painted dark green while the under surfaces were light blue. The leading edges of the wings near the wing roots and just outside the engine cooling were yellow. The spinners and propellers were a medium brown, and the propeller tips were yellow. A red stripe was on the fuselage marking the rotational axes of the propellers as one would see on an American aircraft. Finally, there was a red lightning bolt emblem on the vertical stabilizer of the aircraft.

The Dinah is said to have been able to fly at true airspeeds approaching 400 miles per hour at altitudes above 30,000 feet. A view of the Dinah's slick airframe suggests these performance figures may be true. It seems likely a Dinah operating at high altitudes would have been almost impossible to intercept for Allied aircraft dispatched to catch her from lower altitudes or on the ground.

This Dinah is the only Ki-46 known to have survived World War Two. It was captured by the Allies after service in Southeast Asia and evaluated by Air Technical Intelligence. The mission of the Dinah was reconnaissance and she relied on speed as her primary defense against Allied fighter planes.



In contrast to the clean and pleasing lines of the Dinah was the blunt and crude structure of the Baka. The nose of the Baka was an explosive charge or warhead as one would see on a torpedo or bomb. The Baka has stubby wings and twin stabilizers and rudders with a hole in the rear of the fuselage where rocket exhaust was expelled. The canopy structure sits atop this flying bomb, almost as an afterthought. The Baka was a very pale color and had a cherry blossom insignia on the nose but bore no other markings. It appears to be a crude and simple killing machine.



I had read of the Messerschmitt ME-410 twin engine fighter and seen photographs of the beast. However, since only two are known to still exist (and one is at Cosford), I had never seen one before. Stated simply, the ME-410 is a brutal weapon designed to destroy Allied bombers. It is a large, twin-engine aircraft with four heavy cannon in the nose and two side-mounted machine guns in the fuselage behind the wings for rearward defense. It was a single pilot airplane that must have performed well as an interceptor and bomber destroyer. However, an ME-410 pilot would have had his hands full fending off attacks from Allied fighter planes of the day.



Standing beside and below the ME-410, it is a very imposing and menacing looking aircraft. Like the BG-109/ME-109 series, the ME-410 has leading edge slats to enhance directional control and handling slow airspeeds. The engines and propellers are massive with black spinners featuring white spiral designs like those on a barbershop pole. In between the forward firing cannon in the nose, there was a plate of glass on the nose giving the pilot still another perspective as he stalked his prey. The engine exhaust stacks were shielded with dampeners designed to conceal exhaust flames from the engine when the aircraft was deployed in night operations.



As the Baka compliments the Dinah on display at Cosford, the rocket-powered ME-163 Komet compliments the ME-410. The Komet appears to be constructed of wood and had forward-firing machine guns or cannons embedded in the leading edges of the wings. It is a tailless design featuring a swept wing planform with the fuselage blending into the wing somewhat like modern lifting body aircraft. It was powered by a witch's brew of rocket fuel, the same fuel that powered the V-2 Rocket. The fuel mixture was extremely volatile and could erupt in a violent explosion or fire if not handled properly. While far more rugged in construction, in terms of its size, we could compare the physical dimensions of the Komet with those of a modern hang glider.

The Komet display featured video of the rocket plane's remarkable performance. The Komet appears to be climbing almost vertical in the film. There is also graphic footage of an Allied B-17 Flying Fortress being chewed to pieces by machine gun or cannon fire from a German fighter plane. The weapons were removed from the Komet and on display beside it to show the ornament carried in this bomber killer.

Another German aircraft on display is the Fiesler Stork army cooperation and liaison aircraft. The Stork is a very angular and awkward-looking plane with a high wing, bracing struts and landing gear struts that suggest how truly rugged this aircraft was. Outfitted with slats, flaps and high lift devices, it could operate from short fields, roads, and unimproved areas. Looking at the nose, the engine appeared to have two rows of cylinders lauded outward from the crankcase somewhat like an inverted "V" but looking more like an "M." A German autogiro towed behind a ship or vehicle for observation activities was on display by the Stork.

Hangar Number 2 at Cosford features an impressive display of British and American aircraft that were involved in fighting the Axis Powers. A Supermarine Spitfire Mk. I is on display as well as a Hawker Hurricane Mk. II. Standing beside the Spitfire, one can see Sir Reginald Mitchell designed a thoroughbred. The Spitfire is possessed of very clean lines aerodynamically, a low frontal area, and narrow landing gear, suggesting it was prone to ground loop, a beautifully thin elliptical wing which housed eight Browning .303 machine guns, and a fairly small amperage. While the Spitfire is a work of aerodynamic art, it does not look much larger than a Beech Bonanza. The Spitfire's beauty belies her lethality.

