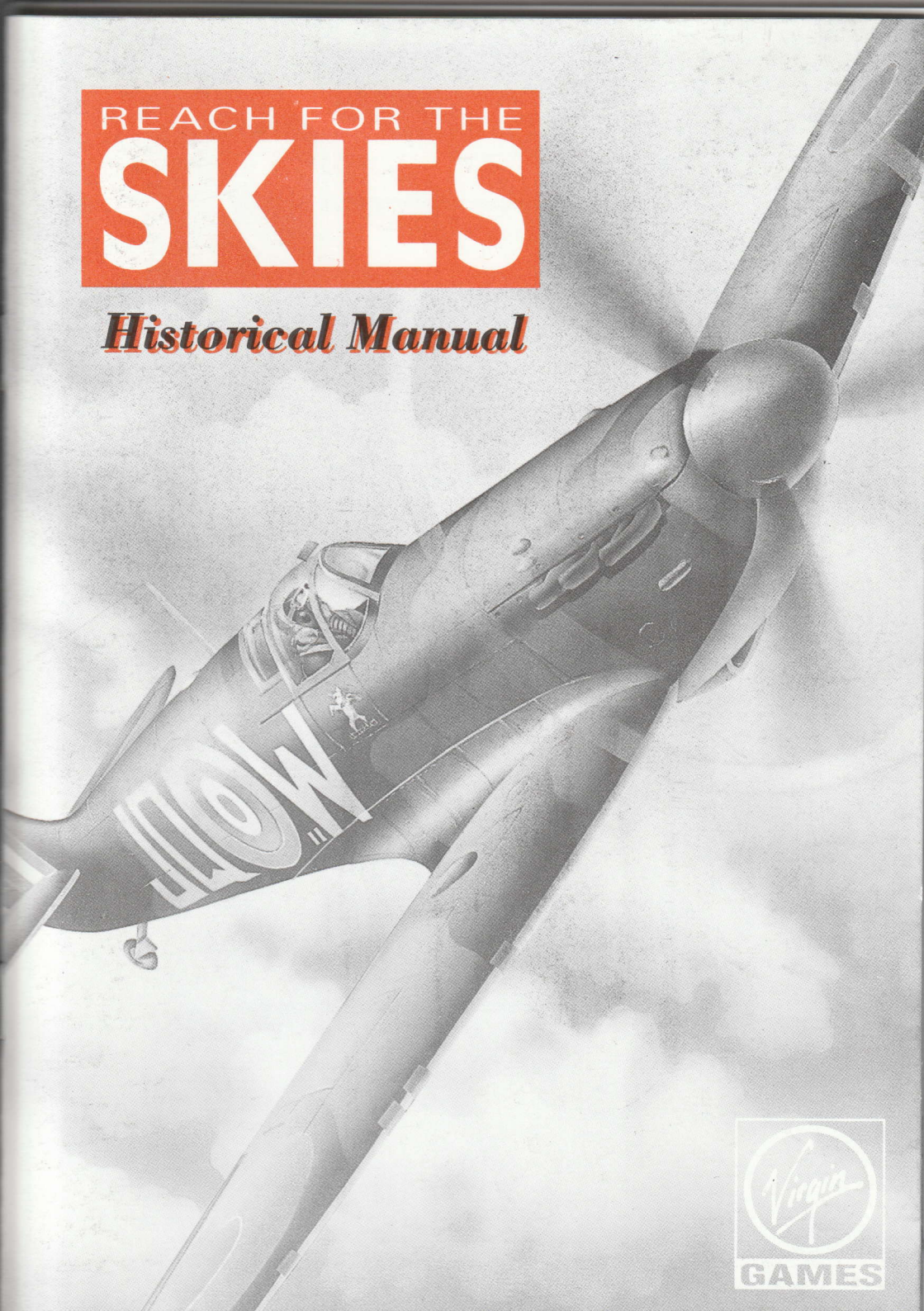


REACH FOR THE **SKIES**

Historical Manual



REACH FOR THE
SKIES

The Battle of Britain
July 10 - October 31 1940

Historical manual by The
Word Factory

*“Never in the field of
human conflict
was so much owed by
so many to so few.”*

WINSTON CHURCHILL



*Overture
to
Battle*

Europe goes to War

This morning the British Ambassador in Berlin handed the German Government a final note stating that, unless we heard from them by eleven o'clock that they were prepared at once to withdraw their troops from Poland, a state of war would exist between us...

... I have to tell you now that no such undertaking has been received and that consequently this country is at war with Germany.

It was 11.15am on Sunday September 3 1939. For those huddled around crackling wireless sets all over Britain, Chamberlain's outright declaration of war was the climax to months of unbearable tension. Its origins could be traced right back to Hitler's meteoric rise to power in 1933.

Despite a failed putsch in 1923, and a prison sentence, Adolf Hitler, leader of the Nazi party had managed to intrigue his way to the German Chancellorship. His objectives were simple: to overturn the Versailles Treaty which stated the terms of surrender at the end of the First World War and to establish a German superpower - the Third Reich. In 1933, a new German air force - the Luftwaffe - was formed. In 1935, conscription was reintroduced and the German army updated and rearmed.

Events moved quickly. In 1936 Hitler, now absolute ruler of Germany, occupied the demilitarised Rhineland between France and Germany. In 1938 he invaded Austria by peaceful annexation supported by a largely manufactured retrospective referendum. He was now absolute ruler of 74 million people.

The 1938 Munich Conference sanctioned the German invasion of Czechoslovakia's Sudetenland but Hitler went further: by the spring of 1939 he was in control of the rest of the country too. Britain and France agreed to go to war should the Wehrmacht's plans extend to Poland. At 5.45am September 1 1939 the first German troops set foot on Polish soil. Britain and France were at war.

The Miracle of Dunkirk

Poland fell before the Allies could offer any real resistance. Denmark and Norway followed. After a period of stalemate - the Phoney War - on May 10, 1940 the Germans turned their Blitzkrieg (Lightning War) on the Netherlands, Belgium and Luxembourg, then pushed on into France. Like the Wehrmacht's ground forces, the Luftwaffe, defending its navy fleets against RAF bombing raids and engaged in dogfights with British fighter planes, seemed almost invincible. It crippled the Dutch and Belgian air forces in a matter of hours, destroyed much of France's bomber power while many of its planes were still on the ground and made a huge dent in French fighter capabilities.

The RAF were rendered powerless by the superior strategies of the Germans. By May 15, just five days after the battle began, 205 British aircraft had been lost. On the ground, the British Expeditionary Force had fared no better: Hitler seemed unstoppable.

There was no alternative but to retreat. In the last days of May and the first of June, the Royal Navy evacuated what remained of the BEF from the beaches at Dunkirk. It was a military miracle, partly made possible by the bravery of those who navigated hundreds of little ships to carry 338,226 soldiers (225,000 of them British) back. It was also a disaster. The army had been forced to leave most of its stores and equipment on the beach - many soldiers left with nothing more than their rifles - and for the next few weeks the British Army struggled even to equip each soldier with a gun.

The RAF had fought valiantly but with little effect. The ground forces, who'd been harassed by German aircraft bearing bullets and bombs for weeks, were frustrated by the lack of progress in the air. Wherever RAF servicemen met soldiers abuse, if not physical confrontation, was likely to follow.

In fact, the RAF had faced terrible odds in a race against time. It lacked experience, relied heavily on its more outdated aeroplanes and was often operating at full stretch from airfields across the Channel. By the time he reached the enemy, each pilot had an approximate flying time of fifteen minutes before it was time to head back.

By June 22, the day France signed its armistice, the RAF was in severe disarray. Home defence had a maximum of 331 front-line fighters - Spitfires and Hurricanes - supported by 150 second line craft - Blenheims, Defiants and Gladiators - at its disposal; 959 aircraft had been lost in the West, 66 in Norway and 439 valuable pilots were dead, missing or captured. The future looked grim.

Luftwaffe versus RAF

In many ways, the success of the German air force in the Battle for France was inevitable. The inter-war years had left the Luftwaffe more experienced and a lot better prepared for modern air warfare than the RAF. Germany had been at the forefront of aircraft design ever since the First World War. At first, denied the chance to develop their planes for military purposes by the Treaty of Versailles, the emphasis was on civilian aviation. Consequently, when the Luftwaffe was formed in 1933 there was no shortage of highly trained applicants. Meanwhile, aircraft production went into overdrive. By 1939 Germany had 3,750 aircraft.

More importantly, the Spanish Civil War, which broke out in 1936 had given the Luftwaffe a taste of some real action in a modern war situation. While it lasted, Hitler rotated thousands of aircrew and planes into war service for the express purpose of giving the Luftwaffe as much experience as possible. The policy paid off. The Germans had perfected ground-attack techniques and could turn their craft around so fast a single plane could accomplish six or seven sorties in a day. All Luftwaffe actions so far, however, had been in support of ground defences - short-term, short-range raids quite unlike the prolonged struggle the Battle Of Britain would turn out to be.

