How the Luftwaffe the Battle of Britain

British courage and capability might not have been enough to win; German mistakes were also key.

By John T. Correll

In July 1940, the situation looked dire for Great Britain. It had taken Germany less than two months to invade and conquer most of Western Europe. The fast-moving German Army, supported by panzers and Stuka dive bombers, overwhelmed the Netherlands and Belgium in a matter of days. France, which had 114 divisions and outnumbered Germany in tanks and artillery, held out a little longer but surrendered on June 22. Britain was fortunate to have extracted its retreating expeditionary forces from the beaches at Dunkirk.

Britain itself was next. The first objective for the Germans was to establish air superiority as a precondition for invasion. The Luftwaffe estimated haughtily that it would be able to defeat the Royal Air Force's Fighter Command in southern England in four days and destroy the rest of the RAF in four weeks.

Winston Churchill, who on May 10 had succeeded Neville Chamberlain as Prime Minister, was resolute. In a ringing speech to Parliament, he declared, "We shall fight on the beaches, we shall fight on the landing grounds, we shall fight in the fields and in the streets, we shall fight in the hills; we shall never surrender."

Not everyone agreed with Churchill. Appeasement and defeatism were rife in the British Foreign Office. The Foreign Secretary, Lord Halifax, believed that Britain had lost already. To Churchill's fury, the undersecretary of state for foreign affairs, Richard A. "Rab" Butler, told Swedish diplomats in London that "no opportunity would be neglected for concluding a compromise peace" if it could be had "on reasonable conditions."

Joseph P. Kennedy, US ambassador to Britain, informed the State Department July 31 that the German Luftwaffe had the power to put the RAF "out of commission." In a press statement, Sen. Key Pittman (D-Nev.), chairman of the Senate Foreign Relations Committee, declared, "It is no secret that Great Britain is totally unprepared for defense and that nothing the United States has to give can do more than delay the result." Gen. Maxime Weygand, commander in chief of French military forces until France's surrender, predicted, "In three weeks, England will have her neck wrung like a chicken."

Thus it was that the events of July 10 through Oct. 31—known to history as the Battle of Britain—came as a surprise to the prophets of doom. Britain won. The RAF proved to be a better combat force than the Luftwaffe in almost every respect. The decisive factors were British capability and determination, but German mistakes, before and during the battle, contributed significantly to the outcome.

German rearmament was forbidden by the Treaty of Versailles at the end of World War I, but aircraft development continued under the guise of civil aviation. When Hitler came to power in 1933, he pursued militarization openly. The Luftwaffe, formally established as a separate branch of service in 1935, was soon the largest air force in Europe and, in the opinion of many, the best.

Lost

German pilots honed their skills in the Spanish Civil War. Between 1936 and 1939, they were rotated as "volunteers" through the Condor Legion, supporting Francisco Franco and the Nationalists. They perfected techniques, tested their airplanes—including the Ju 87 Stuka dive bomber and the Bf 109 fighter—and gained experience.

America's most famous aviator, Charles A. Lindbergh, toured German bases and factories in September 1938. "Germany now has the means of destroying London, Paris, and Prague if she wishes to do so," Lindbergh wrote in a report to Kennedy in London. "England and France together have not enough modern war planes for effective defense or counterattack."

The Luftwaffe's fearsome reputation was enhanced by the pushover German victories in Poland, the Netherlands, Belgium, and France. In July 1940, it was about twice the size of the RAF, but the critical measure was not gross numbers. Essentially, the Battle of Britain pitted the first-line fighters of RAF Fighter Command against the fighters, bombers, and dive bombers of two German air fleets. In that matchup, the German advantage was significantly greater.

Air Chief Marshal Hugh Dowding, commander of Fighter Command, said, "Our young men will have to shoot down their young men at the rate of five to one."

