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LUFTWAFFE BOMBER UNITS 1939-41

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FORCE SUPREME

At 05.30 hrs on the morning of 1 September 1939, a *Staffel* of Dornier Do17Z-2s of III *Gruppe Kampfgeschwader* 2 took off from Heilingenbeil in East Prussia to carry out the first medium bomber raid of World War II. Some 45 minutes after Ju87 dive bombers had made their initial strike, the Dorniers dropped their bombs into the craters around the huge steel spans of the Dirschau bridge over the Vistula river, aiming for detonation points set by the Polish Army to wreck the structure. But the Do17s could not better the attempts of the *Stuka* crews and the bridge was blown. The Germans had hoped to capture this link between East Prussia and Germany to speed the advance of the *Wehrmacht* into Poland, although such a minor setback was hardly noticed as the ground forces carved through a weak and disorganized defence.

There were 1,180 twin-engined medium bombers available to the Luftwaffe from 2 September 1939, plus 412 Do17s for reconnaissance within an overall total of 3,652 first line aircraft. To carry out *Ostmarkflug*, the operational units were grouped under *Luftflotte* 1 (East) commanded by General Albert Kesselring, which comprised 1 *Fliegerdivision*, the *Lehrdivision* and some machines of the East Prussia Command, supporting Army Group North and *Luftflotte* 4 (South-east) under Gen Alexander Löhr with 2 *Fliegerdivision* and *Fliegerführer* zbV supporting Army Group South. A few additional units were under the direct control of Göring's HQ at Potsdam. These two commands thus employed a total of 1,581 aircraft for the assault on Poland, 648 of them bombers of the He111 and Do17 type, with 474 reconnaissance, transport and miscellaneous types, 219 dive bombers, 30 Hs123 ground attack aircraft and 210 fighters.

With advance warning of Hitler's intentions, the Poles had time to disperse their fighter force to a

network of well-hidden war emergency airfields before hostilities began, which went some way to offset their numerical weakness and lack of a reliable early-warning system. Losses from the *Kampfgeschwadern* operating over Poland were high considering the strength of the opposition, revealing inadequate defence for bombers to be one of the weaknesses of *Blitzkrieg* planning. German bomber units would in fact suffer a considerably higher rate of attrition than any other branch of the service in the early campaigns. But while the conventional bomber force did not achieve the spectacular successes of the *Stukas*, it was to be an integral part of Luftwaffe operations for the first three years of the war. Additionally, it became a considerable propaganda weapon, but the reason that the German bomber arm did not reach the peak of striking power achieved by other air forces during World War II was because it simply did not have the aircraft to mount a sustained strategic offensive. No bombers in the four-engined class were developed before the war, although such aircraft were favoured by a few individuals and in any event, it is certainly doubtful whether German industry could have met a heavy bomber programme, particularly in the supply of aero-engines. Also, the widespread belief in the 'lightning war' almost exclusively in support of the army, did not encompass strategic bombing on any scale. Great emphasis was placed on numerical strength; vast formations of medium capacity bombers were thought to be capable of dealing with targets of a strategic nature if the need arose. So it was that large numbers of Dornier Do17s and Heinkel He111s had entered service by 1939 and these types, together with the Junkers Ju88, would be the standard Luftwaffe bombers for much of the conflict. They would shoulder the burdens placed on an air force



1. Coded 1H+JA, this He111P of Stab/KG 26 attracted considerable interest when it crashed on a hillside at Dalkeith, Scotland, on 28 October 1939—the first enemy aircraft to fall on British soil since 1918. The aircraft is the subject of our colour profile on page 26. (Associated Press)

unprepared for a long war and give sterling service, but their inability to carry out their primary role effectively in the face of modern interceptor fighters would soon be starkly revealed.

As two of the earliest types to equip the Luftwaffe, the Do17 and He111 were easy to fly and fast for their day. But the pace of bomber development in the late 1930s meant that they were being overtaken in a number of important respects. Principal among these was defensive armament and bomb-carrying capacity. Both types—and all German piston-engined bombers to some extent—relied on hand held machine guns on free mountings, poorly located and with restricted fields of fire. Initially, neither had extreme tail defence; all weapons were grouped in the nose of the Do17, with one rearward-firing machine gun. The He111 had slightly better distribution of armament and in theory at least, one gun could cover every quarter likely to be chosen by an attacking fighter.

For their designated role, the Do17 and He111 also had limited bomb bay capacity. No missile larger than 550lbs could be carried internally—in fact there were few large-capacity bombs available because close support work did not demand their use. When the Luftwaffe was obliged to attack built-up areas and fortifications, large bombs had to be carried externally, further cutting down the slim speed margin its bombers enjoyed against fighters.

To offset these disadvantages, German bombers were fitted with self-sealing fuel tanks, unlike the majority of aircraft operated by their opponents in 1939. Considerable work had also been undertaken in the design of bomb fuses and the electrical system employed was efficient in operation and safe for handling and loading. For aiming the bombs, the Loite 7D tachometric sight was used, being similar in operation to the American Norden and fitted to the majority of types throughout the war.

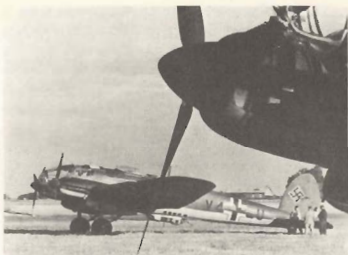
On a typical bombing run, the target was sighted through a gyro-stabilized telescope which was moved by an electric motor. As the bomb aimer held the telescope on the target, information on the aircraft's flight path was fed into a sighting computer which had previously been programmed

with details of the bombs to be used and the altitude from which the attack would be made. The computer gave course corrections which were displayed in front of the pilot. As the target was approached, the sighting telescope moved to coincide with the angle dictated by the computer and an electrical circuit released the bombs automatically. A run of some 40 seconds was required for a standard level flight attack with the Lofte sight, but low-level attacks required the bombs to be dropped manually.

As the *Stuka* and *Schlachtgruppen* decimated the disorganized Polish Army, the *Kampfgruppen* went for the bases of the Polish Air Force. There were 12 major airfields and 75 minor bases on the Luftwaffe's target list, together with aviation support facilities and repair centres. Bombing raids destroyed many aircraft on the ground and although the emergency fighter airfields remained undetected, the Germans believed that their attacks had quickly wiped out the enemy fighter force. A typical raid was made on Kraków airfield on the morning of 1 September, first by dive bombers, then 60 He111s of I and III/KG 4, which dropped 48 tons of bombs. Finally Do17s of KG 77 pounded the base from low level, leaving 28 Polish aircraft in flames.

As the advance forged ahead, the Luftwaffe's carefully prepared list of objectives swiftly became meaningless; *Gruppen* commanders had a large number of aircraft at their disposal and the favourable ground situation meant that they could strike a great many targets simultaneously. In almost leisurely fashion, bombers ranged over Poland in an orgy of destruction.

A paralyzing raid on Warsaw was intended for the first day of the assault under the code-name 'Seaside'. All available bomber units were briefed, but low cloud and fog reduced ceiling to 600ft and the mass attack was postponed. Only KG 27 headed for Warsaw in the morning and by 07.50, more than 100 He111s were approaching the city at 9,800ft when they were intercepted by Polish fighters. Ferocious attacks pressed to point-blank range so



2. Heinkel He111H-3s of KG 1, with V4 + EU showing off the elegant lines of the mainstay of the Luftwaffe bomber force in the early war years.

unnerved the Luftwaffe crews that aircraft broke formation and scattered their bombs indiscriminately to escape the onslaught. Bf110s frantically tried to keep the PZLs away from their charges, as the first major air raid of the war became an ineffectual mêlée of German and Polish aircraft. Six Heinkels were shot down in the 40-minute running fight which spread over an area of 20 miles north and north-east of the city. Bomber gunners managed to shoot down one Polish fighter, but no bombs fell on Warsaw.

A follow-up strike in the afternoon was a little more successful, with dispersed flights of Dorniers and Heinkels raiding the city. Some bombers fled and jettisoned their loads in open country as the PZLs made ultra-close firing passes.



3. A pair of Dornier Do17Zs await the next call to action, probably during the winter of 1939/40.

The scale of the fighting over Warsaw on 1 September was not, however, typical; many targets were attacked in over a thousand bomber sorties, the improving weather conditions enabling virtually all of *Luftflotte 1* to take to the air. Heinkel units were particularly active, aircraft of II/KG 4 raiding Lemburg, I/KG 1 the naval base at Putzig-Rahmel and II/KG 26 rail installations at Posen. Air bases at Gnesen and Warsaw-Okecie were bombed by I/KG 53 and II/LG 1 respectively, while further elements of KG 1, 4 and 26 went after targets east of the Vistula, including the Polish railway system. The Dornier-equipped KG 2, 76 and 77 bombed Krosno, Moderowka, Kielcke and other locations. In total *Luftflotte 1* mounted 30 sorties in *Gruppe* strength, 17 against PAF airfields and installations, eight in support of the army and five against naval targets, losing 14 aircraft and claiming nine air victories. As there were only 159 PZL P.7 and P.11 fighters to defend the entire Polish airspace, and 100 of these were closely subordinated to the various army commands, it was impossible for them to intercept all Luftwaffe raids and bombers were often able to carry out their sorties unmolested.

4. Dornier Do17Z-2s of II/KG 3 raise the dust as they taxi out for take-off for a sortie during the Battle of Britain. The aircraft on the right sports the bird emblem known as the 'Singer of Finsterwalde' used by II Gruppe.



With the weather over the target improving, Operation 'Seaside' was not delayed for long. KG 27 was ordered off from its bases at Delmenhorst, Wunsdorf and Hanover/Lagenhagen at 13.35. Warsaw was 470 miles away and three *Gruppen* of He111Ps reached the city at 17.30 to be met by about 30 enemy fighters. Again, enraged head-on attacks shredded the nerves of the bomber pilots and once more formations were forced to break; the German fighter escort was heavily engaged as bombers were forced to shed their loads over a wide area.

On 2 September, KG 4 bombed the CWL training establishment at Deblin, cratering the runways and destroying a number of aircraft. This sort of attack was subsequently found to have been somewhat of a wasted effort, because those same installations could well have been used by the Germans. But if the actual results achieved by the medium bombers in Poland were occasionally disappointing, their very presence was instrumental in defeating the enemy air force. Obligated to challenge as many Luftwaffe raids as possible, the PAF lost irreplaceable fighters to the escorts and bomber gunners, and gradually whittled away its strength. Despite the fact that a number of the emergency airfields were never discovered, raids on the permanent repair facilities meant that even lightly damaged aircraft could not be made good.

By the end of the first week of war the PAF was virtually spent, overcome by a chronic lack of communication on the ground, actual losses and a general paucity of fighters. The overwhelming superiority of the Luftwaffe also stunted most organized counter-attacks by the Polish Army, but on the night of 9/10 September the Poles had their chance to inflict heavy casualties on the invaders. The Army of Posen, grouped at Bzura in a good position to strike, threw away its chance by awaiting orders to attack. Every available aircraft was flung in to annihilate the threat, even the bombers which had been concentrating on targets far to the east. 1 *Fliegerkorps*, now with KG 1, 4 and 26, sent its bombers over in waves to pound the concentrations of vehicles, horses and men. The appalling carnage marked the virtual end of Polish resistance.

Having won near-total command of the air, the Luftwaffe was free to return to the assault on Warsaw. An ineffectual raid was made on the city on 18 September and by the 19th the land war was all but over and the Luftwaffe withdrew a number of units to Germany, leaving those bomber and *Stuka Gruppen* that remained to force Warsaw into submission. Attempts to destroy the city or persuade it to capitulate had begun on the 16th, when 12 He 111s of I/KG 4 made the first of five leaflet raids giving the populace 12 hours to leave if the military commander did not surrender. Understandably, there was no response from the Poles and at 08.00 on 25 September over 400 aircraft took off to bomb the city. In 1,776 sorties the Luftwaffe systematically pounded the Polish capital with more than 1,000 tons of high explosive and incendiaries. Warsaw finally surrendered on the 27th.

As the combat reports of the bomber *Gruppen* operating over Poland were examined, so steps were taken to remedy the worst deficiencies that had been highlighted. The amount of modification was obviously small—nothing short of completely new designs was the real answer for the much tougher campaigns that lay ahead. Fortunately for the *Kampfverbände* the tactical nature of these campaigns would mean that they would not experience very heavy losses for six vital months.



5. Knight's Cross holder Lt n von Schwerin (left) in the officer's Tuchrock tunic studies an operations map with a fellow member of his Heinkel crew in 1940. The Obertfeldwebel on the right wears the Pilot-Observers' badge under the Iron Cross on his *Fliegerbluse* and both men have Lietz goggles pushed up over their flying helmets.

After Poland, output of the He 111P-2 was terminated to make way for the He 111P-4 with heavier defensive armament and armour protection for the crew; an extra forward-firing 7.9mm MG 151 machine gun was added in the nose and two MG 15 weapons were mounted to fire through side windows over the wing trailing edges. Like the He 111, the Do 17 had seen combat in both Spain and Poland and had had some improvements made already; the most numerous Do 17 variant in service at the end of 1939 was the Do 17Z which could carry a 2,205lb bomb load and up to eight machine guns for defence.



6. An excellent interior shot of an He111H showing the fine all-round visibility afforded by the fully glazed nose.



7. A Heinkel crew in summer-weight flying suits and helmets; the man in the centre wears Nitsche and Günther shatter-proof goggles.



8. A Heinkel crew of KG 53 study their maps before another night sortie; note the flame-damper exhausts and crudely applied black undersides of the aircraft.