In Britain, meanwhile, the 1918 armistice had seen the RAF's 188 squadrons cropped to a mere 25 and its development budgets slashed. Its only real combat experience had been in the east: dropping bombs on primitively armed tribal rebels in Iraq and India. With no more than nominal air-to-ground defences, no night sorties and no enemy in the sky, this was hardly stringent preparation for the sophisticated powers of the Wehrmacht.

With no experience of modern air warfare, the RAF's commanders remained naive about tactics. Internationally renowned achievements like Lindbergh's first solo flight across the Atlantic gave the public a taste for the elaborate; the RAF obliged. But complex flying formations and sophisticated wing-tip displays were unlikely to protect the most skillful pilot in the intense confrontation of a dogfight.

As the Battle Of Britain loomed, the Germans had more planes and more experience but lacked the kind of communication - air-to-air or air-to-ground - that the RAF could boast. The Chain Home Radar network enabled the RAF to develop a sophisticated and flexible fighter direction system - a potential advantage in the confrontation to come.

In June 1939 as both sides drew their forces up for action, both were convinced that the struggle would pivot around the effectiveness of the bomber. As Germany planned to wipe out Britain's airfields, the RAF prepared to defend them to the hilt.

The Eve of Battle

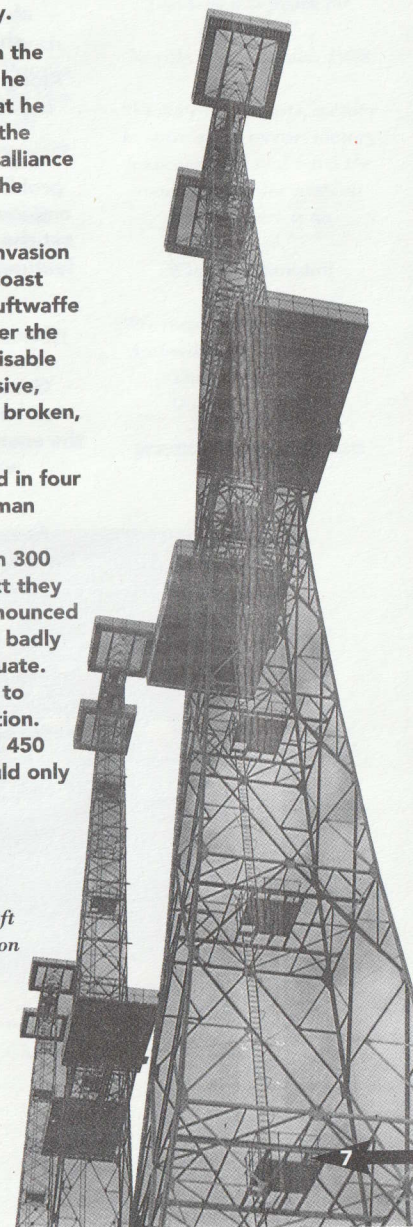
After the fall of France, Hitler had two major enemies left: Britain and Russia. If he invaded Britain he risked a Russian attack from the east, but if he failed to subdue the island he risked collusion between Churchill and Stalin. Hitler's preference was for a British surrender: as a spectator and ally the respected British Empire would be far more valuable than as an enemy. A surrender would be quick; a war, however short, would cost time and money.

Throughout May and June, Hitler kept his options open. On the one hand he prepared his troops for invasion, on the other he continued to make overtures of peace. Finally he made what he called his 'last appeal to reason'. On July 19 in a speech to the Reichstag, he gave Britain his final ultimatum; it was either alliance or all-out war. The answer when it came was unequivocal; the nation chose war.

For Hitler it was the go-ahead for Operation Sealion - the invasion of Britain. While German soldiers stationed on the French coast engaged in a summer of continuous landing practice, the Luftwaffe prepared for its role as the lynch-pin of the operation. Under the command of Reichsmarschall Hermann Goering, it was to disable Britain's air defences, then cripple home defence with massive, uncontested bombing attacks. As Britain lay shattered and broken, the rest of the Wehrmacht would follow the Luftwaffe in.

Goering was convinced a decisive victory could be achieved in four days. This estimate would have had more credibility if German intelligence had assessed the RAF accurately. In fact, their numerical estimates were over-generous - they gave Britain 300 more planes than it actually had - but in every other respect they undervalued heavily. Hurricanes and Spitfires were pronounced no match for the Messerschmitt, the RAF was dismissed as badly organised and air defence was declared universally inadequate. Most importantly there was no conception of the intensity to which Churchill had managed to accelerate aircraft production. Throughout the battle there was a steady flow of between 450 and 490 new aircraft a month. At full stretch, Germany could only manage 220.

Looking up at the 360ft
mast on a Radar station



When the Invader comes...

While Hitler hesitated, Britain prepared for invasion. In June all 27 infantry divisions were chronically short of field and anti-tank guns. Provisions for mobilisation were makeshift; most troops relied on civilian bus drivers who required between 8 and 24 hours' notice to become available. The country as a whole was protected by just 963 tanks and painfully inadequate coastal defences; there was about one gun per mile of beach and the only specialised anti-shiping weapon available couldn't even hit a moving target.

Along the pillbox-pocked beaches, beach-huts filled with pebbles improvised as anti-tank obstacles. At strategic points, especially road junctions, there was much digging of trenches and a countrywide ban on road signs. The ringing of church bells was prohibited except as a warning of invasion. All sorts of elaborate anti-invasion tactics were tried out, including an ambitious plan to set the sea alight with petrol. The most bloodthirsty were lavishly featured in newsreels in the optimistic hope that they might scare the Germans off.

The national phobia was that the invaders might come while no-one was looking. The Home Guard practised scenarios in which Germans appeared in the innocent guise of nannies or nuns and earnestly monitored the skies for surprise parachutist attacks. If the enemy really had landed in this way, all they would have found was a corps of well-meaning volunteers armed with a motley assortment of clubs, truncheons and shotguns.

As a desperate measure, there was even a network of Auxiliary Units consisting of volunteer gamekeepers, woodsmen, fishermen and poachers. If the Germans invaded they were to hole up in remote caverns or underground systems ready to ambush or sabotage enemy operations when called upon.

Meanwhile, British households were issued with an information leaflet outlining what to do If the Invader Comes. 'If you keep your heads, you can also tell whether a military officer is really British or only pretending to be so', it claimed - sentencing hundreds of Polish, Dutch and Belgian soldiers now fighting in British uniforms to confusion at a stroke.

A Nation United

They were desperate measures. For a nation on the brink of invasion Britain's military was badly prepared. A summer spurt in the production of all hardware: guns, tanks, planes and artillery meant that by the autumn the country would at least be able to withstand the first wave of an attack. After that, however, the outlook was bleak.

On the eve of the battle the morale in Britain was high. Many people felt genuine relief at having lost all allies. This was a much simpler state of affairs; a direct Us Against Them situation. People who went about their daily business recorded feeling a dream-like sense of history in the making tinged with a profound sense of satisfaction at being the last bastion in Europe to hold out against Hitler. Churchill summarised the general feeling:

'We shall defend our island, whatever the cost may be. 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...'

In July 1940, the Luftwaffe could call on 1,935 serviceable aircraft with a further 190 deployed but out of reach in Scandinavia. Fighter Command had a grand total of 591.

"My good friends, this is the second time in our history that there has come back from Germany to Downing Street peace with honour...

I believe it is peace for our time."

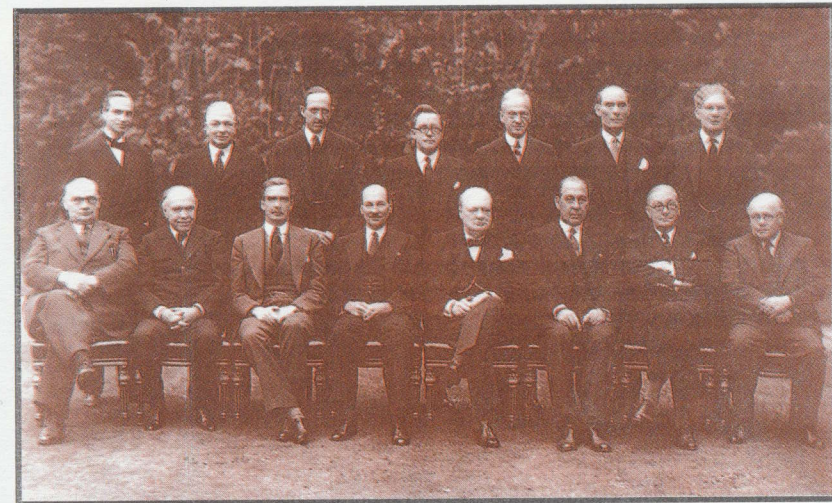
Neville Chamberlain, 1938

"Victory at all costs, victory in spite of all terror, victory however long and hard the road may be; for without victory there is no survival."