The Luftwaffe was not as invincible as it looked. One of its fundamental weaknesses was unstable leadership. The commander in chief was Reichsmarschall Hermann W. Goering, a World War I ace and the successor, in 1918, to Manfred von Richthofen in command of Jagdgeschwader 1, the Flying Circus. He had become a fat, blustering caricature of himself. He had not kept up with changes in airpower and had little knowledge of strategy. Goering was prone to impulsive and erratic decisions. When Hitler intervened in the decision-making, which he did regularly, the results were even worse.

However, the Luftwaffe's immediate problem in 1940 was that the subjugation of Britain was not the kind of mission it was prepared to perform. Its strength was Blitzkrieg, the short, fast "lightning war" in which the German Army, supported by Stuka air strikes, swept through Poland in 1939 and Western Europe in 1940. In both the Blitzkrieg and the war in Spain, the Luftwaffe's forte was close air support of ground forces.

The officer corps was infatuated with the dive bomber. It had worked well for the Condor Legion in Spain, where pilots had difficulty hitting targets from high altitude. The dive bomber was accurate in putting bombs directly on compact targets, which predominated in Spain.

The foremost advocate of the dive bomber was Ernst Udet, another flamboyant flying ace from World War I. His friend Goering appointed him to be technical chief of the Luftwaffe, a position for which he was utterly unsuited. Udet insisted that every bomber have a dive bombing capability, which added weight and subtracted speed from numerous aircraft in development.

The Luftwaffe's signature dive bomber was the Ju 87 Stuka, instantly recognizable with its inverted gull wings, sturdy fixed undercarriage, and wheel spats. It was enormously successful as a terror weapon in the Blitzkrieg. A wind-powered siren, used in diving attacks, contributed to the psychological effect.

Germany had no long-range bombers and would not field its first strategic bomber, the Heinkel 177, until 1944. What it had in 1940 was an assortment of twin-engine medium bombers, notably the slow-moving He 111 and Do 17. They had been adequate to supplement the Stuka on the continent, but they were out of their league in the Battle of Britain. The best of the German medium bombers was the Ju 88, which had better range and speed,

Opposite: Pilots from the RAF's 601st Squadron scramble to their Hurricanes in August 1940. Left: A World War II era British propaganda poster shows a group of Spitfires shooting down German Heinkel 177s.

Critical Matchup, July 1940

RAF		Luftwaffe	
754	single seat fighters	1,107	single seat fighters
149	two seat fighters	357	two seat fighters
560	bombers	1,380	bombers
0	dive bombers	428	dive bombers
500	coastal	233	coastal
N/A	reconnaissance	569	reconnaissance
1,963	**Total**	**4,074**	**Total**

Aircraft numbers attributed to the two sides vary and changed constantly in 1940 because of losses and replacements. Counts also differ in how many aircraft were judged to be in service.

but it was just coming into production at that time.

The Luftwaffe also had the Bf 110, nominally a twin-engine fighter. It had good speed and range, but it was not agile enough to take on RAF fighters. Germany might have done well to use it instead as a fighter-bomber—which it did later in the war—but it was rarely employed in that role in 1940.

Germany's best airplane, and arguably the best airplane on either side, was Willy Messerschmitt's masterpiece, the Bf 109 fighter. It packed a powerful engine into a small, sleek airframe and was the world's most advanced fighter when it first flew in 1935. It went on to score more victories than any other aircraft in World War II. Its problem in 1940 was limited range. Flying from bases in France, it had only about 10 minutes of fighting time over London. It could not escort the bombers on deep penetration missions in Britain.

For the first time, the Luftwaffe faced a first-class opponent. The RAF had been established in 1918 as a separate military service and was reorganized in 1936 into Bomber, Fighter, Coastal, and Training Commands.

Two superb fighters would bear the brunt of the coming battle. The Hawker Hurricane was regarded as Fighter Command's "workhorse." It was teamed with a "thoroughbred," the Supermarine Spitfire. In July 1940, the RAF had 29 squadrons of Hurricanes and 19 squadrons of Spitfires.