9. A last-minute cigarette and talk over the details of the forthcoming operation. All crew members here wear the kapok life jackets over summer-weight flying suits. The man on the extreme left holds the rank of Oberleutnant.



10. En route to the target, the pilot and navigator of a Heinkel are shown wearing the full parachute harness and both woollen and leather gloves.



Following the declaration of war with Germany on 3 September, Britain experienced a period of uneasy peace broken by news of isolated actions at sea, which was the only battleground for some months in the west. Neither side was ready to escalate the fighting any further at that time and RAF and Luftwaffe bomber crews alike were ordered to avoid causing any damage on enemy soil, an order that extended to naval targets in harbours where stray bombs might cause civilian casualties.

Faced with the ships of the Royal Navy, the Luftwaffe had precious few aircraft to mount an effective anti-shipping campaign and the most dire threat to England's lifelines came not from aircraft, but U-boats. Nevertheless, the air force high command was committed to maritime reconnaissance and the air support of German naval units, Göring having demanded that substantial bomber forces be made available to attack enemy shipping whenever the opportunity arose. He saw that the loss of her vaunted capital ships would at very least be a great blow to England's prestige and invaluable grist to the Nazi propaganda machine. But whereas the *Reichsmarschall's* timetable had not envisaged such operations starting much before 1942, when 13 *Kampfgeschwader* were to be available for anti-shipping work, September 1939 saw very slim resources on hand.

By the late autumn *Luftflotten* 2 and 3 in the west had only 280 bombers in nine *Gruppen* and a large force of single and twin-engined fighters, intended primarily for home defence. The officer given the responsibility to organize attacks on the British fleet was Hans Ferdinand Giesler, who took over the newly formed X *Fliegerkorps* in Hamburg in September. His only regular operational unit was KG 26, which had returned from Poland in mid-month and was then based in the Heligoland Bight area with two *Gruppen*, comprising some 60 He 111s. KG 26 was supported by a few examples of the new Ju88A in the hands of I/KG 30, formed in September to evaluate the aircraft operationally. (I/KG 30 was formerly I/KG 25 which was in turn Epr 88, the Ju88 test unit at Rechlin under Helmut Pohl.) The bulk of the unit was not even on the coast; one section remained at Sylt/Westerland under *Ltn* Walter

Storp within Helmuth Felmy's *Luftflotte* 2. Göring and his chief of staff, Jeschonnek, wanted the Junkers Ju88 to be proven in service as soon as possible, against the advice of KG 30's *Geschwaderkommandore*, Helmut Pohl. The latter would have preferred to wait until offensive operations could be mounted in *Geschwader* strength, rather than with the small numbers of aircraft then available, but his caution was overruled. Much faith was pinned on the undoubted qualities of the Ju88, but its long gestation period had made the high command impatient. Thus, the new bomber came to be at the centre of the embarrassing incident of 26 September.

11. An interesting photograph that shows the operational record of a Ju88 about to be updated using the stencil lying on the tailplane. W. Nr 1726 took part in operations against Scapa Flow and had flown at least 17 sorties at the time of this picture. The variant is believed to be a Ju88D and the unit FAGr 120, which had a similarly marked aircraft, W. Nr 1333, coded A6-FH.





12. Limited internal space for offensive weapons meant that two of the three principal German bombers had to carry large-capacity bombs externally. Here, ground crews heave an SC1000 to the wing rack of a Ju88.

Sightings of large elements of the British Home Fleet made that morning by reconnaissance flying boats were passed to Westerland and nine He111s of 1 *Staffel*/KG 26 and four Ju88As of KG 30 took off at 12.50. At the controls of one of the Ju88s was the bearded Carl Franke, whose name became synonymous with subsequent events.

Sighting the British ships after a two hour search, the KG 30 aircraft climbed to 9,000ft for a dive bombing attack—the type of attack that would become the deadly forte of the Ju88. Franke carried out two dives, his target being the carrier *HMS Ark Royal*, and dropped two bombs on the second attempt. Results could not be confirmed owing to clouds and Franke's crew submitted a combat report to that effect. Berlin, however, could not let the incident pass. The following day the German press boldly announced the sinking of the carrier although neither of Franke's bombs had actually touched her.

Two days after the *Ark Royal* action, a solitary He111 of *Stab*/KG 26 became the first German aircraft to fall on British soil in World War II. Flying a reconnaissance over the Firth of Forth, the machine was intercepted by Spitfires. With two gunners dead and a third crew member wounded, the Heinkel put down on lowlands outside Dalkeith in Scotland, breaking its back in the crash landing.

In subsequent weeks, the enemy fleet proved an elusive quarry for the Luftwaffe; the two bomber units at Westerland spent many fruitless hours searching for ships sighted by reconnaissance flights, but to no avail.

The remainder of I *Gruppe* KG 30 had arrived on Sylt early in October and an operation on the 9th was typical of the lack of success the German crews experienced at that time. A full scale strike against the Royal Navy was planned with KG 30 and KG 26 supported by two *Gruppen* of LG 1 in reserve making a decisive attack after *Kriegsmarine* units had lured the enemy ships to battle. Nothing of the kind took place and 127 He111s of KG 26 and 21 Ju88s from KG 30 returned home after hours combing vast tracts of ocean. KG 30's 4 *Staffel* did claim ten hits on British cruisers, but none of them could be confirmed.

Such disappointing sorties plus the *Ark Royal* fiasco did nothing for Göring's peace of mind and he promised unbounded reward to the crew that could remove the spectre of British warships such as the *Hood*, *Rodney* and *Renown*, not to mention aircraft carriers. Following the sinking of *HMS Royal Oak* by a U-boat at Scapa Flow, the Luftwaffe consequently stepped up its surveillance of the British anchorages on the east coast of Scotland. On 16 October a battle cruiser, presumed to be the *Hood*, was reported to have entered the Firth of Forth. KG 30 was briefed to attack the ship, provided that she had not docked. If so, the raid was to be cancelled in accordance with orders not to unduly provoke the enemy.

Having been informed that there were no British fighter squadrons in the area, the 12 aircraft of KG 30 made landfall at 12.15 and flew inland in loose formation. Flying the leading Ju88, Helmut Pohle hoped that this day would see an end to the

frustrating searches for the elusive ships. As Edinburgh slid under the wings of his aircraft, Pohle took in the spans of the Forth Bridge and the docks of Rosyth naval base. Then he saw the target, larger than any other vessel in sight. He also saw that HMS Hood had entered the forbidden waters of the dock and had to be ignored.

There were, however, other ships that constituted legitimate targets: Pohle selected the cruiser *Southampton* and put his aircraft into a steep dive. The air became thick with bursting AA shells as the Ju88 dropped towards the sea. With part of his canopy missing, Pohle reached 3,000ft and let go a single 1,000lb bomb which hit *Southampton* but failed to explode. Pulling out of the dive, Pohle was horrified to see Spitfires open fire on him. These were aircraft of Nos. 602, 603 and 607 Squadrons which had been scrambled as the German attack developed and they made short work of Pohle's Ju88. With both engines shattered and the crew wounded, the aircraft was forced to ditch. Pohle himself was the only man to survive.

Other Ju88s damaged the cruiser *Edinburgh* and caused casualties aboard the destroyer *Mohawk*. Three Ju88s were lost, two to fighters and one to AA fire.

The first foray over the British Isles seemed on the face of it to have been highly disappointing, but the British fleet had heeded the threat. On the following day, 10 October, four aircraft of KG 30, led by its new commander *Hptm* Doench, were again sent over Scapa Flow. There were no warships to attack. Home Fleet had transferred to the safety of the Clyde on the west coast of Scotland, a move which was seen as a considerable tactical success for the Luftwaffe.

The limited scale of air fighting during the autumn and winter of 1939 extended to the Continent, where the French were making efforts to re-equip their air forces with modern fighters and bombers to achieve some state of readiness by the spring of 1940. In Germany, Luftwaffe units were being brought back up to strength after the Polish campaign, new units were forming and fresh crews were being trained. Most German air activity during the period was by reconnaissance units, the majority of



13. The 'Ace of Spades' insignia of 8/KG 3 on the engine cowling of a Do17Z at St Trond during the winter of 1940/41. Black paint has been daubed on the undersides for night operations over the UK.

14. The elegant lines of the Fw200 Condor became an unpleasantly familiar sight to many Allied sailors in the early years of the war when KG 40 conducted virtually a private war against Britain's sea supply lines. The 'World in a Ring' emblem of KG 40 adorns both aircraft here, that in the background carrying the code F8 + CH.





15. Bomber gunners get their eyes in on a ground firing range during a lull in the Battle of Britain. An Oberfeldwebel looses off while an Unterfeldwebel observes the results, which are carefully noted down. Efficient as their weapons were, these men had a fearful task to defend their aircraft under the hail of fire from eight and twelve-gun British fighters and great numbers of them were killed in action.

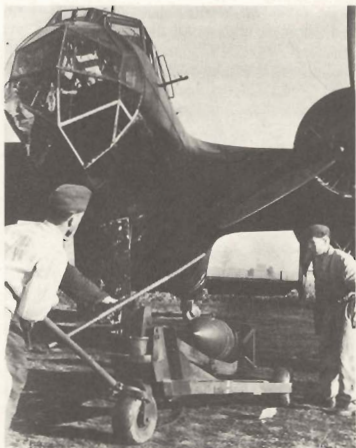
which were equipped with the Do17. Initially, photographic and weather sorties were flown at altitudes of 30,000ft and above, where they were generally immune from interception, but from 11 October 1939, bombers were noted over France at heights around 20,000ft. At 14.30hrs on the 30th of the month, Dornier Do17s of *Aufklärungsgruppe* 123 passed directly over Vassincourt, then the home of No. 1 Squadron RAF. A section of Hurricanes took off and caught one of the German aircraft at 18,000ft, *Plt Off* Mould opening fire before his adversary could take evasive action. The Dornier crashed near Savigny to become the first air victory for the RAF in France.

On 2 November an He111 of 2 (*Fernaufklärungsgruppe*) 122 was caught by Hurricanes of No. 87 Sqn and shot down and 2(F) 22 lost a Heinkel on the 8th, to Curtiss Hawks of GC II/4. November was a particularly bad month with over a dozen He111s and Do17s being lost to British and French fighters and flak. Small numbers of bombers would continue to pay the price of trying to run the gauntlet of Allied fighter patrols over the Western Front until the German attack in May 1940. Between 1 September 1939 and 1 May 1940 no less than 491 bombers of all

types (including Ju88s which made their first appearance over the Western Front in April) had been lost to all causes. Subsequent events would, however, leave little doubt that these costly sorties had achieved their purpose, giving the Germans a very complete picture of the important targets when the attack on Holland, Belgium and France commenced.

By the end of 1939 the Ju88 had equipped two *Gruppen* of KG 30, a third *Gruppe* being added on 1 January 1940. The next recipients of the type would be LG 1, KG 51 and *Aufkl. Gr.* 122, but the He111 remained the most numerous German bomber type, followed by the Do17.

As a prelude to the main offensive against France and the Low Countries, Germany determined to secure Norway and Denmark to forestall any



16. Bombing up a Do17Z for another night raid. The bomb trolley was one of a number in use by the Luftwaffe throughout the war; the type shown was for a single bomb, which was jacked up on the carrying cradle for hand attachment inside the aircraft.



17. A little spit and polish for the canopy of one of KG 2's Do17Z-2s which bears the diagonal white nose band that identified I Gruppe.

counter-attack on her northern flank and safeguard against the use of Norwegian bases by British air and naval forces. Two He111 *Kampfgeschwader*, 4 and 26, were included in the Luftwaffe order of battle for *Weserübung*, supported by the machines of KGr 100 based at Nordholz and the three *Gruppen* of Ju88s of KG 30 with 47 serviceable machines at Westerland. For reconnaissance duties there was I(F) 122 at Hamburg/Fuhlsbüttel with Ju88s.

KG 4, then based at Fasberg, Luneberg and Perleberg, provided one *Gruppe* for a leaflet raid over Copenhagen on 9 April, a second formation mounting a 'show of strength' over Kristiansand, Egersund, Stavanger and Bergen to coincide with the German air and seaborne landings. At the same time, III/KG 26 came under attack by Gladiators of the Royal Norwegian Air Force as its Heinkels flew over Oslo Fjord.

All three Heinkel units provided aircraft to raid Oslo-Kjeller airfield, anti-aircraft emplacements at Holmmenkollen and coastal batteries on the islands in Oslo Fjord on the first day of the assault and by evening the key Norwegian ports and most of the airfields were in German hands. The air bases were immediately occupied by Luftwaffe bombers for attacks on ships of the Royal Navy patrolling off Bergen to intercept German seaborne supplies and their *Kriegsmarine* escort. Between 14.30 and 16.00 all available aircraft of KG 30 and some 40 He111s of KG 26 made repeated runs on the British vessels and

succeeded in sinking the destroyer *Gurkha* and damaging the cruisers *Devonshire*, *Glasgow* and *Southampton*.

By 10 April the remaining Norwegian airfields had been secured; KG 26 occupied Oslo before moving to Stavanger and then Trondheim, eventually becoming part of *Luftflotte* 5 for operations against England. In Norway, III/KG 26 was under the command of Viktor von Lossberg, and for a period during the campaign his aircraft operated from a frozen lake until a sudden thaw set in and one aircraft sank through the ice. Von Lossberg ordered the rest of his unit to jettison their bombs and take off, his prompt action saving the remaining aircraft.

KG 30 also used Oslo, Trondheim and Stavanger, the latter additionally basing I(F)/122, which then had six He111s, six Ju88As and six of the first operational Ju88Ds for reconnaissance. Only one Do17 unit I(F)/120, took part in *Weserübung*.