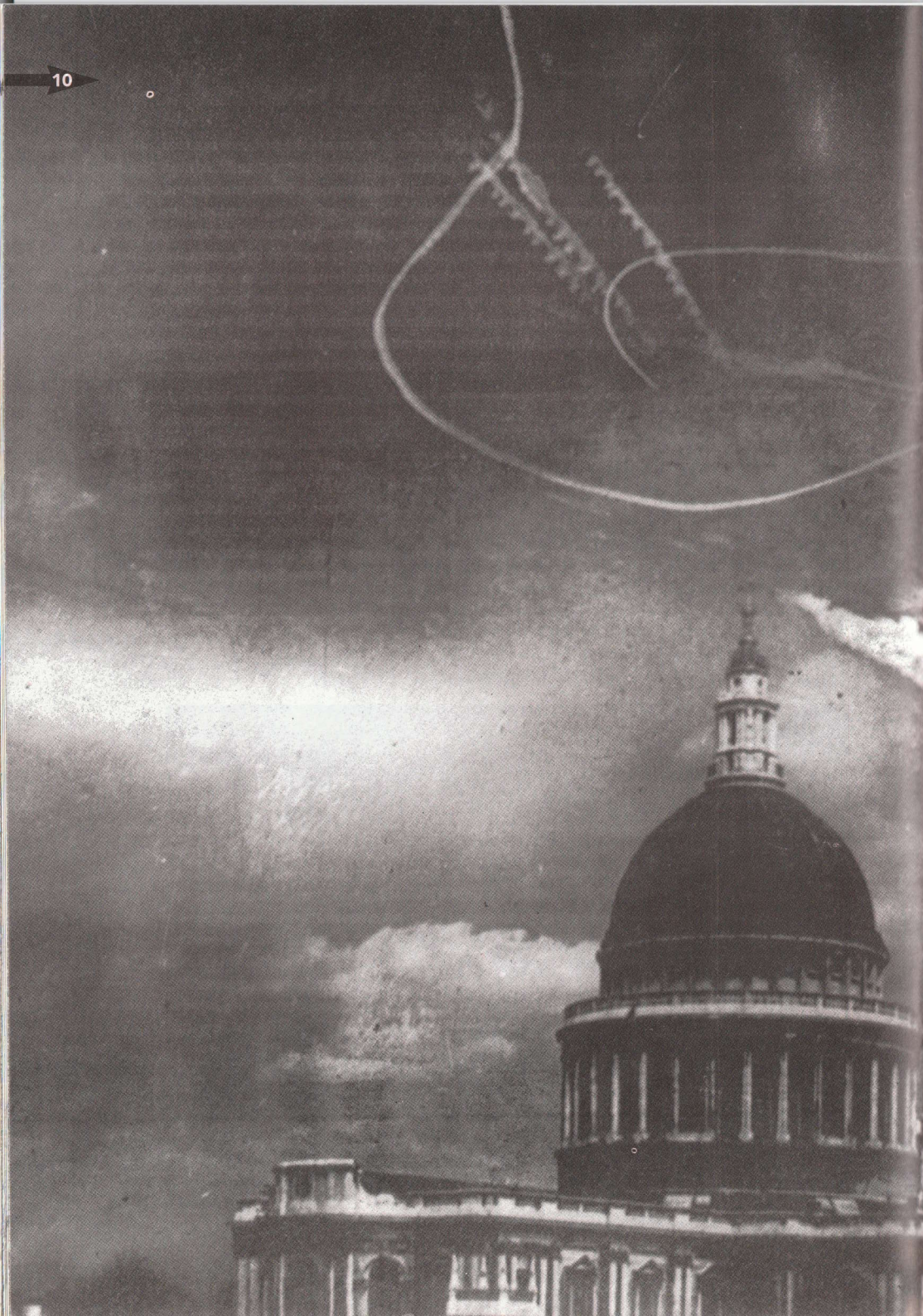
Winston Churchill

"No more advice to listen to, And only England stands."

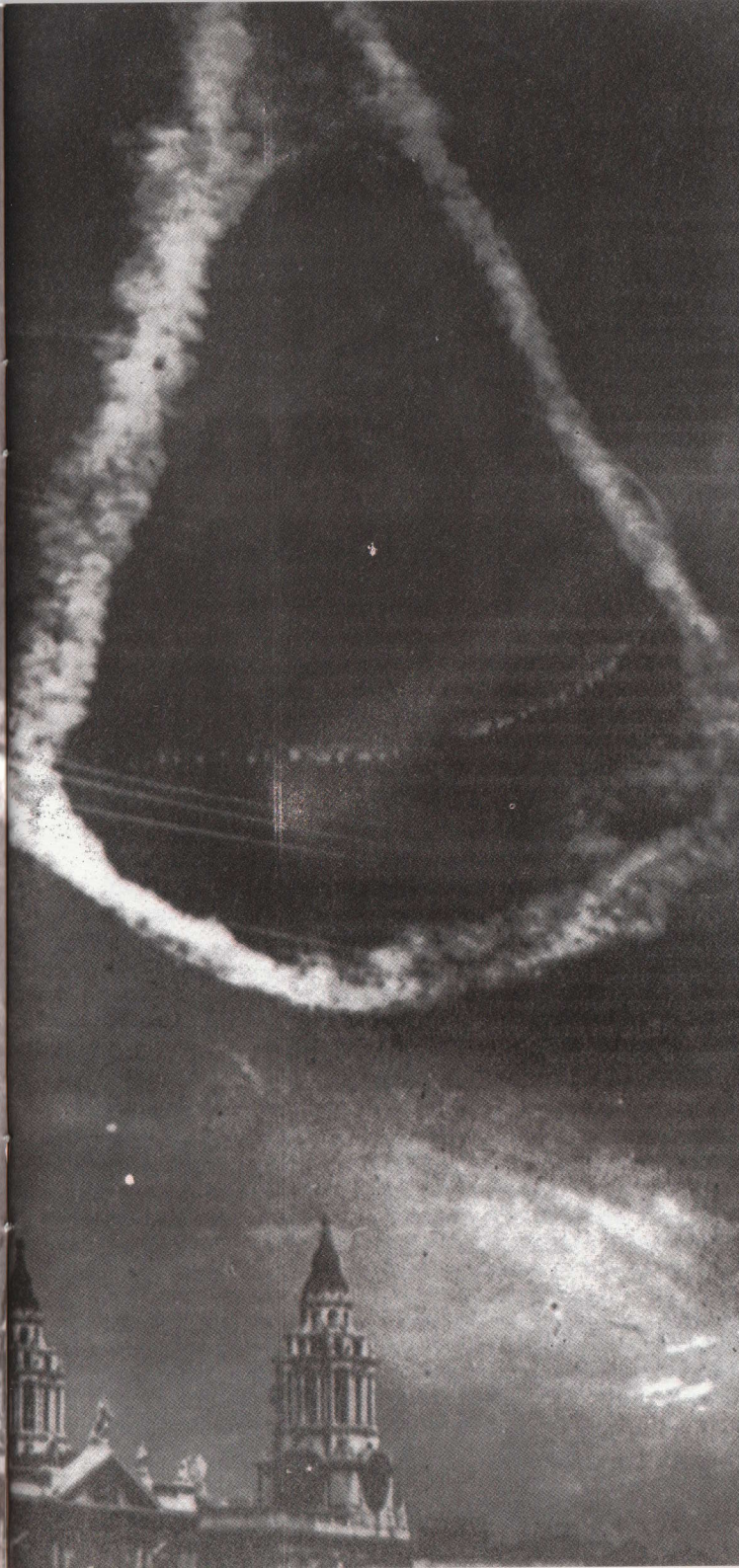
The English War,
Dorothy L Sayers



Churchill's War Cabinet



*The
Battle
of
Britain*



The Battle of Britain

While Hitler and his military advisers pondered the advantages of launching an invasion, Goering, eager to pit the superior strengths of the Luftwaffe against the RAF, initiated his own small-scale offensive over the channel. Under the command of Oberst Fink, Kanalkampf, (the Battle for the Channel) was to be a series of small-scale actions aimed at disrupting British shipping in the Channel and luring the RAF out to protect it. For the British it was a no-win situation. If the RAF responded to the bombing by sending out their planes they were bound to suffer casualties their dwindling force would sorely miss. If they didn't, the loss would be in ships and they couldn't afford to do without them either. The more planes the Luftwaffe could shoot down in advance of the main offensive the better for them.