The Spitfire was one of the greatest fighters of all time. It had been introduced in 1936 but was still around to shoot down a German jet aircraft Me 262 in 1944. It became the symbol of the Battle of Britain. The Hurricane was larger and slower, but like the Spitfire, it could turn inside the Bf 109. Bf 109 pilots, if they could, attacked from altitude, which gave them an advantage.

The RAF had several force multipliers, the most important of which was radar. The official British term for it was "RDF," for radio direction finding, before a changeover in 1943 to match the American usage of "radar." Britain had no monopoly. The German Navy made limited use of radar. However, the incompetent Udet had rejected radar for the Luftwaffe in 1938 because it did not fit with his notions of air combat.

What the RAF Knew

Dowding was an early champion of radar. Britain had a chain of 29 RDF stations along its southern and eastern coastlines. The radar was effective for more than 100 miles out. Once Luftwaffe formations crossed England's coastline, the Royal Observer Corps began tracking them. The RAF knew when and where to respond, and could delay scrambling its fighters until the last moment.

Unbeknownst to Berlin, Britain had cracked the high-level German "Enigma" code. The intelligence product derived from these intercepts was called "Ultra." It provided useful information about the Luftwaffe's overall moves, but it did not add greatly to the day-to-day intelligence from other sources.

Yet another RAF force multiplier was high-octane fuel. When the war began, both the Luftwaffe and the RAF were using 87 octane aviation fuel. Beginning in May 1940, the RAF obtained 100 octane fuel from the United States and used it throughout the battle. It boosted the performance of the Merlin engines in the Hurricanes and Spitfires from 1,000 to about 1,300 horsepower.

Dowding—known as "Stuffy"—had been commander of Fighter Command since its founding in 1936. He was the oldest of the RAF senior commanders—intensely private, eccentric and obstinate, but a leader of exceptional ability. It was on his authority that the first British radar experiments with aircraft had been carried out. Dowding was unbending and thus not favored by the politicians in the Air Ministry.

Fighter Command, headquartered at Bentley Priory in the London suburbs, was organized to fight in four groups. The largest was 11 Group, covering southeastern England and the approaches to London. Its commander was Air Vice Marshal Keith R. Park, an excellent officer but,

German officers gaze across the English Channel at the white cliffs of Dover.

Photo courtesy National Archives

A civilian aircraft "spotter" scans the skies around St. Paul's Cathedral in London, searching for incoming German airplanes.

like Dowding, not attuned and responsive to the politicians.

To the immediate north was the area of 12 Group, covering the Midlands and East Anglia and commanded by Air Vice Marshal Trafford Leigh-Mallory. The other two groups had lesser roles—southwestern England was covered by 10 Group, and northern England and Scotland by 13 Group.

Germany would employ two main air fleets. Luftflotte 2, with headquarters in Brussels, was commanded by Field Marshal Albert Kesselring. Its Bf 109 fighters were concentrated in Pas de Calais, across from Dover at the narrowest point of the English Channel. Luftflotte 2 also had bombers and fighters elsewhere in northern France and Belgium. Luftflotte 3, commanded by Field Marshal Hugo Sperrle from his headquarters in Paris, flew from bases in Normandy and Brittany.

Goering and his staff consistently underestimated the RAF. In early August 1940, Goering insisted that the British had no more than 400 to 500 fighters. In fact, Fighter Command on Aug. 9 had 715 ready to go and another 424 in storage, available for use within a day.

When France fell, Hitler ordered a strategic pause, believing the British would accept a dictated peace on his terms. The Luftwaffe mounted sporadic bomb raids on southern England and shipping in the Channel. However, in the official reckoning, the Battle of Britain began July 10 with a fighter engagement over the channel; the Luftwaffe lost 13 aircraft and the RAF 10.

On July 16, Hitler ordered preparations started for Operation Sea Lion, an invasion of Britain. The German Navy said Sept. 15 was the earliest possible date it could be ready. On Aug. 1, Hitler ordered the Luftwaffe to "overpower the English Air Force," which stood in the way of the invasion.