The main activity for the Luftwaffe in the latter stages of the Norwegian campaign was sorties against British shipping supporting the landings of Allied troops in the vicinity of Trondheim and Harstad, which took place on the 14th. The RAF attacked the newly captured airfields to try to prevent such operations and Fleet Air Arm Skuas put up a spirited challenge to German anti-shipping strikes. A third Allied force gained Norwegian soil on 17 April, going ashore at Aandalsnes.

On 20 April a major Luftwaffe bombing raid devastated Namsos while German troop reinforcements closed in on Allied positions around the town. With excellent air support these ground units



18. A KG 2 Do17Z releases its load; this time the red nose band indicates a machine of II Gruppe.

had virtually surrounded the Namsos force by the 22nd. Striking south, the Aandsnes force joined with the Norwegians to try to stem the German threat and on the 23rd, the carrier *Glorious* off-loaded more aid in the form of the Gloster Gladiators of No. 263 Sqn. Operating from a makeshift airstrip on the frozen surface of Lake Lesjaskog, the squadron shot down a number of German bombers until the 26th, when it had no fuel for the sole remaining Gladiator. Further skirmishes with FAA Skuas resulted in further German bomber losses, but the Allied counter-attack in Norway was simply too limited to achieve any lasting success. On the 28th, the remaining troops were forced to withdraw: once more the Luftwaffe had been instrumental in bringing about a German victory.

BITTER SUMMER

In the early hours of Friday, 10 May 1940, the citizens of Holland were awakened by the sound of aircraft droning westwards towards the cities of Rotterdam and The Hague, and the airfields at Schiphol, Waalhaven, De Kooy and Ypenburg—the German attack in the west had begun. Penetrating Dutch airspace at 03.45, 75 He111s of KG 4, 28 from KG 26, 34 Ju88s of KG 30 and 38 Ju87s of LG 1 fanned out for their briefed targets. Led by the *Gruppenkommodore*, Martin Fiebig, aircraft of II/KG 4 wheeled out over the North Sea to approach their airfield objectives as though they had come from England. The ruse failed; alerted Dutch defences put up a heavy barrage of AA fire and suddenly fighters were among the Heinkels. *Oberst* Fiebig's aircraft plunged down to become one of the first losses in Holland. The rest of the formation bombed Waalhaven as planned, minutes before the first paratroops dropped to secure the airfield. It was a pattern that was to be repeated over and over again as Holland and Belgium were overrun with almost incredible speed.

19. Ground crew manhandle the port wing fuel tank of an He111 during a major overhaul. The great depth of the wing bays is noteworthy.

H-hour for the bomber units attacking French targets on 10 May was 05.35: orders had been held until the very last minute to achieve the maximum surprise and the first sorties were sent off at frantic speed and no little confusion. The Luftwaffe target list had 72 airfields marked out for attack on 10 May, 47 of them in northern France. Over 1,000 sorties were flown by bomber *Gruppen*, but the overwhelming destruction of Allied air forces that had taken place in Holland and Belgium was not achieved in France until 11 May, some crews having difficulty in finding their targets on the first day. But they did achieve widespread confusion, which gave the Germans a major advantage—the expected French counter-attack never came. Over an 18-hour period on that fateful day, some bomber crews flew three sorties, striking French lines of communication, Allied convoys and airfields, for the loss of 26 aircraft.

The Dorniers of KG 2 scored a spectacular success against the RAF on the second day of the offensive, when nine aircraft of II *Gruppe* carried out a low level attack on Conde Vraux airfield. Fragmentation bombs and machine gun fire destroyed the entire complement of Blenheims of No. 114 Sqn in just 45 seconds.

By 13 May the Germans had succeeded in hoodwinking the French into thinking that the Liege sector was the key to the battle, and two army groups rolled into Sedan to establish positions across the Meuse. As the *Stuka* formations turned away from their shattered targets on the west bank of the river, the *Kampfgeschwader* poured their



bombs into the cauldron. KG 2, 3 and 53 flew 310 sorties on the 13th and the bridgehead was firmly in German hands by the 14th, consolidating under a solid screen of Messerschmitts.

On 14 May the last obstacle to a German takeover of Holland was the city of Rotterdam, which was called upon to surrender on pain of destruction by bombing. At 13.00 *Luftflotte 2* ordered KG 54's 100 He 111s into the air from Delmenhorst, Hoya/Weser and Quakenbruch so that they could be over the city at 15.00, the time set for a decision by the Dutch authorities. The target was a triangular zone in the built up area on the north side of the River Maas, opposite the point reached by German ground forces, then grouping for a possible assault on the city.

While the Heinkels were on their way, the deadline for the surrender was extended and orders were sent to signal the bombers to call off their attack. But the radio signal had to be passed by *Luftflotte 2* to KG 54's HQ for transmission to the aircraft; by the time the message was on its way, the Heinkel radio operators had withdrawn their trailing aerials, making reception difficult. Concentrating on the target, the two waves of bombers approached Rotterdam from the east and south-west led by *Oberst* Lackner and *Oblt* Höhne respectively. Dutch flak greeted the Heinkels of Lackner's formation as they swept in over the outskirts of the city and the island in the centre of the Maas to salvo their bombs with deadly accuracy. A few seconds later Höhne followed suit. But only three aircraft from 1 *Staffel* actually released their loads, the remainder turning away as the 'operation cancelled' signals were seen. Red flares were to be fired in the event of the radio signal not being received, but most of these were obscured by haze and smoke. But 57 Heinkels had dropped 100 tons of bombs to devastate the city centre, killing 814 people. At 17.00 the Dutch garrison surrendered.

By making their bold stroke at Sedan the Germans opened a way straight through to the Channel coast, provided that the *Luftwaffe* could contain any French counter-attack which might cut off and trap the leading Panzer columns. By maintaining a gruelling rate of sorties, the *Stuka* and ground attack

units prevented any such threat as the Allied armies fell back towards Dunkirk. Elsewhere the French Army was counter-attacking but medium and dive bomber units managed to keep up the pressure. KG 77 was heavily engaged in the Amiens sector supporting German armour.

By naively assuring Hitler that the *Luftwaffe* could prevent the evacuation of Allied troops from Dunkirk, Göring placed an additional burden on his already exhausted crews and set the scene for the Germans' first major tactical blunder of the war. By 26 May, with the bomber and *Stukagruppen* occupied well away from the beaches and harbour, only I/KG 30 based at Antwerp was available to operate against the pocket. On the following day however, bombers from I, II, IV and VIII *Fliegerkorps* joined the assault; at first light, He 111s of KG 1

20. The 'sharp end' of the Loite 7D tachometric bomb sight installed in an He 111. The fairing enclosed the telescope of the sight.



and 4 came in to dump their loads over the beaches and port installations, followed by KG 54, which sank the French steamer *Aden*. Dive bomber attacks were followed by the Do17s of KG 2 and 3—in total 300 bombers raided the Dunkirk area on 27 May, dropping 15,000 HE bombs and 30,000 incendiaries to block the port and force all further evacuations to take place from the beaches.

But the Luftwaffe was meeting strong opposition above the rolling clouds of smoke from the inferno of Dunkirk: RAF Spitfire and Hurricane squadrons were doing their best to keep the bombers away. KG 2 and 3 were badly mauled during the 27 May attacks, 23 Do17s being shot down.

Bad weather and smoke haze from burning installations brought a lull on 28 May which lasted until 15.30 on the 29th, when Ju88s from KG 30 and LG 1 fell on the rescue shipping. Three British destroyers went down and seven were damaged. Five steamers were also sunk in the five major raids

21. The prancing stallion emblem of 10 Staffel KG 1 alongside the Geschwader motif, the initials of Hindenburg. The Staffel badge was yellow with a black horse and was based on the arms of the city of Stuttgart. The aircraft shown here was coded V4+HU and the pilot is Feldwebel Hans Mevissen, holder of the Knight's Cross.



22. Removing the evidence. The well-peppered tail unit of an He111 receives attention from an airframe specialist prior to repairs. The damage is typical of small calibre machine gun fire and although many German bombers took this kind of burst and returned to base, closer inspection of the picture shows structural damage under the skin.



23. An aircrew of KG 2 'Holzhammer' relax in front of their aircraft. KG 2 was the second Kampfgeschwader (KG 40 being the first) to receive the Do217E, in March 1941.

24. Much of the Luftwaffe bombing effort in the Mediterranean in 1941 was undertaken by I Gruppe of the operational training unit LG 1, which used a red Pomeranian Griffin as its badge. It is seen here on a Ju88A-10, the tropical version of the A-5.

25. In 45 sorties, this Fw200 received the credit for sinking 11 ships between August 1940 and January 1941.

26. Lethal graffiti by Luftwaffe ground crew members before delivery by Do17. The man on the right wears the arm patch of a Gefreiter.



23



25



24



26

mounted by the Luftwaffe that day. Further attacks were made on the 31st and then the first day of June brought a miserably fine day for the men still awaiting rescue. The Luftwaffe threw in everything it had and, by spacing attacks between the RAF fighter patrols, was able to sink 14 vessels including four destroyers laden with troops. But 2 June brought the last major medium bomber strike on Dunkirk, as the bulk of the *Kampfgeschwader* readied aircraft for a massive blow at French airfields around Paris.

Aimed to precede a *Wehrmacht* offensive against French divisions holding the Weygand line, Operation *Paula* brought together aircraft from KG 1, 2, 3, 4, 30, 54 and LG 1 to form a three-wave force of 500 aircraft to deliver the *coup de grâce* to French fighter bases and installations around the capital. Under a huge Messerschmitt escort, the bombers went after 13 airfields, 22 railway junctions and 15 factories and although the *Armée de l'air* could do little to stop them, the set piece strike was not a great success. For the loss of 26 German aircraft, only 16 French fighters were destroyed on the ground plus 17 in air combat and none of the factories were put out of action for longer than 24 hours. But the end was near in France; the overwhelming weight of the German attack had found the French air and ground forces badly organized and with too few modern aircraft (especially fighters) to tip the balance.

The Luftwaffe bomber force gradually slackened its efforts in the closing stages of the battle, for there was little left for it to do. By 16 June armistice negotiations were under way and by the 22nd, the Battle of France was over.

As a preliminary to Operation 'Seelowe', German planning called for the destruction of the RAF as an effective force and complete blockade of the Channel, together with extensive aerial reconnaissance of potential targets and landing areas in

the south-east of England. Three *Luftflotten* bore the brunt of these operations; *Luftflotte* 3 in France, *Luftflotte* 5 in Norway and Denmark and *Luftflotte* 2, which was closest to southern England with bases in Holland, Belgium, and northern France. In Norway was *Luftflotte* 5, which would take only a small part.

The sorties of late June and early July consisted mainly of armed photo-reconnaissance and attacks on shipping and ports, a period known to the Germans as the Contact Phase of the battle. These operations were planned at *Luftflotte* level under the overall co-ordination of *Oberst* Johannes Fink, as *Kanalkampführer*. Phase One, intended to support the invasion proper, would not begin until 8 August.

On 10 July a major strike was launched by 26 Do17s of KG 2 against a convoy in the Thames Estuary, while Ju88s of *Luftflotte* 3 were able to bomb Falmouth and Swansea. Spitfires and Hurricanes clashed with the Dorniers and at least three German bombers were shot down.

Anti-shipping attacks by the twin-engined bombers and *Stukas* continued into August, a major effort being made to destroy a large convoy on the 8th, the start of the Luftwaffe's Phase One.

On 10 August, 165 Luftwaffe aircraft, the heart of the formation comprising more than 50 Ju88s from KG 54 and a score or so He111s of KG 27, made up the largest force that had yet appeared over the Channel. Under a heavy fighter escort, the bombers headed for the oil storage tanks at Portland and Weymouth, where the Ju88s made a successful dive bombing attack while the Heinkels released their loads from a higher altitude, causing damage and



27. A photograph that well illustrates the effect of both weathering and overpainting of light areas with distemper on the fuselage of Heinkel He111H-16s of 8/KG 53.

fires. Those British fighters that managed to penetrate the Messerschmitt screen shot down five Ju88s and a solitary Heinkel.

KG 2's Dorniers returned late in the day to bomb a convoy off Harwich, their Bf110 escort succeeding in keeping the RAF away from their charges, but at heavy cost to themselves.

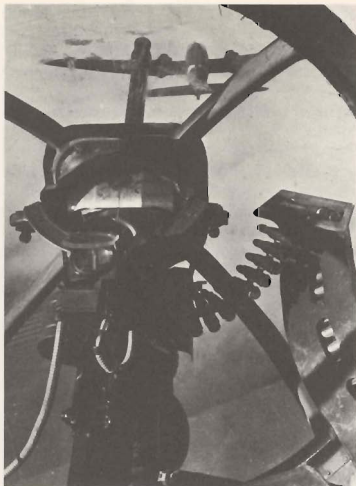
With the elimination of the vital radar stations a primary tactical task of the Luftwaffe, 11 August saw a concerted series of attacks. Bf110s put the Dover station out of action, allowing KG 76 to hit Hawkinge airfield and cause considerable damage to aircraft and installations. A two-pronged attack on Portsmouth and the Isle of Wight by KG 51's Ju88s followed, nearly 100 bombers under heavy escort dividing their attention between the naval dockyard and the Ventnor radar. The main weight of the bombs fell on Portsmouth, causing widespread destruction, and 15 aircraft shattered one of the main Chain Home stations at Ventnor, putting it

of action for several days. The price to the Luftwaffe was high, however, 13 machines from KG 51 being shot down by fighters and AA with several others sustaining damage. KG 2 also saw action that day, when 18 of its Dorniers made a snap raid on Manston airfield in company with Bf110s of EPR 210.