German and British Forces

With the battle imminent both sides drew up their forces. The Luftwaffe allotted each of its self-contained air fleets (Luftflotten) a specific area of operations. In Scandinavia, Luftflotte 5, under the command of Generaloberst Hans-Juergen Stumpf and assigned to north-east England was actually too far from the battle to have more than a fleeting impact. Air fleets 2 and 3 stationed at forward airfields in France and Belgium were much nearer. Goering drew a line down the centre of England. Everything to the west was the concern of Luftflotte 3 under Generalfeldmarschall Hugo Sperrle, everything to the east that of Generalfeldmarschall Albert Kesselring and Luftflotte 2.

In comparison with the Luftwaffe's system which depended on perfect co-operation between three independent Luftflotten, the RAF was far better co-ordinated. Air Chief Marshall Sir Hugh Dowding, Commander-in-Chief of Fighter Command, was in charge. The country was quartered into Fighter Group areas: 10, 11, 12 and 13. Each had its own squadrons, commander and Operations Room in which women of the WAAF moved coloured counters to show the progress of the battle on a map. All the ops rooms were constantly being updated with information from the radar stations and the Observer Corps, who scanned the skies throughout the country for aircraft the radar might miss. Fighter Command and the Group HQs made overall strategic decisions on what forces to set into motion but tactical control of the scrambled squadrons was the responsibility of the sectors' Airfield Control Rooms; they were in direct communication with their pilots by radio-telephone. For a small air force with one eye constantly on the fuel gauge (most planes could stay airborne for no more than an hour) this system provided the vital cohesion essential for a co-ordinated defence.

Kanalkampf

Phase One: July 10 to August 12

On July 10, as the sun rose over the Thames Estuary the crew of a Dornier 17 spotted the outline of the convoy Bread heading for the Channel. By midday the drone of 20 bombers and 50 fighters could be heard over the Pas de Calais. As they descended on the convoy, Fighter Command retaliated with a force of about 30 fighters; as columns of water from the exploding shells spurted into the sky, a huge dogfight developed. Only one freighter was sunk.

The same day, about 60 Ju 88s attacked Falmouth and Swansea, wrecking ships, a power station, railways and a munitions factory, causing 86 casualties. Further dogfights occurred off Dover and Portland. As the sun set on what was later nominated as the day on which the Battle Of Britain officially began, the RAF had suffered losses of 6 aircraft, the Luftwaffe 13; inevitably both sides greatly exaggerated their success.

For those in the air, the 10th hardly differed from many other days that July and August. At night Goering's bombers dropped mines into the harbours. During the day, specially equipped reconnaissance planes scanned the ground at altitudes too high to be intercepted while bombers attacked as many strategic targets on the coast and in the Channel as they could.

On July 21, Goering singled out an additional objective: The Royal Navy. The aim was to knock out the fleet anchored at Portsmouth and impede the activities of navy ships. It wouldn't do to bomb too indiscriminately though; certain harbour installations had to be left intact to receive the invading fleet.

The action was hotting up. On August 8 a massive engagement was fought over the convoy Peewit; of 20 ships four were sunk and six severely damaged. On the 11th around 70 bombers and 100 fighters attacked the naval base at Portland: in a day of exceptionally heavy fighting the RAF lost 26 fighters, the Luftwaffe 40. On the 12th Portsmouth was primary target for a similarly heavy attack; secondary objectives were the Chain Home radar stations at Pevensey, Rye, Dover, Dunkirk (in Kent) and Ventnor. All except one were back in operation by the next day.



The remains of a German raider that landed in a street in a coastal town in South East England, 25 July 1940

Tactics

"Few people realised what hard work a dogfight was. You concentrated like mad while it was going on. It was an incredibly energetic thing. You'd be wet with sweat."

Scramble, Pilot Officer
Roland Beaumont

"The men who went into combat in the air lived with death and it frightened them. But what frightened them most was something else. They were petrified by the prospect of being trapped in an aircraft that was ablaze and being roasted alive before they could bale out."

Winston Churchill,
War Cabinet Memorandum,
26 August

"After my third burst the enemy made a sharp turn to port and the silhouette it presented was that of a 110. I can remember the picture it made so terribly clearly, it was like a picture out of a book on air firing - 'at this angle place your sights there and FIRE' - which is precisely what I did and his starboard engine flew to bits..."

One of the Few, J A Kent

To the frustration of the Luftwaffe and many of the RAF's top pilots, Dowding and Air Vice-Marshall Park continued to meet the enemy with limited numbers of intercepting aircraft, carefully controlling their forces and resisting the temptation to rise to the Luftwaffe's bait. The policy was well thought out. In an all-out confrontation against the more powerful Luftwaffe they would have risked heavy losses. It would take just one major defeat to leave no planes in reserve to halt an invasion.

For both sides these early weeks were a chance to size up the enemy and come to terms with each other's strengths and weaknesses. The British had been learning, at great cost, that its traditional flying tactics were wholly unsuited to modern air warfare. Close textbook formations (vic or line astern), in which it was vital to avoid collisions, diverted the pilot's attention from the enemy and were highly vulnerable to attack from above or behind. Peeling off to dive on the enemy in quick succession was also next to useless because the Luftwaffe wasn't prepared to oblige by staying still. As the battle progressed, rigid British formations were widened out and several RAF began to adopt German tactics: flying in fours (Schwarm) and pairs (Rotte) out of the sun for camouflage.

The outclassed Defiant had proved too slow and unmanoeuvrable to be much more than a flying coffin for those who attempted to use them against German Messerschmitts. In a tragic incident on 19 July when nine were bounced by several Bf-109s, six planes and ten men were lost in a matter of minutes. The Defiant squadrons were despatched to the safety of the north for the rest of the war.

When the action began, RAF controllers had orders only to scramble fighters against enemy bomber formations, leaving enemy fighters to their own devices wherever possible. As a result unescorted German bombers suffered severely at the hands of Fighter Command. From now on few German bombers crossed the Channel without a protective fighter escort.

As the first phase of battle drew to a close the Luftwaffe had lost 261 aircraft and Fighter Command 127, a ratio of 2:1 in favour of the RAF. So far the actions had been relatively small-scale confrontations and neither force had really been put to the test.

On July 30 Goering received teleprinted orders from Hitler to prepare for 'the great battle of the German air force against England'. Adlerangriff (Eagle Attack) was to begin with a great feint against London, designed to draw the RAF into battle. As hundreds of Hurricanes and Spitfires rose into the air to defend their capital, the Luftwaffe was to swoop in and annihilate. Operation Sealion would follow in about a fortnight - and by that time Britain's air force was no longer scheduled to exist.

Adlerangriff

Phase Two: August 13 to August 23

Bad weather postponed the strike. A lull from the end of June to 10 August gave Dowding a chance to consolidate his forces. In just ten days, the number of operational aircraft rose from 587 to 749 and from 52 to 55 squadrons. In an effort to increase the supply of pilots, the training period was cut from three months to one - a debatable advantage as new recruits lacked combat experience and were far more likely to be shot down than seasoned pilots.

When the Eagle finally struck on the 13th, the Luftwaffe made an undistinguished start. At the last minute, as a result of bad weather reports, Goering cancelled the offensive. The order reached everyone except Oberst Fink at Arras who led his 74 Dorniers straight into battle. As he left he was puzzled to observe a Bf-110 perform a series of breath-taking stunts in front of him but put it down to high spirits. It was in fact a last-ditch attempt to get him to turn back; command was unable to get in touch with Fink any other way - he had the wrong crystals in his radio. On the other side of the Channel, his bombers inflicted heavy damage on bases at Sheerness and Eastbourne, but without their Bf-110 escort to protect them, the Dorniers were vulnerable; five were badly damaged and five were lost.



Burnt-out Dornier aircraft
shot down in England,
19th August 1940

The Luftwaffe fared better in the afternoon. A change in the weather meant the attack was on after all and German planes inflicted heavy damage on the naval base at Portland, the port at Southampton and airfields at Detling and Eastchurch. The cost had been heavy. Against the RAF's 14 losses, the Luftwaffe notched up 39. As a result of conflicting reports and inflated figures, Goering was given to believe that the day's score was nearer 88 RAF planes down. Operation Sealion seemed right on target.

The events of the 15th proved that Luftflotte 5 stationed in Norway, was wholly incapable of coping with the superior fighters of the RAF. 65 Heinkels and 34 Bf-110s were hoping to reach bases in NE England undetected. Spitfire tactics proved too much for the bombers. Those who weren't forced to turn back by the first wave, were bounced by two more waves of fighters once they got inland. The Bf-110s, who'd left their rear-gunners behind because of the excess weight were sitting ducks. Seven were shot down; the rest veered off one by one and headed for home. The targetted airfields - Usworth, Linton-on-Ouse and Dishforth - survived the attack unscathed. For the rest of the battle Luftflotte 5 made no more offensives in daylight and many of its aircraft were transferred to Luftflotten 2 and 3 to aid in attacks on the south.