Goering assured Hitler, "The RAF will be destroyed in time for Operation Sea Lion to be launched by Sept. 15." At first, the Luftwaffe regarded the entire RAF as the target and scattered its efforts for weeks before focusing on Fighter Command.

Finally recognizing the value of the radar sites, the Luftwaffe tried to destroy them, but did so by aiming bombs at the radar towers, which were easy to replace and almost impossible to hit. The radar site buildings where the trained operators worked would have been easier targets but were seldom attacked. In yet another mistake, Goering told the Luftwaffe to ignore the radar sites and strike at other targets.

Faithless Kennedy

The RAF lost 58 airplanes in July, but the full fury of the battle was yet to come. With great fanfare, Goering declared Aug. 13 to be Adler Tag (Eagle Day), on which he launched 1,485 sorties against Britain. "Within a short period you will wipe the British air force from the sky. Heil Hitler," he said in a message to the air fleets.

Among those impressed by the German claims was Kennedy, who wired President Roosevelt, "England will go down fighting. Unfortunately, I am one who does not believe that it is going to do the slightest bit of good."

On Aug. 15, Goering ordered a maximum effort from his air fleets. They flew more than 2,000 sorties that day, the most of any day during the Battle of Britain. The German high command claimed 99 RAF fighters destroyed in the air. In actuality, the RAF lost 34 fighters while shooting down 75 German airplanes. The fighting on Aug. 19 was only slightly less intense.

RAF Bomber Command regularly attacked targets on the Continent, flying 9,180 sorties between July and October. This had the effect of freezing some German fighters in place for air base defense, limiting the number that could be committed to the attack on Britain.

Bad weather caused a lull in the fighting Aug. 19 to 23. It was a much-needed respite for both sides. When the battle resumed Aug. 24, the Luftwaffe changed tactics and concentrated its force on 11 Group airfields.

What the Germans really wanted was to lure the RAF fighters up for air battles, which the Bf 109 pilots believed they would win. Park and Dowding, however, refused to respond to Luftwaffe fighter sweeps. They went after the German bombers instead.

The Stuka had made its reputation in the Blitzkrieg under conditions of German air supremacy. It was far less fearsome with Spitfires and Hurricanes on its tail. The Stuka's top speed was 230 mph (compared to more than 350 for the Spitfire), and it was even slower and more vulnerable when diving to deliver bombs.

"Due to the speed-reducing effect of

Aircraft Losses: Churchill's Count

	British fighters lost	Enemy aircraft destroyed
July (from July 10)	58	164
August	360	662
September	361	582
October	136	325
Total	**915**	**1,733**

Accounts of aircraft losses in the Battle of Britain vary. This one was compiled by Winston Churchill and published in his book* Their Finest Hour. *Of the RAF fighter losses, about 770 were Hurricanes and Spitfires, and of the German losses, about 50 were Bf 109s.

the externally suspended bomb load, she only reached 150 mph when diving," said German ace Adolf Galland, who was no admirer of the Stuka. The RAF laid such punishment on the Stuka that Goering on Aug. 19 withdrew it "until the enemy fighter force has been broken."

The attacks continued relentlessly. On average, the Luftwaffe sent 1,000 airplanes a day, and seldom fewer than 600. On Aug. 30 to 31, more than 1,600 came. The worst day for Fighter Command was Aug. 31 when it lost 39 aircraft and 14 pilots. Most days the Luftwaffe's losses were even heavier than the RAF's, but the production of Hurricanes and Spitfires was no longer keeping up with losses, and there were not enough replacements for the experienced pilots who had been killed.

Some pilots scrambled six times a day. Civilian teams from Hawker and Supermarine joined RAF ground crews, working to get damaged Hurricanes and Spitfires ready to fly again.

The British people look back on this part of the battle as "the desperate days." Looking back later, Churchill said, "In the fighting between Aug. 24 and Sept. 6, the scales had tilted against Fighter Command."