Three days later on the 13th, Göring's *Adlerangriff*, intended to swamp the defences in a setpiece attack by all three *Luftflotten*, started badly when the first raid was recalled. The fighter escort to 74 Dorniers of KG 2 received the message and returned, but the bombers did not. Arriving over Hornchurch, they damaged buildings and destroyed a Spitfire and five Blenheims before turning for home.

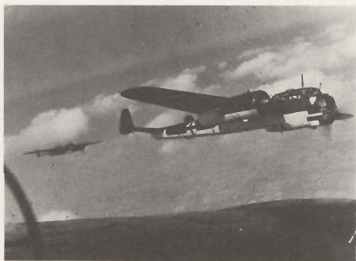
28. An excellent view of a 20mm MG FF cannon fitted in the nose of an He111H-6 and its attendant bracing strip around the entire nose section. The black temporary paintwork on the underside of the aircraft has been carried right forward, but is 'lifted' around the instruction panel.





29. The nose gunner's eye view from the nose of an He111 showing the way in which the shells were fed through a metal 'belt'—there was far too little room in the nose to have 'free' belts of ammunition snaking around. The weapon is a 13mm MG 131 machine gun.

30. A flight of Do17Z-2s of the Stabskette of KG 3 bearing the coat of arms of the city of Elbing; in the centre is 5K+FA.



British fighters intercepted and claimed five machines as the Dorniers raced for the French coast.

It was the afternoon of *Adler Tag* that saw the attack really develop, when 40 Ju88s from KG 54 attempted a feint attack on Portland while 80 from LG 1, the main force, pressed on to Southampton docks. The diversionary raid was met by fighters and four Ju88s went down and six took damage. Harrassed by fighters, the main force accurately bombed Portland and Andover airfield, LG 1 losing three aircraft. The intended airfield target was Middle Wallop, but heavy cloud prevented most of the bombers from finding the sector airfield.

August also saw the start of the long night bombing campaign when the special night pathfinder unit, KGr 100, sent two small formations of He111s to bomb aircraft factories. The Spitfire plant at Castle Bromwich was hardly touched by nine of the Heinkels although 15 came in over the Irish Sea and hit Short Bros' facility at Belfast, their bombs destroying five new Stirling heavy bombers.

The scale of the fighting in the south-east led to the belief that few RAF fighter reserves remained to defend north-east England and, on 15 August, *Luftflotte 5* launched a major attack in this area. Not expecting much fighter opposition, 72 He111s of KG 26 left Stavanger/Sola under Bf110 escort and set course for a number of Bomber Command airfields, including Dishforth and Linton-on-Ouse. A slight navigational error brought the 63 Heinkels (12 having had to return to base with a variety of technical defects) in over the coast near Newcastle. To the dismay of the crews, the British fighters were up in force, determined to break up the German formations. Seven Heinkels fell as the air battle developed, the Bf110s faring equally badly. Without even sighting their targets, the bombers turned for home. En route, a single Blenheim attacked and brought the losses from KG 26 to eight.

More success was afforded the other *Luftflotte 5* raid that day, when KG 30 despatched 50 Ju88s against airfields in Yorkshire. Without fighter escort, the bombers penetrated to Driffield and dumped their loads on the hangars and dispersed aircraft, destroying about a dozen Whitleys. No. 12 Group's fighters were up however, and seven Ju88s

were shot down, three crash-landing in France as a result of damage. The sobering events of 15 August saw the virtual end of *Luftflotte 5's* participation in the battle, both KG 26 and KG 30 subsequently moving to France to resume attacks on England under *Luftflotte 3*.

Throughout this period, RAF fighter airfields were pounded and widespread damage was caused at a number of sector stations. Other targets suffered heavy raids by huge formations as the Luftwaffe approached the zenith of its attempt to achieve air superiority over the intended invasion areas. There was heavy activity in the south on 15 August, with Do17s of KG 3 mounting simultaneous raids on Eastchurch and Short Bros' factory at Rochester. In the latter attack, Stirling production suffered another setback when the machine shops were badly hit. The escorts kept the enemy fighters away from the bombers most of the time, only two failing to return. Targets elsewhere included the radar stations at Maidstone, Rye and Foreness and

Hawkinge airfield, participating units being drawn from KG 1 and 2. Eight Ju88s were lost in attacks on Middle Wallop and Worthy Down, with only light damage at each aerodrome.

A strike at Hornchurch on 16 August by II/KG 2 achieved little, as the bombers were forced to turn back before reaching their objective. A second attack fared only marginally better, the bombs falling over a wide area as the Dorniers came under fighter attack. A concentrated attack on Biggin Hill on the 18th did not result in great damage; nine Dorniers of III/KG 76 went in after failing to rendezvous with 30 Ju88s of II *Gruppe*. The latter hit the airfield after the Dorniers had departed and lost two of their number.

Meanwhile, Kenley had come under attack by Dorniers which went in at medium and low levels

31. As the crew don their kapok-filled life jackets, a Ju88A of I/KG 51 shows to advantage the famous 'Edelweiss' emblem of the Geschwader as well as white engine cowling rims borne by a number of aircraft of the unit.





32. An unarmed Do17Z of the Luftdienst, the general duties organization of the Luftwaffe which carried out many important if unspectacular liaison and communications flights. Bearing the triangular badge with the 'LD' initials, this aircraft also carries the code letters of KG 77, which may indicate that it was a 'war weary' machine, surplus to service requirements.

using their bombs with telling effect on installations and aircraft. Ten Hurricanes were destroyed on the ground. The formation continued on to Croydon where the fighters intercepted and shot down two bombers. The pilot of one Dornier was killed in this engagement but the aircraft was taken over by *Obfw* Illg, the flight engineer, and flown back to France to make a normal landing. Illg was awarded the *Ritterkreuz* for this feat.

The gruelling pace of operations continued for both sides; the Luftwaffe bomber force had lost nearly 130 aircraft since the start of the battle and there was little evidence that the RAF fighters were nearing the end of their tether. Reconnaissance aircraft had suffered badly as well, around 25 having been lost since the beginning of July. The Luftwaffe had to make a renewed effort to destroy Fighter Command if its bomber losses were not to reach a disastrous level. Following a lull in air operations, several large raids were made on the 24th, North Weald and Hornchurch being targets for KG 53 and KG 76. Boulton Paul Defiants shot down three Ju88s from the elements of KG 76 participating in the strike on North Weald. Later in the day, LG 1's Ju88s made a successful attack on Portsmouth without loss.

The 26th recorded an incident which was to change the course of the battle when a number of Hell's jettisoned their bombs on central London. In response to what was considered a deliberate attack on the capital, the RAF bombed Berlin and an incensed Hitler made the fatal mistake of ordering the Luftwaffe to attack London—a respite for the badly battered sector airfields, coming from the least expected quarter. In the interim, the *Kampfverbände* tried its best to knock out the fighter bases from whence their antagonists had steadily whittled away not only strength, but morale. Continued assurances from their leaders that the RAF was about to break rang hollow as the ground crews toiled to ready the bombers for the next days' sorties. More obvious were the missing faces in the mess and the empty dispersals.

Targets at the morning briefing of 26 August were familiar to KG 2 and KG 3 crews: attack Hornchurch and Debden while other formations go for targets in the Dover area; 40 Dorniers running into the two airfields were faced with the all-too-familiar shapes of Spitfires and Hurricanes coming at them head-on. Six aircraft fell and the raid was abandoned—the Dorniers wheeled around and fled for home.

Portsmouth bore the brunt of a late afternoon attack by KG 55, which was to be *Luftflotte 3's* last major appearance for three weeks. On the 27th, I/KG 3 and KG 53 attempted to destroy Rochford and Eastchurch aerodromes, the former raid recording the loss of four KG 53 Heinkels and achieving no results. The Dorniers struck heavy blows at Eastchurch and elements of the other *Gruppen* of KG 3 returned to finish the day's work by devastating the Heinkels' intended target, losing one bomber in the process.

Bomber *Gruppen* of *Luftflotte 3* were ordered to strike at targets in the Midlands during this period and on the night of 28/29 August, approximately 150 machines drawn from KG 27, 55 and KG 806 bombed Liverpool under the guidance of pathfinders. Other targets were attacked in the largest series of night raids on English targets to date, only one German bomber being lost.

The numbers of aircraft involved in raids had

gradually increased until by 30 August some of the heaviest fighting of the battle occurred. The RAF fighters threw themselves at the large Luftwaffe formations but on this occasion, the raiders were able to inflict heavy casualties and damage at Biggin Hill. At night, Liverpool received further unwelcome attention from 130 bombers of *Luftflotte 3*.

The climactic period of the battle gave the Luftwaffe bomber crews the inspiring sight of dozen upon dozen Messerschmitt Bf109s tiered into the sky around them as *Luftflotte 3* made its maximum effort to finally smash Fighter Command. It was not uncommon to see one or more entire *Jagdgeschwader* escorting a single *Gruppe* of bombers at this time, as the RAF was still able to cut down the bombers. But the very numbers of Bf109s were unwieldy, and on occasions the attackers were definitely able to make this fact work in their favour. The reason for the greater concentration of escort fighters was that the *Luftflotte 3 Gruppen* had joined those of *Luftflotte 2* in the Pas de Calais where the latter's strike element of *Stukas* had been withdrawn. The outcome of the Battle of Britain remained precariously poised.

Not infrequently during a battle on such a vast scale, a small formation of bombers met with greater success than the large concentrations, which tended naturally enough to draw the defenders. So it was on 31 August when II/KG 76, specialists in low level attacks, swept through to Biggin Hill and added further carnage to the sorely pressed station. The following day saw yet another attack by heavily escorted Dorniers, which nearly brought the airfield to its knees. Tilbury Docks were also hit badly on 1 September, 18 He111s of I/KG 1 doing the damage, secure under the escort of three *Geschwader* of fighters.

In the first six days of September the *Kampfgeschwader* had lost 107 aircraft, but the tremendous strain on the defenders was showing in a reduced number of interceptions. Then the Luftwaffe's

33. Ground crew men haul bombs and ammunition out to one of III/KG 26's He111s fitted with the two aerials (the third being the standard radio mast) for the X-Gerat homing device. III Gruppe was the second Luftwaffe bomber unit to operate in the pathfinder role, under the guidance of KGr 100, into which it was later absorbed. The aircraft coding is 1H + EP.





34. A Ju88A-4 of KG 30 makes an interesting study as it cleans up its undercarriage after take-off for a bombing sortie. Fuselage code is 4D+AH.

equally fatigued crews were given a respite as Hitler's demands for the bombing of London reached the incredulous *Gruppen* commanders.

The first attack on London was on 7 September, when 348 bombers from KG 1, 2, 3, 26 and 76 escorted by 617 fighters hit dock areas in the East End, causing a conflagration that acted as a beacon to a further 318 Heinkels and Dorniers that night. Ten bombers were destroyed during the daylight attacks. Small-scale daylight raids continued and a larger force assembled to make a number of strikes on 11 September. KG 26 suffered heavy losses when its escort had to return home low on fuel, seven Heinkels being shot down and ten sustaining damage. The climax to the daylight battle came on the 15th. The first raid by 100 Dorniers of KG 3 was intercepted while still some way from the coast and harassed all the way into the target. Six went down before the raid was abandoned, the German aircraft jettisoning their bombs and pushing over into power dives to reach 370mph and then run for the French coast.

More than 150 Heinkels and Dorniers of KG 2, 53 and 76 were in a second wave, which was again challenged with determination. Reaching the city, the German crews indiscriminately dropped their loads all over south and east London before withdrawing, leaving 14 Dorniers and ten Heinkels shot down. A final raid by the Heinkels of III/KG 55 on Portland was also intercepted and at the end of the day, the Luftwaffe bomber force had lost 34

aircraft, with so many badly damaged that a quarter of the available number was out of action. Such a situation could not continue and it was to the relief of the German crews that subsequently the Dorniers and Heinkels would mount most of their attacks at night, those day operations that remained to be flown being the province of the more modern Ju88, which had a marginally better chance of survival. KG 2 now had a number on hand and KG 77, which had been re-equipping with the new type until this time, entered the battle fully operational on the Ju88A-1. III *Gruppe* machines made their debut on the 17th, but lost nine aircraft to over 100 British fighters, including five from 8 *Staffel* and the machine of the *Gruppenkommandeur*, Maj Maxim Kleis.

Luftflotte 3, anticipating that all enemy fighters would now be engaged in the south, risked an attack on the Bristol Aeroplane Company's works at Filton on the 25th. A small number of Ju88s of LG 1 flew a diversionary attack on Portland while 58 Heinkels of KG 55 achieved surprise and pounded the target hard, destroying eight new aircraft on the ground and causing sufficient damage to facilities to halt production. The price was five Heinkels, shot down by the fighter squadrons that recovered quickly from the unexpected direction of the raid. Next day KG 55 returned, aiming its bombs at the Spitfire factory at Woolaston; again the attack was well executed and brought production to a standstill. Only one of the 59 participating Heinkels was lost, the defenders sending the fighters off too late. A second strike on Filton the next day fared badly when Hurricanes intercepted early and 30 Heinkels, accompanied by Bf110s, were forced to turn back.

The 27th gave Londoners a ringside seat to a bitter air battle over the city as 55 Ju88s from I and II/KG 77 attempted to hold their formations together under the withering fire from the many Spitfires and Hurricanes that took advantage of the lack of a German fighter escort. The Junkers had missed the rendezvous with their fighters and consequently lost 12 of their number, although the *Jagdflieger* arrived in time to shoot down a number of British fighters. Two further Ju88s, from LG 1, were also lost in other sorties that day.