The same afternoon the Luftwaffe struck factories at Rochester and Croydon airfield and continued bombing Birmingham, Southampton, Bristol and various smaller radar targets well into the night. Luftwaffe losses were high - 75 aircraft - but the damage they had inflicted on grounded aircraft, on radar and on a wide variety of manufacturing facilities was considerable. Fighter Command had been unable to intercept as quickly as usual because of damaged radar stations.

Abruptly, just as Goering's strategies were beginning to pay off, he changed them. Attacks on radar sites were pronounced pointless; intelligence reported that not one site had been put out of action. In fact, of the several that were damaged, Ventnor was completely knocked out. Had they persisted the RDF would have been in considerable disarray. Without an early-warning system Dowding's force would have been much more vulnerable to the Luftwaffe's attack.

Assault on the Airfields

On August 18, The Hardest Day, the Luftwaffe tried a new tactic based on the principle of attrition - wearing down the RAF by persistent exhaustive attacks. From now on two high-level bomber formations approached the target, immediately followed by a sudden assault from a third group, flying low enough to confuse the radar. While the first two formations preoccupied the fighters, the third was intended to reach its target without interception.

In practice co-ordination between low and high-level fighters was patchy. At Biggin Hill, it resulted in a fiasco; the low-level bombers arrived first, found the airfield heavily defended and suffered heavy losses. At Kenley, the low-level force was detected by coastal observers and intercepted but still succeeded in hitting its target. As the smoke cleared the ground crew assessed the damage; the runways were pitted with craters, nine fighters were wrecked on the ground and three out of the airfield's four hangars were in ruins. Amazingly, Kenley was back in operation two hours later - despite the fact that among the litter on the runway lay 20 unexploded bombs.

That day saw minor damage inflicted on several other airfields as well as a massive strike on Poling radar - it was driven off the air for a week. The Luftwaffe had its own problems. Their successes had cost them 134 aircraft, some killed and some taken prisoner. The Ju 87 dive bomber had been proved highly vulnerable; they made up 16 of a total of 71 German aircraft lost. It was to be the plane's last appearance in the battle; henceforward it was reserved for shipping attacks.

A Reassessment

Bad weather impaired fighting until the 24th, giving both sides time to assess their tactics. The German low-level sweeps which had proved so punishing for Kenley were halted on grounds of safety. Concerned at the rate at which the slower Bf-110s were falling out of the sky but unwilling to withdraw such a substantial force from the battle, Goering sanctioned a bizarre policy of fighters protecting fighters. In future Bf-110s were to be protected by Bf-109s. At the same time those Bf-109s assigned to the escort bombers were under strict orders not to leave the vicinity of their charge and to go into action only when the bombers came under direct attack. Between protecting the bombers and the Bf-110s, the superior of the two Messerschmitts was left with very little opportunity to attack the enemy in its own right.

Most significant of all, instead of making moves to consolidate the attack on high-priority targets, Goering gave his aircrew a free hand to pick their own targets on the spot. This was no substitute for an organised and well thought-out campaign.

Meanwhile on the other side of the Channel, Dowding and Park concluded that the defence of the airfields was the vital priority. Pilots were ordered to continue to avoid fighter-to-fighter combat and concentrate on bomber formations.

As their planes skirmished in a small confrontations over the Channel, both sides regrouped and redeployed. Goering thought Dowding was down to 300 aircraft. In fact he had 700.

"Suddenly the Tommy opened fire, and the Messerschmitt in front broke away. I had pressed the gun button at the same instant, aiming dispassionately as we went into a slight left-hand turn. My first shots hit. The Spit streamed a long grey smoke trail and dived steeply into the sea, just off the coast. A great column of water marked the impact. At once I called my victory over the radio, and had enough witnesses to confirm the crash. My first Tommy was down."

Max-Helmut Ostermann, German pilot

*"Born for a war or born for a game.
The factories are burning, but no one's to blame.
In a thousand years they'll be burning the same."*
Aircrew, Brian Allwood, killed in action 1944

*"For Smith, our brother
Only son of loving mother,
The ocean lifted, stirred,
Leaving no word."
Missing, John Pudney*

The Critical Period

Phase Three: August 24 - September 6

"The shrill scream and the deafening crash of bombs shattered my sleep. In the doorway young Worrall, a new arrival, was yelling something and waving his arms. Normally as frightened as anyone, not even bombs could move me then. I placed my pillow reverently over my head and waited for the rest.

Worrall still had the energy to be frightened. I was past caring."

Duel of Eagles, Peter Townsend

"You'd be drinking in the mess one night. And you'd be drinking in the mess the next night. You'd look around and see that two or three who'd been there the first night weren't there anymore. You tried to accept it as normal."

Scramble, Pilot Officer Peter Hairs

As heavily thumbled photographs of battered British airfields circulated through its ranks, the Luftwaffe was preparing for the planned launch of Operation Sealion on August 27. The RAF was close to exhaustion. Fighter production was way ahead of schedule but there was a chronic shortage of pilots. Training programmes were cut to the quick and Dowding initiated a system of squadron rotation to give everyone the benefit of at least some rest but most pilots could expect to be scrambled almost continuously. A concerted battering from the Luftwaffe might just have pushed them over the edge.

For the next two weeks that was exactly what the Wehrmacht attempted to do. The brunt of the attack fell on the airfields. Using sophisticated feint-attack techniques they succeeded in concealing their intended target until the very last minute, leaving the British fighters with insufficient time to get off the ground. In desperation

Dowding mounted a series of exhausting standing patrols but more often than not the Luftwaffe was still able to get through.

Kenley, Biggin Hill, Croydon and Hornchurch suffered heavy attacks. On the very first day of the action, Manston was forced to shut down.

At last the Luftwaffe's tactics were working. By day they attacked the airfields and by night they consolidated their action by bombing selected targets including the industrial centres of Birmingham and Liverpool. Though night attacks were less accurate, they also involved less risk. If the German aircraft were unsuited to night flying the British planes were even more so. Few carried radar; when they did pilots were only just learning to use what proved to be an unreliable system. It was rare for a night-raider to be seen, let alone attacked.

The strain was beginning to tell. Relatively few fighters were destroyed on the ground - it was normal procedure for every working aircraft to be airborne when an attack was expected. But in the air fighter-to-fighter contests were going more the Luftwaffe's way. Fighter Command's victory margins were decreasing steadily; each week its combat strength was being slashed by 10 percent. As bleary-eyed pilots scrambled wearily into the cockpits of their Spitfires over and over again, with little hope of reinforcements it looked like it was only a matter of time before the Luftwaffe declared victory. At the eleventh hour, fate and Hitler intervened.

Attack on London

It was characteristic of the muddle and misunderstanding of the Battle Of Britain that the focal point of the whole campaign should be the direct result of a mistake.

On the night of August 24 a group of German bombers heading for the oil-storage tanks at Thameshaven lost their bearings. When they finally released their bombs, they were way off target. What they actually hit was the East End. While the smoke-filled streets were still echoing to the sound of shattering glass and the piercing scream of sirens, Churchill ordered a reprisal. On the 28th British bombs fell on Berlin. Hitler was outraged and immediately embarked on plans for a retaliatory attack.



The Blitz

Phase Four: September 7 - September 15

9 days later, on 7 September, the bombing of London started in earnest: 350 bombers, accompanied by 600 fighters, reached the coast at 4.16pm, dropped their bomb load over London, then returned to base. A second wave of bombers returned after dark. The docks were subjected to terrific bombardment by high-explosive and incendiary bombs. By 1am there were nine different large-scale fires one of which, the fiercest fire every recorded in Britain, took over 100 pumps to control. 430 people were killed and 1,600 badly injured. It was a baptism of fire for what was to extend into eight months of almost unceasing bombardment: the blitz.

For the next four days, the Luftwaffe followed the same pattern. During the day, the fire brigades desperately tried to quell the fires which would act as beacons to draw the bombers in. During the night, the civilian population fled to private and public shelters or took refuge in the Underground.

The Civil Defence authorities were caught off balance. They had anticipated day-time attacks and weren't prepared for a night-time climax. In the event, there were far fewer casualties than expected. Churchill had anticipated the use of gas, and made preparation for contamination squads to hose down infected streets and houses. Mass-burial sites for pits drenched in quicklime had been selected but in the event they proved unnecessary. Instead of gas attacks, the Luftwaffe relied on oil-bombs and a highly explosive incendiary nicknamed Firebomb Fritz. It was cheap to make, could be transported in the thousands, and landed with terrific force to burn long and furiously.

A combination of surprise and bad weather (which hindered radar tracking) meant that for the first four days, the Luftwaffe bombed London with very little opposition. Goering assumed that the RAF was on its last legs and issued orders for a series of massive attacks designed to wipe out what was left of Fighter Command once and for all.