Just as things were looking grim, Hitler made a critical mistake. He changed Luftwaffe targeting. In August, two German pilots who had flown off course on a night mission dropped their bombs on London. The RAF bombed the Berlin suburbs in reprisal. Germans were shocked and outraged, having been assured by Hitler and Goering that their capital was safe from British bombers. An enraged Hitler on Sept. 5 ordered a change in basic strategy, shifting the Luftwaffe's focus of attack from British airfields to the city of London.

That took the pressure off Fighter Command at a critical time. RAF fighter losses fell below the output of replacements. In diverting the offensive from the RAF, the Germans had lost sight of the valid assumption with which they had begun: The key objective was destruction of the RAF. Otherwise, the Sea Lion invasion would not be possible.

The Luftwaffe had one massive shot left. On Sept. 15, Germany threw about 400 bombers and 700 fighters into an all-out attack on Britain. In the middle of the afternoon, Park committed the last of his reserves. Every airplane that 11 Group could put in the air was engaged.

It was enough. RAF pilots shot down 56 Luftwaffe aircraft, and many others limped back to their bases in France with major damage or went down in the Channel. The RAF lost 28. Never again would the Luftwaffe come against Fighter Command in such strength.

Today, the nation celebrates Sept. 15 as "Battle of Britain Day."

Rescue workers search frantically for victims amid the wreckage of a London street during the Blitz, which began as the Battle of Britain came to an end.

Losses All Around

Both sides gradually came to the realization that the Luftwaffe's attempt to destroy the RAF had failed. On Sept. 17, Hitler postponed Operation Sea Lion until further notice. This was no doubt a great relief to the German Navy, which was not prepared to carry out an invasion. On Oct. 31, the British Defense Committee agreed that the danger of invasion had become "relatively remote."

That date is commemorated as the end of the Battle of Britain.

However, it was not yet clear to all that the Luftwaffe had failed. The Nov. 10 *Boston Sunday Globe* published its version of an interview with Kennedy, quoting him as having declared, "Democracy is finished in England." Kennedy denied having said it, but the reporter, Louis Lyons, had a witness to back him up. Kennedy was finished as ambassador and as a player in the Roosevelt Administration. He submitted his resignation that month.

Both sides had taken heavy losses, although claims during the battle of enemy aircraft shot down were later shown to be excessive. In all, the RAF lost 1,547 airplanes—1,023 from Fighter Command, 376 from Bomber Command, and 148 from Coastal Command. German losses were even higher—a total of 1,887, of which 650 were Bf 109s and 223 were Bf 110s.

More than half of the German aircraft destroyed were shot down by Hurricanes. Whenever possible, the RAF had sent Spitfires to fight the Bf 109s and used Hurricanes against German bombers—but the Hurricanes had downed their share of fighters, too.

At the end of the Battle of Britain, Fighter Command had slightly more airplanes than it did at the start. Surging British industry produced replacements at an encouraging rate. Fighter Command also had more pilots than in July, but had taken terrible losses in its most experienced airmen. The German aircraft industry was unable to surge its production, and between August and December 1940, Luftwaffe fighter strength fell by 30 percent and bomber strength by 25 percent.

Later, in a speech to the Canadian Parliament, Churchill recalled Weygand's prediction from June 1940 that England would "have her neck wrung like a chicken" in three weeks. "Some chicken," Churchill said. "Some neck."

The Battle of Britain was over, but the sustained bombing of British cities—"the Blitz"—was just beginning. Hitler's motives for the Blitz are not clear. It killed more than 40,000 civilians and destroyed a vast number of buildings, to no strategic purpose.

Meanwhile, Berlin turned to a new objective. Hitler in December ordered his forces to prepare for Operation Barbarossa, the invasion and destruction of Russia. Goering was once again optimistic. The Luftwaffe, he promised, would shoot down the Red Air Force "like clay pigeons." The rest is history. ■

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