By the end of September, Luftwaffe bomber activity in daylight was definitely on the wane; on the 30th, the last air combat involving the *Kampfgeschwader* in any numbers took place over London and its outskirts. The first raid, by 200 aircraft, lost three Ju88s. A second by KG 30 failed, with at least two Ju88s shot down, while I and II/KG 55 attempted to bomb Yeovil with abortive results, four He111s falling to fighters.

By early October 1940, deteriorating weather brought a welcome lull in operations against England and the sortie rate fell to a mere shadow of that of the last three months. Intensive combat flying was not new to Luftwaffe bomber crews, but this time the end of the campaign did not bring victory celebrations; they had—understandably—failed to single-handedly create the conditions for a seaborne invasion—the English Channel was not the Maas or the Vistula.

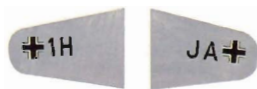
While the Luftwaffe prepared for a lengthy war of attrition against the British Isles, it could hardly have been realized that the fortunes of the *Kampfgeschwader* were already at their zenith.

NIGHT BLITZ

The start of night bombing operations brought to the fore the activities of *Kampfgruppe* 100, which pioneered the use of pathfinder techniques and was to lead the majority of Luftwaffe raids over the UK. The unit had its origins in *Luftnachrichten-Abteilung* (Air Signals Department) 100, formed in the winter of 1938/39 to experiment with new radio and navigational equipment for use in pathfinder operations. Placed under the command of *Oberbefehlshaber der Luftwaffe*, responsible directly to Göring, *Ln. Abt.* 100 flew its first experimental pathfinder operation in Poland on 1 September. Based at Köthen, it then comprised 7 *Kompanie* with Ju52/3ms and 8 *Kompanie* with He111Fs, commanded by *Oblt* Friedrich Aschenbrenner. On 30 September 1939 7 *Kompanie* received Heinkels and became 1 *Kompanie* the following month. A *Gruppenstab* was formed at the same time, and issued

Major in flying clothing, 1940. The fawn 'summer' flying suit and fleece-lined 'winter' helmet were often, in practice, worn together. The goggles are Nitsche & Günther shatterproof type with dark lenses. Rank patches appear on both upper arms, and the suit collar is left open to display the Knight's Cross. The helmet radio-jack is slipped into the chest pocket for neatness, during an inspection of aircraft and crews by some senior commander.

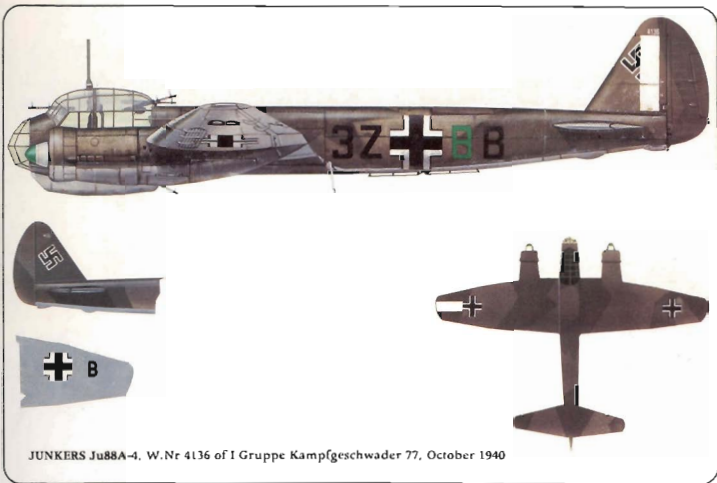




HEINKEL He111P of the Stabskette/Kampfgeschwader 26, October 1939



DORNIER Do17Z-2 of the Stabskette/Kampfgeschwader 3, 1940



JUNKERS Ju88A-4, W.Nr 4136 of I Gruppe Kampfgeschwader 77, October 1940

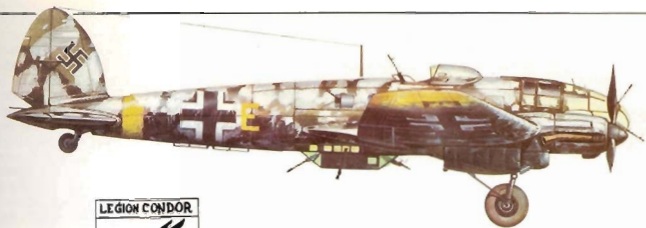
OPPOSITE TOP: Heinkel He111P of Stab/KG 26 coded 1H + JA in the low-contrast camouflage paint of Green 70 and 71 typical of German aircraft operating in the European war theatre. Non-standard details include the retention of two Balkenkreuz on the top surface of each wing, a practice that had generally been dropped on operational aircraft by the outbreak of war. The machine also carries its full coding on the wing upper surfaces and has no black area in the swastika. Available photographs appear to show that as there was sufficient contrast to the white outline of the swastika, the black device was not always necessary. As related elsewhere, this particular aircraft became the first to fall on English soil when it crashed at Dalkeith, Scotland, on 28 October 1939. The 'Löwen' badge of KG 26 became one of the most famous in the Luftwaffe in the early years of the war as the unit operated on every front.

OPPOSITE BOTTOM: Dornier Do17Z-2 of the Stabskette/KG 3 at the time of the Battle of Britain. In standard camouflage, the aircraft has the white identification bars used by formation leaders for operations over England. The green-outlined individual letter denotes a staff aircraft and the nose badge the home city of the unit, Elbing, the device being the city's coat of arms.

ABOVE: Junkers Ju88A-4, W.Nr 4136 of I/KG 77, October 1940. This particular aircraft was shot down by AA fire on 3 October at Hertingfordbury, Hertfordshire, after making an individual attack on the de Havilland factory at Hatfield. In standard camouflage, the aircraft bore the single white bar to identify a formation leader which appeared as shown and on the port side of the fin only, covering the swastika and the original position of the W.Nr, which is repeated above it.



HEINKEL He111H-6 of 6 Staffel Kampfgeschwader 54, winter 1941/42

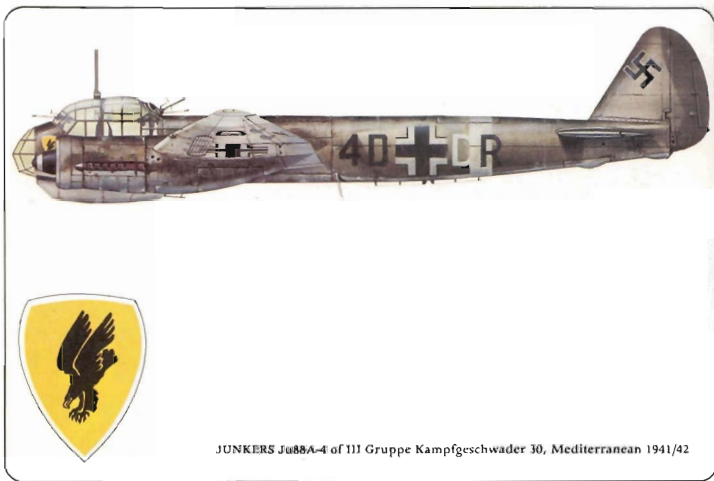


PAGES 28-29: Heinkel He111H-6 of 6 Staffel/KG 54 'Legion Condor' operating over the northern and central sectors of the Eastern Front during the winter of 1941/42. With its original European camouflage daubed with white distemper to render it less conspicuous against the snow-covered landscape, the aircraft soon took on an extraordinarily 'beaten-up' appearance. Many variations of 'winter' camouflage were used in Russia but in general the yellow (or white on the Southern Front) identification markings in the form of bands on the fuselage and overpainted wingtips, were not completely obscured. The underwing trim of this aircraft had already been partially overpainted by black distemper for night operations and only the individual letter shows through. The badge of KG 53 carried a different coloured band to denote the Gruppe, in this case II Gruppe's red.

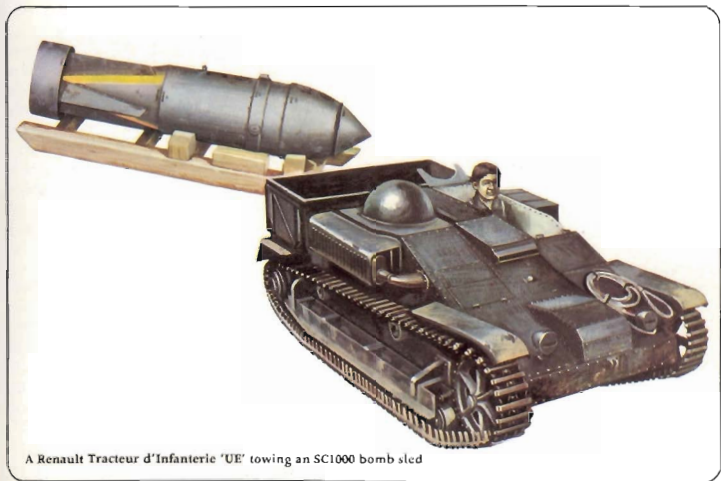
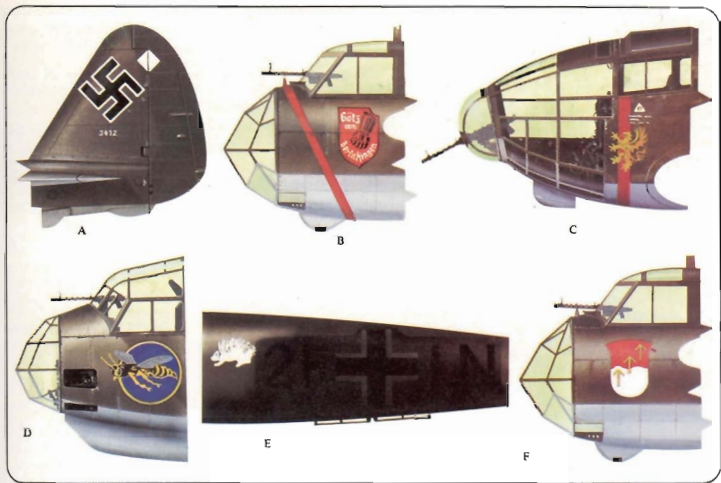
BELOW: Junkers Ju88A-4 of III/KG 30 'Adler' operating in the Mediterranean area, late 1941/42. The aircraft retains standard 70/71/65 camouflage, albeit considerably faded. The machine bears the widely used white fuselage identification band for Luftwaffe aircraft in the theatre and the individual letter 'D' is in the 7 Staffel colour. The Gruppe was identified by the shield colour in the unit badge, in this case yellow. The black and white spinner treatment is typical of German bombers in general, such decoration being common in all theatres.

OPPOSITE TOP: (A) Tail unit of Ju88A-4 of KG 1 coded V4+DR showing the white diamond used to identify aircraft of 7 Staffel. (B) The striking 'Iron Hand' badge of 6 Staffel/KG 2, which was an adaptation of the emblem of the knight Götz von Berlichingen. The red diagonal band of II Gruppe was widely applied to Do17s of II/KG 2. (C) The unit emblem of KG 55 'Greif' shown without the usual shield background to the griffon device, which was the Giessen city coat of arms. The vertical red band identified III Gruppe. (D) The hornet emblem of 12 Staffel/KG 76 on a Ju88A-5. (E) One of a number of animal designs painted on the fuselages of He111s of 5/KG 28, in this case 2F+IN based in East Prussia in September 1939. II/KG 28 became II/KG 54 in 1940. (F) The emblem of 9 Staffel/KG 76 on the nose of a Do17Z-2.

OPPOSITE BOTTOM: Among the many captured vehicles used by the Luftwaffe during the war years were personnel carriers such as this French Tracteur d'Infanterie 'UE'. Manufactured by Renault, it was a development of the Latil Tracteur 'N' which was in turn based on a Carden Lloyd carrier design. It is shown here towing a sled for an SC1000 bomb.



JUNKERS Ju88A-4 of III Gruppe Kampfgeschwader 30, Mediterranean 1941/42



A Renault Tracteur d'Infanterie 'UE' towing an SC1000 bomb sled



Feldwebel in full flying kit. The Luftwaffe steel helmet was often worn as splinter-protection over the leather flying helmet, here the summer model. The kapok-filled life jacket was normal issue for bomber crews early in the war. This Heinkel navigator wears parachute harness, with snap-hooks for the separate parachute pack on the chest. To confer with the pilot, he uses an oxygen line clipped to the right side of the cockpit.

Obergefreiter in everyday Luftwaffe service dress with 'flying blouse', carrying 'start' and 'stop' flags for directing aircraft in the take-off pattern. Piping of collar and shoulder-straps, and collar patches with metal ranking, are in the yellow of the flying branch. Rank chevrons on left arm only.



with two Dornier Do17U variants, 15 of which were built specifically for pathfinder duties. Both *Kompanie* (8 *Kompanie* having become 2 *Kompanie*) then had 24 He111s and both were renamed *Kampfgruppe* 100 on 18 November 1939 to encompass a *Gruppenstab* with one He111H and two Do17Us; 1 *Staffel* with 11 He111s and a single Ju52 and 2 *Staffel*, which had 12 Heinkels. The Ju52 had originally equipped both *Kompanie* and the last machine was relinquished on 27 January 1940, the two *Staffeln* then combining to become I/KG 100.