Battle of Britain Day - September 15

September 15 was to mark the final blow. Just after 2 o'clock a huge formation of Dornier 17s and Bf-109s headed for London. They were met by a force of 170 Hurricanes and Spitfires including Douglas Bader's Big Wing from Duxford more fighters than Goering thought the RAF had left. It was a decisive victory in favour of the defenders. The bombers were forced to drop their bombs erratically over a wide area and the Messerschmitts, already held up once on the way across the Channel, were forced to head for home early on with an eye on their fuel tanks. A second raid later in the day was won by a similarly decisive margin. Churchill, who observed the action from Group 11 Operations Room at Uxbridge, inquired how many fighters there were in reserve. Park's famous reply was chilling: 'There are none'. Fighter Command had gambled the last of its force and won. At the end of the day's fighting, the Germans had lost 56 aircraft, the RAF just 21; 13 British pilots had baled out to safety.

From then on German losses consistently exceeded those of the RAF. Luftwaffe morale was declining - the British, reputedly on the point of collapse since June, simply would not be crushed - and the drain on aircraft was taking its toll. As aircraft were lost on the front line, the factories found themselves unable to keep up.

On September 17 Operation Sealion was indefinitely postponed. To postpone it at this stage was to cancel it; it needed at least two weeks of preparation and bad weather made it impracticable to launch an invasion after October 12. By keeping a tight rein on their forces and concentrating their attacks on enemy bombers, Fighter Command had ensured the survival of the RAF and thwarted the threat of invasion. Though the battle continued into October and the bombing was sustained into the spring, the events of 15 September guaranteed that for Britain the battle was won. Fighter Command had halted the Luftwaffe simply by continuing to exist.

"It is a beautiful summer night, so warm it was incredible, and made more beautiful than ever by the red glow from the East, where the docks were burning. We stood and stared for a minute, and I tried to fix the scene in my mind, because one day this will be history, and I shall be one of those who actually saw it... The searchlights were beautiful, it's like watching the end of the world as they swoop from one end of the sky to the other..."

London girl writing to Mass Observation, September 9 1940

"After the first death, there is no other."
Dylan Thomas

The Epilogue

September 16 - October 31

Though there was little chance of carrying out an invasion after September 15, the Germans continued to keep the pressure on. Unsuccessful daylight attacks against London were launched on the 18th, the 27th and the 28th. For a few days, the emphasis seemed to be on crushing pinpoint attacks by low-flying Bf-109s but this turned out to be no more than another of Goering's temporary diversions. By the end of September Hitler had ordered the German economy to divert its attention to the invasion of Russia. The last great daylight confrontation took place on 30 September in a series of dogfights over Kent. The Germans suffered casualties of nearly one fifth.

From then on the Luftwaffe, restricting themselves to a series of small skirmishes, no longer posed much of a problem by day. By night, the raids on British cities continued to the rattle of anti-aircraft guns. In fact, the guns were largely useless; they needed the target to be illuminated by searchlight for half a minute or more to score an accurate hit. Nevertheless each night gun crews were instructed to fire until their ammunition ran out; the comforting sound of exploding anti-aircraft shells, whether they hit their target or not, was vital for the boosting of civilian morale.

The night-time bombing raids continued to inflict much damage and loss of life well into 1941 though without any decisively debilitating effects. The Battle Of Britain, however, ended by common consent on October 31. As the action in the east heated up, Hitler was reluctant to waste any more aircraft over Britain.

The Few had stopped the Blitzkrieg in its tracks. Just over one thousand young men, many of them under the age of 25 had formed a 'thin blue line' of defence against a massive Eagle Attack. Between July 10 and October 31, the RAF lost 915 aircraft, the Luftwaffe 1,733. But Hitler had lost more than just planes. Britain, having won itself a breathing space to consolidate its forces, remained a thorn in the Wehrmacht's side. Without British resistance in the East Japan might have struck earlier against Western interests in the Pacific. Without Britain to provide the launch-pad the Allies would have found it much more difficult to enter Europe. Without the Battle Of Britain to delay it, Hitler's assault on Russia might not have dragged on into the icy Soviet winter and certain defeat. Arguably, those four months of concentrated warfare over a channel of water about 30 miles wide had consequences so far-reaching they affected the rest of the globe. Churchill's famous words expressed an international debt: 'Never in the field of human conflict was so much owed by so many to so few.'

"We are waiting for the long-promised invasion. So are the fishes."
Winston Churchill, October 21, 1940

*"We chant our ritual words;
beyond the phones
A ghost repeats the orders to the guns:
One Fire...Two Fire...ghosts answer:
the guns roar
Abruptly; and an aircraft waging war
Inhumanly from nearly five miles height
Meets our bouquet of death - and turns
sharp right."*
Unseen Fire, R N Currey



Supermarine Spitfire

The Planes

THE FIGHTERS

Britain's front line defence during the Battle Of Britain depended on two monoplanes - the Supermarine Spitfire and the Hawker Hurricane. The Spitfire was state of the art. The chief virtues of its streamlined metal design were thin wings to reduce air resistance, and a big bubble canopy which gave the pilot exceptional visibility, particularly in comparison with the cramped Bf-109 Messerschmitt.

It was outnumbered by the much more traditional Hurricane. Surprisingly the Hurricane's wood and fabric turned out to be more resistant to exploding shells than the Spitfire's metal. It was also easier to fix; many ingenious repairs were carried out on the spot in squadron workshops. Despite being outclassed by the Spitfire and the Bf-109, the Hurricane proved an exceptionally robust, high performance aircraft; it accounted for over 80% of German craft shot down.

The Luftwaffe's equivalent were two Messerschmitt models: the Bf-109 and the Bf-110. The Bf-109 was their sole single-engined fighter and at a maximum speed of 354mph marginally quicker than the Spitfire and significantly faster than the Hurricane. It was, however, less manoeuvrable than both of them except at high altitudes and when it came to diving out of trouble. Thanks to a fuel-injection system it could plunge straight towards the ground; the British fighters had to swill petrol into the engine by performing a couple of half-rolls first.

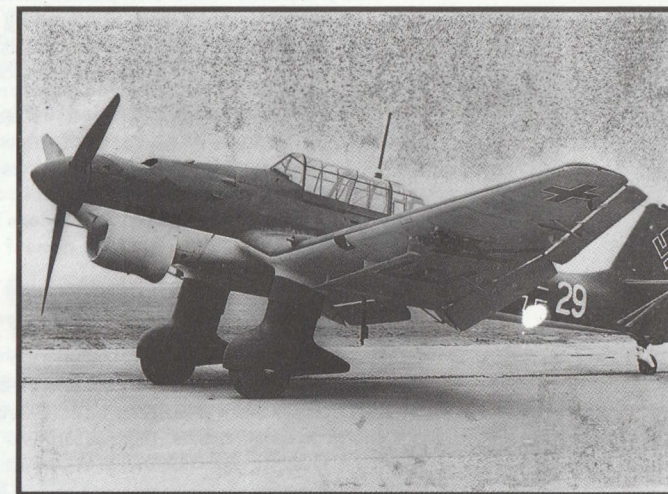
The Bf-110 was the apple of Goering's eye. In fact, though it was billed as the Bf-109's two-man successor it was structurally weaker, had a wider turning circle and slower acceleration. As it came with a formidable armament of four machine guns and two 20mm canons and was 40mph faster than most Hurricanes however, Fighter Command had no option but to treat it with respect.

The Second Line

Britain second-line was defended by the Boulton Paul Defiant, the Bristol Blenheim IF and the Gloster Gladiator II. The Gladiator, which had been severely outclassed in the Battle of France had only a small role to play. The Defiant, with its long endurance and powerful turret armament, designed to battle against unescorted bombers, promised more but ultimately proved totally ineffective against the superior manoeuvrability of the Messerschmitts: they were incapable of rapid fire or dogfighting and were difficult to bale out of. The Blenheim was even slower than the Defiant and played little part in the battle except at night; even then it proved too slow to catch the German bombers.

With its screaming sirens and almost vertical dive-bombing capabilities, the Junkers 87 Stuka, hallmark of the invasion of Poland, rapidly became the symbol of Blitzkrieg. It carried a wireless operator and a rear-gunner and was the only purpose-built German dive-bomber. Nevertheless, despite its success on the continent, it lacked the speed and range to cope with ground defenses and was retired from the Battle Of Britain to concentrate on anti-shiping attacks.

Of the three remaining German bombers, the Junkers 88, the Dornier Do 17 Z and the Heinkel He III, the Ju 88 was by far the fastest and most versatile, partly because its speed gave it a better chance of survival. Unlike its companion bombers, it was still in use long into the war. The Do 17, nicknamed the 'flying pencil' because of its slim fuselage, was a development of a high-speed mail courier, but suffered from lack of speed, poor engines and limited firepower. The Heinkel carried about double the Dornier's bomb load but was troubled by much the same problems of power and speed. By mid-September it had been relegated to night-time bombing on the Channel front.