In contrast to the Spitfire, the Hurricane is a large and somewhat crude-looking aircraft. While the Spitfire airframe looks seamless and fluid, the Hurricane appears a little rough around the edges. For example, while the Spitfire's spinner blends into the nose of the aircraft, the Hurricane has a noticeable gap between the spinner bullshead and the nose of the aircraft. The gap is so significant that one can see the small portion of the Merlin engine that powered the craft. With wide-tracked landing gear and a thick wing, the Hurricane looks like it would be a more stable and forgiving airplane to a novice pilot than a Spitfire. The Hurricane could likely absorb more battle damage than a Spitfire. At least those are my impressions.



The Hurricane was convincingly displayed with sandbags surrounding her together with an engine start cart and a brass bell used to summon pilots when German bombers were approaching England. The Spitfire carried national insignia on the fuselage and upper wing surfaces. However, no insignia appeared on the lower wing surfaces. In fact, the bottom left fuselage and wing area were painted black with a white lower left aileron, while the right side of the aircraft was white with a black aileron. These markings were deployed during the Battle of Britain so gunners on the ground could more easily recognize British fighters in contrast to the Luftwaffe's Messerschmitt fighters.

Also on display was a Mosquito. This twin-engine fighter/bomber/ reconnaissance aircraft was powered by two Merlin engines like those that powered the Spitfire and Hurricane. However, the Mosquito (like the ME-410) is a very large aircraft. Much of the airframe being composed of wood, the Mosquito looks like a very clean airframe, but it is still very large. When it was initially deployed operationally in a photo reconnaissance role, it was extremely fast and like the Japanese Dinah, relied on speed to avoid tangling with German fighters.

Hangar Number 2 also featured a North American P-51D Mustang, a Consolidated PB5Y Catalina 25, an Avro Lincoln bomber, and a Bristol Hind biplane, to name a few.

#### IV.

### OTHER TREASURES AT COSFORD

Hangar Number One at Cosford houses a group of transport and trainer aircraft. It also houses a collection of aircraft engines such as those that powered the Spitfires, Hurricanes and Mustangs, as well as a Sakae engine from a Japanese Zero. The description of the Sakae engine said it had a single-stage supercharger and a double-throated carburetor. Finally, Hangar Number One displayed a V-1 Buzz Bomb, a V-2 Rocket and a host of German air to air, surface to surface missiles and rockets. The devastation inflicted on Great Britain by the V-1 and V-2 weapons are known to students of World War Two history. The rockets and missiles being developed by Germany were precursors to today's rocket and missile technology. It is frightening to think what Hitler's military forces might have achieved with these wonder weapons had they been perfected earlier or been available in greater numbers.

Hangar Number One also housed a very well-preserved Junker Ju-52 transport plane complete with three radial engines and a corrugated aluminum construction. Also on display was the British jet transport plane, the Comet, that preceded the American Boeing 707. Unfortunately, little was known about metal fatigue and the effects of preservation cycles. Several Comets were lost in air crashes while the cause of the crashes was discovered. This allowed Boeing to eclipse the British design with the Boeing 707.

The Test Flight Hangar featured a host of experimental and cutting edge aircraft developed and tested by the British aerospace industry. Included in this group of aircraft was the prototype of the Gloster Meteor, the Fairey Delta 2, the TSR2, and the Jaguar fly by wire jet fighter. There was also a prominent display on the Martin-Baker ejection seat along with the aircraft in which it was tested. The Bristol Type 188 was on display and resembles a scaled-down Lockheed SR-71.

The National Cold War Exhibit featured aircraft and history ranging from the Berlin Air Lift until the fall of the Soviet Union. This display included a Mig 15, a Mig 21 and three British nuclear bombers, the Valiant, the Vulcan and the Victor.



V.

### OVERALL IMPRESSIONS OF COSFORD

The RAF Museum at Cosford is a treasure to those interested in aviation history and technology. The people who organized the displays and exhibits are to be commended. Cosford is more than a museum that celebrates the history and accomplishments of the Royal Air Force. It celebrates pioneers in flight from many nations and gives the visitor a real appreciation about how flying evolved from 1912 when the Royal Flying Corps was formed until today.

From an historical perspective, the displays and exhibits are an ominous and provocative reminder of the powers of evil that sought to eclipse civilization during the middle of the 20<sup>th</sup> century. The displays at Cosford clearly demonstrate the Axis Powers were exploiting and developing technology to force the world into a second Dark Age. The resolve, ingenuity and aggressive spirit of the British Empire and the United States were the major factors in preventing the end of civilization. The displays at Cosford are a haunting reminder of the Second World War.

Was the trip to Cosford worth it? Yes, it certainly was. And no, I did not return to London by 6:00 p.m. I received a text message from my wife that she and my daughter were going to a play, so my 6:00 p.m. date was off.





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