Each of KGr 100's aircraft was equipped with *X-Gerat*, the adaptation of the Lorenz blind-landing aid that worked in conjunction with four radio beams to enable the aircraft to be guided to its target and drop its bombs automatically. By following a course parallel to a beam pointed directly at the target—the approach or main beam—the aircraft flew to the first cross beam 30 miles from the target and then flew directly along the approach beam; the second beam was timed to cross the main beam 20 miles from the target, at which point the navigator depressed a button to set in motion the first hand of a special clock. Five miles from the target, as the aircraft crossed the third beam, a second button started the second hand of the clock and the first hand stopped. As the second hand ticked round towards the stationary first hand, the bomber was on its target run-in. When both hands of the clock came together, an electrical contact closed and released the bombs without any further action from the crew.

Sophisticated though *X-Gerat* was, it had a range of only 180 miles: *Knickebein*, the second target-finding radio aid, had a number of advantages, not the least of which was that its effective range increased with the altitude of the aircraft. *Knickebein* also worked on the same three radio frequencies as the Lorenz receivers fitted in all German bombers, thus eliminating the need for any extra equipment.

Only two beams were needed in the *Knickebein* system, one approach beam for the aircraft to follow, the other to bisect at the target. The simpler—though less accurate—device also meant that crews did not need any special training to use

it. By late 1939, three *Knickebein* transmitters were established: at Cleve near the Dutch border, at Stollberg on the west coast of Schleswig-Holstein and at Lörrach in south-west Germany.

The all-out daylight effort by the Luftwaffe in the campaigns in the Low Countries, Scandinavia and France saw little need for night bomber operations, and it was not until the night of 14–15 November 1940 that KGr 100 carried out its first major pathfinder sortie. In a remarkably successful combat debut for a new system, the *Gruppe* led elements of KG 1, 3, 26, 27, 51, 55 and LG 1 and *K.Fl.Gr* 606 to Coventry. The force of about 500 bombers was the largest yet mustered for one operation, which was Luftwaffe Target No. 53, codenamed *Korn*. The armament and aero-engine factories in the Coventry area were the primary objectives and specific aiming points were allocated to the *Kampfgeschwader* involved.

When the effect of 503 tons of high explosive, including 50 parachute mines and some 30,000 incendiaries could finally be estimated, the Coventry raid was seen to be one of the most destructive ever mounted by the Luftwaffe up to that time. Of the 180 principal factories dotted in and around the city, 111 had sustained damage in varying degrees and the majority of specified industrial targets were hit by the units assigned to them. By far the worst damage occurred however in the historic centre of the city, which was devastated in the 12-hour raid.

Other provincial British cities suffered the attentions of KGr 100's pathfinder Heinkels, but none of them were subject to quite the concentration of destruction that had torn out the centre of Coventry. A heavy raid on Birmingham took place on 19 November when the pathfinders guided 396 aircraft of KG 26, 54, 55 and KGr 606 to the target.

In its operations against England, KGr 100 was fortunate in being based at Vannes in Brittany, which was far less prone to bad weather than other airfields in France. Even when conditions were generally unsuitable for flying over much of the country, the unit maintained a high number of serviceable aircraft and a steady sortie rate.



35. A useful close-up of typical headgear, goggles and oxygen mask worn by bomber pilots.



36. A few bomber units followed the practice of painting the Gruppe emblem on the engine cowlings of their aircraft as well as the Geschwader emblem on the nose, among them KG 77. Here a Ju88A-4 in flight finish awaits its crew, who make final preparations for a sortie. The umbrella in a gunsight emblem denoted I Gruppe; a point of interest is the swastika chalked on the underside of the engine cowling.



37. Anxious eyes scan the sky as the bombers return from a sortie. Both airmen wear the Fliegermütze, parachute harness and lightweight flying suits. The man in the centre holds the rank of Hauptmann.

38. The striking badge of KG 77; the background colour denoted the Staffel which in this case is probably 6 Staffel's yellow.

39. Bomber crews relax, each man in his own way, before a flight. Various details of equipment can be seen here, including parachute packs, flight bags, manuals and maps. All individuals are wearing the summer-weight flying suit with leather belts and some sport Lugers.



The pathfinders usually maintained a height of 12,000ft over the target, releasing flares and incendiaries for the main force, which would be positioned at 6,000 to 20,000ft—depending on conditions, the strength of the defences and the type of bombs to be used. Bombs were released on a pre-arranged signal by the formation leader if a concentrated or pattern bomb strike was to be made, otherwise individually, each bomb-aimer picking his own target.

In night attacks, the bombers were timed to arrive over the target at set intervals in order to disrupt the defences for the maximum possible time. This method invariably led to destruction being confined to small areas, nowhere near the vast conflagrations caused by the RAF and USAAF later in the war. But the use of pathfinders ensured a far higher degree of damage in a concentrated area, as the Coventry raid showed.

While London remained the principal target for the Luftwaffe throughout the winter of 1940/41, Hitler and Göring calculating that the British Government would eventually sue for peace if enough of the city was destroyed, the *Blitz* gradually spread to other conurbations in order to paralyze the British will and means to resist. By 6 September, when invasion was deemed to be too costly an undertaking due mainly to the continued presence of the RAF, Phase Two of the Battle of Britain began, which was to last until June 1941. This latter was the Luftwaffe's full-scale 'economic war' on England, aimed at disrupting production in vital industries, including coal, iron, steel, textiles, chemicals and armaments. A strategic bombing directive issued to *Luftflotten* commanders in November set out the objectives:

- 1.(a) Daylight attacks on London to continue, using escorted fighter bombers and single bombers using cloud cover
- (b) Night attacks by *Luftflotte* 2 and 3
2. Attack industrial areas of Coventry, Birmingham and Liverpool with small forces at night
3. Carry out mining of the Thames, Bristol Channel, Mersey and Manchester Ship Canal (*Fliegerkorps* X)

4. Destruction of the Rolls-Royce aero-engine plant at Hillington, Glasgow by III/KG 26 using *Y-Gërat*
5. Damage the enemy fighter arm by fighter sweeps
6. Attacks by escorted bombers on Channel convoys and shipping in the Thames
7. Destruction of the enemy aircraft industry by special crews of *Luftflotten* 2 and 3
8. Attacks on enemy night fighter bases
9. Prepare attacks on Coventry, Birmingham and Wolverhampton using *X-Gërat*
10. Bomb loads to be used in the two proposed large-scale raids on London:
 - (a) Half the formation to use heavy and heaviest bombs
 - (b) Half to use incendiaries.

All the targets mentioned in the directive were attacked with varying results, although a raid on Wolverhampton was cancelled owing to prior British knowledge. The use of *X-Gërat* has already been mentioned; the device preceded the more complex *Y-Gërat* which was all but nullified by British radio counter-measures, these having already had some detrimental effect on *X-Gërat* sorties.

Y-Gërat used a ground transmitter to align the aircraft on an approach beam radiating 180 pulses a minute. This was picked up and analyzed to give a true reading of the aircraft in relation to the beam. In order to determine the exact moment for bomb release, the same ground station sent out additional signals which were received and re-transmitted by the aircraft, enabling the distance from the station and the target to be accurately measured: the release point was then radioed to the crew.

Y-Gërat was ready for use by the end of 1940 and the omnipresent KG 26 was chosen to initiate its operational use. Elements of III *Gruppe* began working-up trials with the new equipment at Poix near Amiens, using ground transmitters set up at Cherbourg and Cassel in addition to one at Poix. But the Germans were too late. Immediately operations started, the British were able to re-transmit the ranging signal on the same frequency with the



40. The 2,000th sortie flown by FAGr 123 is recorded at a ceremony in the field. The Luftwaffe's reconnaissance units fulfilled a dual role for much of their existence, there being only limited use of specialized unarmed aircraft for photographic, mapping and weather sorties. Such units did sterling work although the individual nature of their work brought high casualties on occasions. This Ju88 is coded GH, the last letter indicating 1 Staffel, which may have used the stylized eagle badge seen surmounting the banner along with the yellow and black hammer and anvil badge of 3 Staffel.



41. A Ju88 of KG 54 "Totenkopf" receives a full load of fuel for a night sortie, as evidenced by the black lower surface paintwork extending to the white areas of the fuselage Balkenkreuz and the forward portions of the spinners.

result that bomber crews did not receive their bombing instructions. The effect of jamming was overcome on occasions by switching frequencies and some attacks were carried out under Y-Gerat guidance when British transmitters were off the air or could not cover a particular area. In general however, the service use of the device was disappointing. Also, by the spring of 1941 a number of KG 26's aircraft had been shot down over England and given the enemy all the information needed to jam it completely.

Inclement weather continued to bring reduced bomber sorties over England in January 1941, only 2,465 being possible against 3,844 in December 1940. Three aircraft were lost to night fighters as the defences strove to bring airborne interception radar to a reliable peak and stop the German bombers' nightly incursions.

February saw the night *Blitz* enter its final phase with a heavy raid on Swansea on the 19th; subsequently there would be 81 more raids on English targets until 10 May, when the bulk of the bomber force was transferred to the east. A change

of emphasis followed Hitler's directive of 6 February indicating that England's lifelines were to be the priority targets: 46 raids were consequently made, mainly on ports, with seven raids on London, five on Birmingham, two on Coventry and one on Nottingham. The Luftwaffe mustered 50 or more aircraft for 61 operations over England in 1941.

Weather continued to play its part in protecting Britain's cities and population in February, but March brought clearer conditions and the number of sorties rose to 4,364. But the airborne defences were recording more success and 22 bombers were shot down that month. Luftwaffe crews also had another hazard to contend with at this time as the RAF began sending fighters over the Continent expressly to shoot down the bombers as they landed. Having operated without much interference thus far, some bomber crews lacked vigilance to an extraordinary degree and individual RAF pilots were able to shoot down two or three aircraft from the same formation over one airfield before the defences were alerted.

The battering London had taken since the previous autumn culminated in the heaviest attack of the war in the night of 19 April when 712 bombers caused extensive fires in the City. April 1941 saw the greatest bomb tonnage dropped on the UK in the entire campaign since November 1940—5,448 tons. But as the number of sorties by German

bombers increased, so did their losses. With five squadrons of Beaufighters and some Blenheims available, the RAF was able to claim the destruction of 48 enemy raiders. In addition AA guns claimed 39.

The last—and costliest—raid of the *Blitz* took place on 10 May 1941, when 550 aircraft dropped another 700 tons of bombs on London for the price of 29 bombers lost to night fighters. In eight months the night offensive against the British Isles had cost the Luftwaffe approximately 600 bombers. Widespread destruction had been caused to the major cities and essential supplies and services and 40,000 civilians had died as a result. The campaign had failed in its primary objective and Germany herself would soon reap the whirlwind as her cities were razed to the ground—as England's would have been had the Luftwaffe had the aircraft with which to do so.

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The directive issued by Hitler on 6 February 1941 outlining the future conduct of the economic war against England was vastly over-ambitious in nearly all respects—there was little reason to believe that the Luftwaffe could, with the forces then at its disposal, achieve any dramatic change in the prevailing situation. But things were altogether different when the blockade took the form of attacks on ships at sea. The second half of 1940 and early 1941 had seen an alarming increase in losses of shipping to U-boats, the success of which force was backed in no small way by the crews of *Kampfgeschwader 40*.



Having originally been formed as a long-range reconnaissance *Staffel* under *Oblt* Edgar Petersen on 1 October 1939, the unit saw its first action against British shipping in the spring of 1940, equipped with a small number of Fw200C-0 Condors. The *Staffel* acquired *Gruppe* status in June 1940 and began to receive examples of the Fw200C-1, the first military production version of the Condor, early machines being conversions of transports. Based at Bordeaux-Mérignac, I/KG 40 began an anti-shipping and reconnaissance campaign that was to bring successes out of all proportion to its modest size.

In January, KG 40 was placed under the operational control of the *Kriegsmarine* and by 9 February, it had claimed the sinking of no less than 363,000 tons of shipping for the period since 1 August 1940. In March 1941, II *Gruppe* KG 40 was formed to become the first unit to equip with the new Dornier Do217E-2 for anti-shipping work, increased Allied defences having made such work hazardous for the Condors. Their modified role became that of convoy shadower, orbiting out of range of available defences and radioing the positions of the ships to *Fliegerführer Atlantik* for action by U-boats.

AFRICAN SKIRMISHES

The opening of 1941 found the German Luftwaffe in a position vastly different to that of 12 months previously; since the campaigns in France and the Low Countries, which had been more successful than even the Germans had dared hope, the abortive daylight campaign against the British Isles had brought crippling losses and shown many weaknesses in both tactics and equipment. To achieve what it had in 1940, the Luftwaffe had also lost 1,950 twin-engined bombers and had 1,000

42. A Dornier Do17P-1 of a long-range reconnaissance *Staffel* about to taxi from a bleak airfield, believed to be in the far north. The exact unit is unknown, but it used a badge consisting of a cross in grey and blue with a polar sun setting in the centre.

damaged—or about half the total of 4,201 aircraft of all types lost in combat. In all categories except dive bombers and Bf110 fighters, the losses had exceeded the total deliveries of new aircraft for the year when the figures for machines damaged and lost to non-operational causes were added.

Even more serious was the loss of a large number of experienced crews—a fact that alone should have brought an accelerated training programme and as well as increased production of existing and new aircraft types. But 1941 would see neither, despite the fact that Hitler intended not only to continue the economic war against England, but deploy forces in the Mediterranean to shore up his Italian ally and reach out for new territory in the east. The new year would, therefore, see the Luftwaffe making a supreme effort to retain the initiative on three separate fronts, which to its credit it was just able to do with the same size force with which it had entered the war. That things changed for the worst after 1941 was no fault of the steadfast crews themselves, who often accomplished their tasks far in excess of expectations.