Junkers Ju 87 Stuka

Radar

Radar was vital to the outcome of the Battle Of Britain. Both nations had been conducting radar research since 1935 but Britain, largely as a result of the far-sightedness of Dowding, had gone much further in consolidating research into a workable reality. Before the familiar whine of German bombers could be heard above the coast, they were already being picked up on the green cathode ray tubes of Britain's RDF (Radar Direction Finding). A network of these Chain Home Radar stations was established all around the country and there was a set of backup Chain Home Low sets designed to track low-flying aircraft.

Radar was the key to the RAF's flexible command system. As controllers were constantly updated on the position of the enemy and the position of their own planes (friendly aircraft were equipped with High Frequency Direction Finding equipment, known as Huff-Duff) they could improvise vital tactics on the spur of the moment. The surprise attack was largely a thing of the past.

Had the Luftwaffe succeeded in blinding the RDF, Fighter Command would have been at a serious disadvantage. In fact their attacks, while they lasted, were largely unsuccessful; radar stations presented pinpoint targets which were difficult to hit and surprisingly resistant to the effect of high explosives. More importantly, the stations' partial overlap reduced the damage done if any one station went off the air.

Barrage Balloons

On the home front, inflated barrage balloons, a massive 62ft long and 25ft across, were a familiar sight. Filled with hydrogen and attached to the ground by cables, they acted as a deterrent against low flying and shallow dive-bombing. When an aircraft struck a cable, explosive cutters cut the wire at the top and bottom. As the plane carried the cable away, the drag of the canvas drogues attached to each end stopped it in its tracks and sent it spinning to the ground out of control.

In July 1940 there were 1,466 barrage balloons deployed around Britain, each one manned by 12 men who raised and lowered them as the weather changed and carried out repairs when they needed to be done. Shooting down barrage balloons was a favourite pastime for bored Messerschmitt pilots.

Rescue at Sea

A baled-out pilot could not hope to survive in the cold water of the Channel for long. The Luftwaffe looked after their pilots well. Equipped with bright yellow skull caps, one man dinghies and sea-dye they had a much better chance of reaching one of the rescue rafts anchored along the breadth of the Channel or being picked up by one of the Heinkel He 59 floatplanes that scoured the sea in search of

them. British pilots had no dinghies and even had to blow up their own Mae Wests in the water - a tortuous process if a man was exhausted or badly hurt. For rescue they relied on lifeboats and encounters with civilian ships. Inevitably, many drowned.

Aircraft Production

As fighters were being shot down on the front line, Britain's factories worked at full stretch to replace them. The Minister in charge of aircraft production was the newspaper tycoon Lord Beaverbrook. He realised that keeping up a vital flow of fighter planes was a vital ingredient of success in the battle and proceeded to kick slow or sluggish factories into action. Engineers worked long hours seven days a week, sometimes through air-raids, to keep up with the sudden rise in demand. Beaverbrook also arranged for planes and engines to be imported from America but by far his most important contribution was to re-organise the Civilian Repair Organisation. About 61% of fighters, declared useless by their squadrons, were actually repaired by the CRO. It was common for recovery and repair to be managed within 24 hours.

The Big Wing Controversy

Dowding and Park's resolute strategy not to release all their planes at once, on the grounds that they had to conserve the RAF's forces, met with opposition from many fighter pilots who put their faith in an altogether grander strategy. Several pilots, Squadron Leader Douglas Bader included, supported big wings - forces of at least three squadrons of fighters designed to meet the enemy on equal terms. These took a long time to form and probably wouldn't have been effective against the enemy until they'd dropped their bombs and were ready to leave, but Bader and others felt this was a small price to pay for the reward of shooting down substantial numbers of Germans. Dowding's policies were the exact antithesis of this. His main objective was to win a war of attrition by breaking up German formations using smaller groups of fighters before they could reach their targets.

Bader's views supported by Air Vice-Marshal Trafford Leigh-Mallory, won increasing favour at Downing Street and on November 25th both Dowding and Park were removed from their front line posts. The men whose clear-headed actions had effectively won the Battle Of Britain weren't even mentioned in the official history published in 1941.

The Pilots

Helmut Wick

Wick joined the Luftwaffe in 1936 and was taught to fly by Werner Moelders. He was 25 at the time of the Battle Of Britain and one of the undisputed stars of the Luftwaffe, not least because of a very likeable indifference to authority. Until he was shot down over the Channel and drowned in November Wick had only two real ambitions: to fight and to fly.

Kills: 56

Werner 'Vati' Moelders

Moelders served as a successful fighter pilot in the Spanish Civil War where he masterminded the pair flying formation so characteristic of Luftwaffe tactics. He was the first Luftwaffe pilot to receive the Oak Leaves to the Knight's Cross for shooting down 40 aircraft in the Second World War and in July 1940 became the youngest Kommodore in the Luftwaffe. In fact, this Luftwaffe star who was later to become General of Fighters had had to work very hard to overcome chronic air sickness before he could fly at all. His luck ran out in 1941 when he was killed in an air-crash.

Kills: 54

Adolf Galland

Germany's second best ace, Galland succeeded Moelders after his death to become General of Fighters. He'd worked with the Luftwaffe since the early 1930s, but left the conflict in Spain before the arrival of the Messerschmitt Bf-109s enabled him to achieve a score of kills as high as Moelders'. Competition between Moelders and Galland was a Luftwaffe legend; despite all Galland's efforts, Moelders was always slightly ahead.

Kills: 52

*Oberleutnant
Adolf Galland,
with his dog*



Josef Frantisek

The highest scoring Fighter Command pilot in the Battle Of Britain wasn't actually British at all. Frantisek had served with the Czech air-force until his country fell, then escaped to Poland, Romania and France to fight against the advancing Blitzkrieg. In France he was awarded the Croix de Guerre; when she fell, he left for Britain, learnt to fly Hurricanes and joined Polish Squadron 303 of Fighter Command. Frantisek had no time for air discipline or tactics and at first didn't fit in with Fighter Command's strategy. Eventually he was granted the status 'guest of the squadron' - effectively carte blanche to pursue the Germans as he saw fit. He continued to attack the Luftwaffe ferociously until he was killed in action in October 1940.

Kills: 17

James 'Ginger' Lacey

From a civilian job as a flying instructor Ginger Lacey joined the RAF as a non-commissioned-officer, was posted to France and managed to shoot down three German aircraft on the first day. At the age of 23 he was among the most experienced fliers of the battle - cool and collected enough to survive being shot down several times.

Kills: at least 15

Bob Stanford-Tuck

Tuck was never a technical expert. When he joined the RAF he was at the bottom of the class in training school and was afraid he wouldn't make the grade. But when he entered active service he discovered a strong instinct for fighter combat. Though he couldn't match the kill ratio of the very top fliers, Tuck was one of the most popular and best-known aces of the battle.

Kills: 10

Douglas Bader

Losing both his legs in a flying accident in 1931 did not deter Bader from continuously applying to rejoin the RAF; they finally gave in when war broke out. His command of 12 Group's 242 Squadron so lifted the pilots' morale that they went on to become one of the most successful flying teams of the RAF. Bader was a major proponent of the Big Wing theory and led five squadrons against the Luftwaffe on the most crucial day of the Battle Of Britain - September 15.

The Commanders

Hermann Goering

Reichsmarschall Hermann Goering, commander of the Luftwaffe was decorated with Germany's highest decoration for valour - the Blue Max - in the First World War. As the Nazis rose to power he became President of the Reichstag and Prime Minister of Prussia. Later he organised the Stormtroopers, founded the Gestapo and initiated the building of the first concentration camps. As the Wehrmacht marched into Europe his status as one of Hitler's favourite right hand men enabled him to lead a highly flamboyant lifestyle. In addition to a troop of servants kitted out in knee-length coats and buckled shoes, he kept castles, town houses and a personal train complete with special carriages for his shopping.

Ironically a career as a fighter pilot wasn't the best qualification for a leader of the air force. A life-time of dogfights and quick air strikes had left him with little patience for the finesse of military planning. His conduct throughout the Battle Of Britain was marked by abrupt changes in strategy and effectively culminated in handing over tactical control to the pilots on the spot. It was to prove a costly error.

Sir Hugh Dowding

The son of a schoolmaster, Air Chief Marshal Sir Hugh Dowding, Commander in Chief of Fighter Command, was educated at Winchester and Woolwich Military Academy where he was trained as a gunner. He learnt to fly just before the First World War, gave it up obediently at the age of 32 when his father forbade it but took it up again when he was drafted into the Royal Flying Corps. In the 1930s it was Dowding, as Air Member for Supply and Research, who channelled the air force's interests towards metal rather than wooden planes, and authorised vital radar experiments. In 1936 he was appointed Commander in Chief of Britain's fighters and moved to Fighter Command at Bentley Priory.

Unlike Goering, Dowding had a keen sense of the tactical potential of a well-co-ordinated air force. He appreciated the importance of the ground control system and stuck to the ultimately successful policy of husbanding his forces despite heavy opposition from within the RAF. Political one-upmanship was never his forte however, and it was almost a foregone conclusion that he would lose the internal power struggle that eventually relieved him of command.

Shot Down Over England

German aircrew who baled out of their planes and survived could expect a mixed reception when they landed. Some were lucky. Major Max Gruber, a Heinkel navigator, was shot at by several soldiers of the Home Guard but taken prisoner as soon as he waved a white handkerchief to surrender. They took him to their headquarters and gave him tea and cakes.

An airman who came down beside the Oval underground station in London had a quite different experience. Civilians converged on him from all directions shouting 'Kill him! Kill him!', then several women began to beat him with knives and pokers. He was eventually rescued by a truck-full of soldiers but died later from the wounds inflicted by the mob.

German airman accepts a drink from his captors



The Home Front

While young men in uniform faced incredible dangers for their country in the skies, civilians fought their own campaign against the Germans on the ground. For the ordinary citizen, faced with rationing, the threat of invasion and subject to bombardment, everyday life was subject to considerable change.

We can't all fight, that's true enough, so find some war work, do your stuff!

Into the Darkness

For many the blackout, which had been in effect since the previous September, proved almost as dangerous as fighting Messerschmitts. So far it had been a bigger cause of civilian death than the war in Europe. At first, traffic lights, car headlights and all kinds of street lighting were completely banned, but as the number of accidents soared, it became essential to introduce a few modifications. Pedestrians were allowed to carry a small hand torch muffled by two layers of tissue paper and masked headlights (which allowed a pinprick of light to escape) were made compulsory.

Even so public transport was a nightmare. Blue bulbs bathed night trains in an eerie light and there was only a small slit in the windows by which to identify your station. On buses, conductors who couldn't see well enough to distinguish the silver from the coppers often returned to base with a pouch full of dud coins. Blackout fashions were all the rage - white belts and berets, gleaming coats for dogs, even gardenia buttonholes treated with luminous paint. Some farmers went so far as to paint their cows a fluorescent white.



For a society that had grown up with the memory of First World War gas attacks the threat of gas was very real. Civil defence volunteers were trained to distinguish different varieties by smell and all civilians had been in possession of gas-masks since the time of the Munich crisis in 1938. They came in all shapes and sizes: Mickey Mouse masks for children and bizarre all-over helmets for small babies who had to rely on the efforts of their parents to pump in the filtered air. There was even a gas-proof pram.

Leaving Home

Plans for the evacuation of mothers and children were set in motion as soon as war broke out, but by the time of the Battle Of Britain, three out of four children who had been sent off to willing households all over Britain - labels attached to the front of their coats and gas masks pressed into their hands - had already returned home. For many it was a disturbing and traumatic experience; culture shock often compounded the misery, especially when well-to-do middle class families were unprepared for the standard of living some of their poorer charges had come from.

Coupons, Carrots and Cod Liver Oil

Food rationing, which for some items was to outlast the war, had been introduced in February, 1940 (petrol had been restricted since the previous September). The first rationed supplies were sugar, butter, ham and bacon. Meat followed in March and tea in July. The attacks on shipping during the Battle Of Britain put even more pressure on the supply lines and as the war progressed, more and more foodstuffs were added to the list: everything from sweets and eggs to condensed milk and oatflakes. Fish, bread (a tough, lumpy wheatmeal loaf) and potatoes were the exception and these became staple ingredients in the nation's diet.

There was an explosion of recipes encouraging the inventive housewife to make the most of what she had. The Food Ministry slipped food flashes into cinema and radio programmes and filled the magazines with handy kitchen hints. It was hard to resist the lure of leaflets offering advice on Making The Most Of Meat and how to do your bit On The Kitchen Front. Substances which everyone had dismissed as inedible were deftly transformed into delicacies at the stroke of a recipe writer's pen. Patriotic families all over the country savoured the delights of radish tops cooked as greens, bracken masquerading as asparagus and carrot marmalade.

*A sailor's blood is on
your head if you waste
a scrap of bread.*

*Be British to the bone
and save your Bones.*

For most rationing managed to provide a nutritious, if unexciting, diet. For the needy, especially young children who received free school meals, cod liver oil supplements and orange juice, it performed an important social service. Even so, many people were tempted to supplement their ration by Digging For Victory on their own allotments - even Hyde Park was eventually parcelled into suitable pieces of land. Others kept their own hens - by 1944 domestic hen keepers were producing a quarter of the nation's fresh eggs - or started a Pig Club, feeding up their porker on communal kitchen waste.

Make Do and Mend

Saving was a virtue; waste was a sin. Careless citizens, who fed bread to birds or failed to save their food scraps could easily find themselves the victim of a council prosecution. Housewives sorted their rubbish into four different categories: kitchen waste for pigswill, paper to make cases for rifles and shells, metal for military hardware and bones to make aircraft glue. Whether pots and pans really were transformed into Spitfires is doubtful; what was important was that saving lifted civilian morale. Everyone was doing their bit.

The effects of bombing during the First World War had prompted the government to prepare carefully for potential bombardment. When the blitz began most people had somewhere to shelter. Everyone with a garden had their own personal Anderson - by far the most widely used shelter during the blitz. Early on public brick surface shelters built to house about 50 local residents and passers-by, were damp, unsanitary and badly constructed - effective death traps if a bomb fell nearby. As their flaws were revealed they were strengthened, but many people still felt safer using the underground trenches that had been dug in the parks.

A number of shelters were improvised - either by local authorities in the basements of strong buildings or directly by the citizens. Among the most popular choices were Chislehurst Caves in Kent (thousands made the train-trip every night) and Tillbury Shelter, part of the Liverpool Street goods yard. Mickey's Shelter was a credit to civilian initiative; it was organised almost single-handedly by Mickey Davis, a hunch-backed East End optician - he even persuaded Marks and Spencer to donate a canteen.

Even at the height of its popularity, the Underground only housed about 4% of shelterers. Though at first the government disapproved on the grounds that all lines should be kept free for potential troop mobilisation, eventually 80 stations in Greater London were transformed into temporary shelters. Between them they housed 177,000 people a night.

*Put it in the bank, it'll
help to buy a tank.*

*Everyone who lends
and saves, Helps
Britannia rule the
waves.*

*Every newspaper you
use to light the fire
helps Hitler.*

*Wastefulness puts a
weapon into
Hitler's hands.*

*Carpets are rare, so
mend that tear.*

Going Underground



It was never a comfortable experience. Plagues of mosquitoes and lice, blasts of hot and cold air and a terrible stench from the tunnels which provided the only source of sanitation, combined to make it extremely unpleasant. Families queued from the early morning to safeguard their place in the line; when they finally got down to the platform they had to wait till the last train left at around 10.30pm before they could settle down for the night. Not all tube shelters were as safe as they looked. On October 14, 600 people were killed when Balham Station, only 30ft below the ground, suffered a direct hit.

Despite all the government's assiduous preparation, as dawn broke after the first night of bombing on the morning of September 8 it became obvious that there was one thing they had forgotten to account for. The preparations for the dead were more than ample; it was the living that no-one had provided for. Thousands were homeless and had nowhere to go. First port of call was one of the city's Rest Centres - makeshift refuges usually set up in schools. They had been intended to provide accommodation for no more than a matter of hours but in the first weeks of the blitz many homeless found themselves stranded there for up to ten days, while alternatives were arranged. Sanitation was rudimentary - many of the bewildered occupants wandered around unwashed and in their night clothes - and basic essentials like food and cutlery were in very short supply. To their credit, the government reacted quickly; by November most Rest Centres were far better equipped.

Lights Out!

As London burned and its citizens came to terms with continuous bombardment the value of a large, organised force of civil defence became clear. On the streets the public face of ARP (Air Raid Precautions) was the Air Raid Warden. Charged with the task of maintaining the blackout, supervising shelters and distributing gas masks the wardens did much useful work but acquired something of a reputation for petty officialdom. Meanwhile, Fire Watchers and the Auxiliary Fire Service (AFS) worked long hours under appalling conditions to impede conflagrations and ease the suffering of those trapped in bomb-damaged buildings.

What seemed new and frightening when the bombardment began, soon became a way of life. A building might be completely gutted but it was business as usual in the next street. Sheltering, rationing, saving, mending and making do were transformed into a daily routine - until family or friends were hit. Under the circumstances, despite restrictions, anxiety and separation, British society continued to function and, for the most part, hold together well.

Further Reading

The Few: Summer 1940, The Battle Of Britain
Philip Kaplan & Richard Collier (Blandford)

Battle Of Britain
Len Deighton (Jonathan Cape)

Battle Of Britain
Alfred Price (Arms and Armour)

A Nation Alone
Arthur Ward (Osprey)

We'll Meet Again
Vera Lynn (Sidgwick & Jackson)

Battle Over Britain
Francis K Mason (McWhirter Twins Ltd.)