By January 1941, X *Fliegerkorps* was established in Sicily, its primary task being the protection of Axis supply routes across the Mediterranean. It then comprised: 50 Ju88s of LG 1 and 1(F)/121, 50 He111s of II/KG 4 and I/KG 26 which, under Maj Bertram von Comiso had transferred from Norway, two *Gruppen* of Ju87s, one of Bf110s and a transport *Gruppe* with 36 Ju52s. On 10 January, part of this

43. A Ju88A-2 with underwing RATO packs in service with Aufkl. Gr. 506.



44. Loose snow clouds back from the wheels of a Ju88 of Aufkl. Gr. 122 as it takes off for an Eastern Front sortie.

force attacked a British supply convoy approaching Malta under naval escort which included the aircraft carrier HMS *Illustrious*, which was a prime target. The convoy fought its way into the relative safety of Malta under a storm of German and Italian bombs, the *Regia Aeronautica* also attempting to sink the carrier with torpedoes. *Illustrious* was badly hit by dive bombers, but a medium altitude attack by He111s at 13.30 failed to score more than one hit. Five bombers were damaged by AA fire.

Subsequent assaults by Ju88s of LG 1 on the 16th and 19th were not able to prevent the carrier from leaving Malta for Alexandria on the 23rd. Meanwhile, the Luftwaffe bases in Sicily were receiving attention from RAF bombers and a number of Heinkels and Ju88s were destroyed. The first Luftwaffe bomber to be lost in air combat in North Africa was a Ju88 of II *Gruppe* LG 1, shot down by fighters on 15 February.

It became obvious that the island of Malta had to be eliminated as an Allied base if the thinly stretched Luftwaffe forces in the Mediterranean were to achieve a safe passage for Axis shipping and a major bomber strike was planned for the 16th. As the Italians had already mounted numerous attacks on Malta, the Germans were led to believe that a *coup de grâce* was all that was needed. But as the early weeks of 1941 brought an increasing number of sorties against the island, it was clear that the Italians had failed—the German aerial siege of Malta had begun. A heavy raid on 26 February did succeed in putting Luqa airfield out of action for



almost two days, but time and again the handful of RAF fighters managed to survive the storm of high explosive and rise to challenge the bombers.

By early April, Luftwaffe sorties against Malta began to slacken off as units moved eastwards to support the curtain-raiser to Operation *Barbarossa*, the invasion of the Balkans. For the time being, Malta was left to the *Regia Aeronautica*.

On 6 April German and Axis forces crossed into Greece and Yugoslavia, making rapid advances. Having already fought a lengthy campaign against the Italians, the Greek Air Force was well below strength and the Yugoslavs' motley collection of obsolete and modern aircraft could not hope to put up more than token resistance to the 1,200 aircraft available to *Luftflotte 4*. The surrender of Yugoslavia came within days of the wanton bombing of Belgrade by KG 2, II/KG 4 and KG 51 on the first day of Operation *Marita*. In one of the most destructive raids it had ever mounted against a city, the Luftwaffe annihilated large sections of the built-up area and caused some 17,000 civilian casualties.

The destruction of Belgrade was specifically ordered in a directive to *Luftflotte 4*, together with the elimination of the Yugoslav Air Force and wide-ranging attacks on military installations, including those at Novisad, Banyaluka, Gradiska and Dubrovnik. A number of German aircraft were lost to Yugoslavian fighters and flak, but by 9 April the rapidity of the advance had again proved decisive. *Wehrmacht* units had then reached Salonika and also cut off most of eastern Greece.

At 18.00hrs on the 6th, III/KG 30 took off from Gerbini to mine the approaches to Piraeus harbour. Leading 7 *Staffel*, *Hptm* Hajo Herrmann took his

45. Temporary winter camouflage and Eastern Front markings on a Ju88A-14 of Aufkl. Gr. 22. The fuselage code indicates an aircraft of 2 *Staffel*, in which case the individual letter 'D' is probably red.

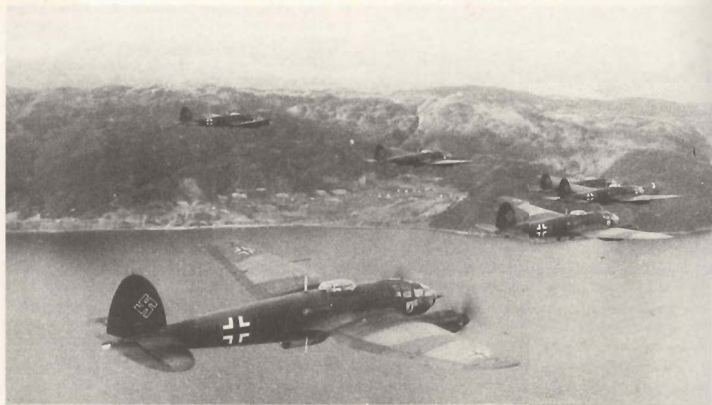
aircraft in at low level to make a combined bombing/mining attack. Picking the freighter *Clan Frazer*, Herrmann released his bombs. There was a fantastic geyser of flame and smoke as 250 tons of high explosive went up, taking ten other vessels with it and rendering the port of Piraeus unusable for weeks to come. The German crew had been unaware of the deadly cargo carried by the ship and were extremely lucky to get clear of the explosion, but a single anti-aircraft gun managed to put Herrmann's port engine out of action. Using all his piloting skill, Herrmann managed to put his Ju88 down on Rhodes.

Ltn Georg Sattler flew three sorties on the first day of the fighting in the Balkans, piloting a Ju88 of I/LG 1. The unit was then based at Krumovo in western Bulgaria and soon after dawn Sattler's aircraft took part in an attack on fortified flak positions in the Struma Pass. In the afternoon his target was the Yugoslav Army HQ in Skopje and finally a munitions factory at Krusevac, which was left in flames.

The RAF fought a gallant rearguard action in Greece, a considerable effort being made to hamper German motorized columns in the face of heavy opposition from fighters. British fighters accounted

46. Its nose section crowded with men and guns, a Dornier Do17Z-2 of KG 53 shows off the Ustasha emblem of 15 *Staffel* which was manned by Croatian volunteers.





47. The 'Löwen Geschwader' in the air; six He111H-6s of I/KG 26 believed to be en route to a target in eastern Europe. The nearest aircraft, 1H+1K of 2 Staffel, was previously coded 'M', this letter still appearing on both wingtips. The contrasting camouflage colours are noteworthy.

for a number of Luftwaffe bombers although bad weather frequently interrupted the operations of both sides. On 11 April, Ju88s of III/KG 30 fell foul of Hurricanes while engaged upon an attack on Piraeus harbour in company with He111s, believed to have been from II/KG 4, carrying mines. The latter unit had arrived in Rumania in April after a period of mining operations over the English Channel to mine the Suez Canal. Two aircraft from the force engaged over Piraeus were shot down by the Hurricanes.

The harbour area saw considerable action as the short, bloody, Greek campaign drew to a close, to end in yet another German victory. On the 20th, 100 Ju88s under heavy fighter escort shattered the airfield at Piraeus. Four days later, British forces began to evacuate Greece and on the 27th, Athens was in German hands. Luftwaffe losses for the campaign were reported as 164 aircraft.

By late April, the only obstacle to Axis domination of the entire eastern Mediterranean coastline was the island of Crete. Taking a decision that probably cost him victory in Russia, Hitler ordered the invasion of the island by airborne forces. It took five weeks to secure Crete, by which time the cream of the paratroop force had been wiped out, making any further airborne operations, especially against Malta, impossible. Had the German armies attacked Russia five weeks earlier, the war in the east may have taken a very different turn.

Flying into the Dodecanese, the Greek Islands and Morea, the Luftwaffe began the blockade of the approaches to Crete and the softening up of the garrison prior to the glider and paratroop assault. Well protected by fighters, the bomber *Gruppen* undertook an intensive shuttle service of bombing, aircraft even refuelling and taking off singly to keep up the pressure. All supplies to the garrison had to come by sea, and by exploiting its air superiority to the full, the Luftwaffe sank 25,000 tons of shipping in 19 days of May. Operation *Merkur* began on the 20th with a maximum effort by the Dorniers of KG 2 and Heinkels of KG 26 at 07.05, followed by dive bomber and strafing attacks by single and twin-

engined fighters. But despite an incredible pounding from the air, the defenders of Crete were able to take a terrible toll of German paratroops as the attack got under way.

The landings continued on the 21st and 22nd, but progress on the island was slow. A strong force of British warships caused havoc with German attempts to reinforce by sea, but suffered heavily at the hands of the Luftwaffe. Dive bomber attacks were followed on the morning of the 22nd by KG 2, I and II/LG 1 and II/KG 26, the Royal Navy losing five destroyers and three cruisers sunk in the period to 1 June, when Crete was evacuated.

In the southern Mediterranean, Malta's defences were strengthened on 3 April by the arrival of 12 Hurricanes flown in from the carrier *Ark Royal* while the land war in the western desert entered a period of stalemate. By the 13th Tobruk was still in British hands but German forces had surrounded the town. Air activity also slackened off as the Luftwaffe concentrated on the Balkans, but the abortive pro-Nazi *coup d'état* in Iraq began on 4 May, air support for Rashid Ali's cause being given in the shape of Heinkels of KG 4. These aircraft flew

a few sorties, backed by Bf110s, in Iraqi 'colours of convenience' until the end of the month. An armistice was signed on 31 May and the Luftwaffe aircraft returned to their units.

The summer months saw the available Luftwaffe bomber force continue raids on a number of targets, including the ports of Tobruk and Alexandria. In mid-June LG 1 mounted a series of night attacks with all available Ju88s, the first concentrated night operations it had carried out since the *Blitz* on England. Each raid however, was met with blinding searchlights and heavy AA fire which claimed a number of aircraft. Mining operations were also undertaken by LG 1 during the period, the targets often being Tobruk and Benghazi—which changed hands four times in a year.

By the autumn, the release of *Luftflotte 2* from eastern front duty enabled a renewed offensive to be made against Malta, which began on 20 December. Under the command of Albert Kesselring

48. Open air maintenance for Ju88A-4s of KG 30 believed to be during the early stages of *Barbarossa*. These are probably aircraft of 5 Staffel, which operated under the command of *Fliegerführer Kirkenes* in the north. The red background to the *Geschwader* badge denoted II Gruppe.



approximately 200 aircraft were then available, half the force allocated to *Luftflotte 2*, the remainder re-equipping after leaving Russia. The force comprised: five *Gruppen* of Ju88s, KG 606 and KG 806 at Catania; I/KG 54 at Catania and I and III/KG 77 at Comiso, plus four *Gruppen* of fighters, two of Bf110s and one of Ju87s, plus a number of Italian fighter and bomber units. To oppose this armada, Malta then had about 70 RAF fighters.

By the end of the year the Luftwaffe had flown 60 sorties over the island and lost six bombers—the greatest effort was yet to come in this corner of the Mediterranean.

EASTERN FRONT

At 03.15hrs on 22 June 1941 three German armies smashed their way into Soviet Russia to begin the first phase of Operation *Barbarossa*, the most ambitious military expedition of the twentieth century. Above the racing *Panzers* the Luftwaffe roved the skies, blasting the Red Air Force wherever it appeared. Russian aircraft were destroyed piecemeal; the loss figures ran into hundreds within hours, entire air bases and their units being wiped out. Bombers flew continuously to sweep ahead of the army and ensure that no enemy interference could take place.

KG 2, 3 and 53 had flown their first sorties at 03.00, leading the attack on 31 airfields and nine other targets. Four, five and six sorties became the order of the day for fighters and *Stukas* and up to eight for bomber crews. By 25 June, V *Fliegerkorps* had flown 1,600 sorties in support of Army Group South, KG 51, 54 and 55 supported by JG 3 having accounted for nearly a thousand aircraft—by the 29th it was estimated that the Russians had lost 4,990 machines on all fronts.

Many generals doubted Hitler's timetable of eight weeks for the Russian campaign—in that time the German armies had to dominate a front 2,000 miles across, stretching from Odessa in the south to

Kirkenes on the Arctic Ocean. But from assembly points in Poland, Hungary and Rumania these forces raced forward to their objectives while the Luftwaffe deployed some 1,300 aircraft of *Luftflotten 1, 2 and 4* to support Army Groups North, Centre and South. In addition, *Luftflotte 5* in the far north had 70 machines. The bomber arm accounted for 510 aircraft of the total, far too few to maintain the intense level of operations the campaign would come to demand. In *Geschwader* strength there were more than ten of the 15 operational units available, but even with the support of her allies, the Luftwaffe did not have the aircraft to strike deep into the hinterland of Russia, where vast production centres began to deliver a trickle of replacement aircraft that soon became a flood.

After its initial annihilation of the Red Air Force, the Luftwaffe bomber force turned its attention to tactical targets in support of the army including troop concentrations, transportation centres, road and rail bridges and strongpoints. On 28 June KG 3 attacked the citadel of Brest-Litovsk. A number of units became so adept at destroying Soviet trains that they established specialized railway attack *Staffeln*, using both standard bombers and fighter bombers, particularly the Ju88C-6. KG 3 and 51 carried out many train-busting sorties, the latter experimenting with wing-mounted machine guns outboard of the engine nacelles of its Ju88s as well as a battery of forward-firing MG 81 weapons set into the perspex nose cone of standard Ju88A-4 bombers.

By 9 July, *Luftflotte 4* had succeeded in stopping all Russian rail traffic west of the Dnieper and began ranging far to the east of the river seeking rolling



49. Refuelling Ju88As of KG 3 'Blitz' on the Eastern Front.

stock to prevent the movement of enemy supplies. With German aircraft in range of Moscow, the first night attack on the city was made on 22 July, when 128 Ju88s and He111s were led to the target by KG 100. The main force was drawn from KG 3, KG 54, III/KG 26, KG 28, KG 53 and KG 55. Heavy defences did not prevent 104 tons of high explosive and 46,000 incendiaries falling into the city. On the 23rd 115 aircraft attacked Moscow, followed by a 100 strong raid on the 24th. In total 73 raids were made on the Soviet capital by the end of 1941, but 80 per cent of them were by an average of seven aircraft.

Army Group North had reached the Gulf of Riga by 30 July, to link up with the Finnish army and surround the city of Leningrad, helped by VIII *Fliegerkorps*, transferred from *Luftflotte 4* to *Luftflotte 1*. The move of the component *Luftwaffe* units with the addition of KG 4 from the west, was completed by 6 August. Operations preceding the siege of Leningrad started on the 10th and considerable quantities of enemy equipment were destroyed.

In the south, day and night bomber attacks were begun on 17 August on the transport centre of Dnepropetrovsk to hinder retreating Russian forces. Another withdrawal started the following day when Soviet forces left Odessa on the Black Sea coast under pressure from the Rumanian 4th Army. The *Luftwaffe* sunk or damaged a total of 30,000 tons of shipping during the evacuation. Anti-shipping strikes on the Eastern Front met with considerable success, *Fliegerführer Baltic* alone accounting for 60,000 in the period 22 June–31 August. K.Fl.Gr 806 Ju88s flew 610 sorties during this phase, backed by SAGr 125, also with Ju88s which mounted 737.

Hitler's orders of 21 August were to eventually remove the threat of Moscow being captured by the Germans but initiated the grim ordeal of Leningrad and thrusts into the Ukraine and the Crimea as a prelude to an advance into the Caucasus. A considerable setback to German plans came on 2 September when the Finnish Army, having recaptured all territory ceded to the Russians in the Winter War, refused to advance any further. Three days later Army Group North completed the occupation of the southern coast of the Gulf of



50. With the aid of jacks placed under the wings and fuselage, this He111H of 1 Staffel KG 53 is being raised from its belly landed position during the early stages of the Russian campaign. The aircraft, coded A1+KH, has a rearward-firing machine gun mounted in the tail cone.

Finland and began an assault on the eastern and southern perimeter of Leningrad's defences. By 9 September KG 3 had recorded an impressive combat record since the start of operations: 450 aircraft destroyed on the ground, 21 in the air plus 30 tanks, 488 vehicles, 349 trains and 14 bridges; a total of 332 strikes had been made against rail targets.

It was not only the high level of sorties that was beginning to tell on the *Luftwaffe* as the autumn of 1941 approached. The vast distances already covered by German land forces meant constant movement for aircraft and personnel from one landing ground to another, many of which were barely usable. Supply lines became increasingly over-stretched and by 16 September all but a few of *Luftflotte 4*'s bombers in southern Russia were

51. A pair of Ju88As being ordered to hold their take-off by the red flag in the hands of the 'starter'. When the runway is clear, a white flag with a green cross will wave the aircraft off.





52. A Ju88A forms a backdrop to a large-scale map indicating the 200th operational sortie for a unit of KG 3 'Blitz' on the Eastern Front, obviously flown by the flight crew shown. Both men are wearing the traditional laurel wreath to mark the occasion.

grounded by lack of fuel. But there was little respite: in the ten days 11–21 September, V *Fliegerkorps* flew 1,422 sorties, dropped 621 tons of bombs and 96 containers of incendiaries and destroyed over 100 enemy aircraft, 2,171 motor vehicles, 52 trains and one bridge, losing 17 aircraft with 14 damaged. On the 25th, V *Fliegerkorps* turned its attention to Soviet airfields in the Kharkov area, its bombers destroying 43 aircraft to blunt enemy air activity. In 14 weeks' operations to 27 September the Luftwaffe had lost 1,023 aircraft on the Eastern Front.

On the last day of September Army Group Centre launched Operation *Taifun*, designed to take Smolensk before driving east for Moscow. KG 3 was among the units of II *Fliegerkorps* committed to the bitter fighting, the bomber *Gruppen* working closely with *Stukas* and fighters to give excellent support to the army. Heavy fighting continued for four days; on the 4th alone the bomber *Gruppen* flew 479 support sorties—188 for *Panzer* units and 291 for other army units. To the east V *Fliegerkorps* continued its war on the railways; by 12 October it had destroyed 95 trains and damaged 288 more

53. Complex fuel lines such as these were necessary on the Eastern Front, where airfield facilities were often limited.

since 23 September. More anti-shipping strikes were flown on the 16th as German and Rumanian troops entered Odessa but two days later the last of the great encirclement battles fought by the Germans in Russia ended at Vyazma and Bryansk, the two pockets yielding 663,000 prisoners.

Up to 130 bombers and 200 fighters were mustered to support a Russian defence of the isthmus leading into the Crimea, against which the Luftwaffe could call on the strength of IV *Fliegerkorps*: six bomber, three *Stuka* and four fighter *Gruppen*. On 19 October, a ten day period of bitter fighting ended with a German breakout into the Crimea, ably supported by these air units.

Fliegerführer Baltic was meanwhile helping the completion of Operation *Beowulf* I and II, the occupation of the Baltic islands, having flown 574 bomber sorties and 948 by other types, losing 13 aircraft, including eight Ju88s. This operational command was disbanded on the 27th, leaving I *Fliegerkorps* to support Army Group North. North-east and south-east of Moscow, German units gradually closed in on the city, much action taking place at Kalinin, the halfway point between Moscow and Lake Ilmen in the south-east. The Russians counter-attacked heavily, II *Fliegerkorps* flying 168 bomber sorties on the 21st, in rain and poor visibility—the Russian winter was about to break. From the 22nd to the 25th, the Luftwaffe bomber units flew more than 400 sorties per day to break enemy resistance at four main points, particularly Kalinin—1,835 sorties in all by the *Kampfgeschwader*. But II *Fliegerkorps* managed only one sortie on the 27th, with the worsening weather





54. A trio of He111H-6s of KG 27 en route to a Russian target. Fully overpainted in white to hide them against the snow-covered steppe, each machine exhibits interesting variations in finish. The machine nearest the camera obviously had black undersides before and the extensive exhaust staining around the nacelles make white paint rather superfluous—other aircraft are more completely painted. IG + GK was from 2 Staffel.

disrupting both air and ground operations. Khar'kov was taken by the Germans on 23 October but the blinding rain hampered a *Panzer* thrust against Rostov while V *Fliegerkorps* continued an all-out campaign on Russian rail traffic, which now included vast columns of locomotives. This campaign lasted until the 20th, by which time KG 54 and KG 55 had transferred to Germany, leaving a single *Gruppe* of KG 55 in V *Fliegerkorps* with less than a dozen operational He111s. Russian counter-attacks forced the Germans to establish a defence line along the Mius River for the duration of the winter supported by V and IV *Fliegerkorps*. These positions were secured by 15 December.

By the end of November, the situation in the Mediterranean had necessitated the majority of units of II *Fliegerkorps* leaving Russia for bases in Sicily and Italy in company with most of *Luftflotte* II. In 40,000 day and night sorties, II *Fliegerkorps* had destroyed 3,876 Russian aircraft, 789 tanks, 614 artillery pieces and no less than 14,339 vehicles—figures that give some idea of the vast resources of the Russians—resources that could nevertheless make good these staggering losses in an incredibly short time. On 17 November better weather saw the final German effort to reach and take Moscow but the weather closed in again and the *Panzers* ground

to a halt 25 miles short of the city and were forced to turn back.

On the northern front on 25 November, I *Fliegerkorps* started eight days of attacks on the remaining lifelines into Leningrad, the ice roads across Lake Ladoga. Many vehicles and supplies were destroyed but the precarious route remained open; the city itself held out against repeated German pressure.

As the prevailing conditions forced a lull in air operations in Russia, more *Luftwaffe* units were released for duty elsewhere. V *Fliegerkorps*, responsible for the southern sector of the front, transferred its *Stab* and some flying elements to Brussels to organize for mine-laying operations against English shipping. These sections left the east on 30 November although the deteriorating situation in the Crimea and southern Ukraine forced half the *Stab* to return to Russia to aid *Luftflotte* 4 as *Sonderkommando Krim*.

Early December saw the final attempt by the Germans to take Moscow, but they were too late. The terrifying conditions of the Russian winter caused Hitler to postpone any attempt to capture the city in 1941. His orders to this effect were given on 6 December. In the north, German troops failed to capture Tikhvin and so link up with Finnish forces to complete the stranglehold on Leningrad, making early capture of the city impossible. All along the central front both sides dug in and waited for the weather to improve, but the Germans were gradually giving ground. Unable to keep aircraft serviceable in the prevailing conditions, *Luftwaffe* operations dropped to a trickle as the temperature dropped below zero and kept on dropping for weeks. Engines froze solid on airfields that became snow-covered wastelands; few personnel had adequate protective clothing and supplies could not get through in anything like the amounts required. Worse still, the Red Air Force, used to harsh winters, was not only able to fly but was steadily gaining strength for the struggle ahead—such vast reserves of manpower and a steady flow of new and better aircraft were luxuries that were a thing of the past for the Germans and their position in Russia was even then becoming precarious.

Bomber units available for Operation Barbarossa, 22 June 1941

Luftflotte 4		VIII Fliegerkorps	
Headquarters		I, III/KG 2	Do17Z
4(F)/122	Ju88D	2(F)/11	Do17F
Plus two fighter <i>Gruppen</i> and one transport <i>Gruppen</i>		Plus four <i>Stuka</i> , two fighter, one <i>Zerstörer</i> and one transport <i>Gruppen</i>	
V Fliegerkorps		Luftflotte 1	
I, II, III/KG 51	Ju88A	Headquarters	
I, II/KG 54	Ju88A	2(F)/Ob.d.L.	Do215
I, II, III/KG 55	He111H	Plus one transport <i>Gruppe</i>	
4(F)/121	Ju88D	I Fliegerkorps	
Plus three fighter <i>Gruppen</i>		I, III/KG 1	Ju88A
IV Fliegerkorps		I, II, III/KG 76	Ju88A
I, II, III/KG 27	He111H	I, II, III/KG 77	Ju88A
3(F)/121	Ju88D	I, II, III/KG 54, 5(F)/122	Ju88D
Plus three fighter <i>Gruppen</i>		Plus three fighter <i>Gruppen</i>	
Luftflotte 2		Fliegerführer Baltic	
Headquarters		K.Fl.Gr 806	Ju88A
1(F)/122	Ju88D	Plus one fighter <i>Gruppe</i> and two specialized units	
Plus three fighter <i>Gruppen</i>		Fliegerführer Kirkenes	
II Fliegerkorps		5/KG 30	Ju88A
I, II/KG 3	Ju88A	1(F)/120	Ju88D
III/KG 3	Do17Z	Plus one <i>Stuka Gruppe</i> and one fighter <i>Staffel</i>	
I, II, III/KG 53	He111H		
Plus three <i>Stuka</i> , four fighter, one transport and one <i>Zerstörer Gruppe</i>		In addition <i>Luftflotte 5</i> had a headquarters complement of Ju52s.	

THE AIRCRAFT

Dornier Do17Z-2

Powerplant Two Bramo Fafnir 323P radial engines of 1,000hp each **Span** 59ft **Length** 51ft 9in **Height** 14ft 11½in **Weight empty** 11,494lb

Combat weight 18,931lb **Maximum speed** 224mph at 13,120ft **Cruising speed** 168mph at sea level **Service ceiling** 26,900ft **Range** 205 miles, 720 maximum **Armament** 2,205lb of bombs plus six machine guns

Heinkel He111H-6

Powerplant Two Junkers Jumo 211E-2 liquid cooled engines of 1,350hp each **Span** 74ft 1in **Length** 35ft 9½in **Height** 13ft 1½in **Weight empty**

19,136lb **Combat weight** 30,865lb **Maximum speed** 217mph at sea level, 252mph at 19,683ft **Cruising speed** 194mph **Service ceiling** 21,980ft **Range** 1,212 miles **Armament** up to 3,500lb of bombs plus six machine guns or five machine guns and one 20mm cannon.

Junkers Ju88A-4

Powerplant Two Junkers Jumo 211J-1 or J-2 liquid-cooled engines of 1,340hp **Span** 65ft 7½in **Length** 47ft 2in **Height** 15ft 11in **Weight empty** 21,737lb **Combat weight** 26,686lb **Maximum speed** 292mph at 17,390ft **Cruising speed** 230mph at 17,390ft **Service ceiling** 26,900ft **Range** 1,112 miles **Armament** up to 4,420lb of bombs plus six machine guns in standard form.

Page 25 : Major mis en vêtements d'aviateur 1940. Le complet beige de peu de poids d'aviateur et le casque d'hiver doublé de nappe furent souvent portés ensemble; lunettes sont de type Nitsche & Günther à l'épreuve des éclats avec verres de lunettes foncés. Pièces de grad sur des deux bras indique un Major qui tient dans ce cas la Ritterkreuz. Le 'radio jack' du casque est glissé dans la poche à poitrine pour propreté pendant une revue.

Page 26 dessus : Heinkel He111P de Stab/KG 26 en camouflage vert 70/71 contraste bas typique des avions de Luftwaffe dans le théâtre européen de la guerre. L'avion fut insolite en retenant deux Balkenkreuze sur les hautes surfaces de chaque escadre avec le code complet et en tenant pas d'aire noire au svastika il y avait contraste suffisant au contour blanc sur vert foncé. Cet avion fut le premier appareil de l'ennemi à tomber sur terre anglaise depuis 1918.

Page 26 dessous : Dornier Do17Z-2 de Stab/KG 3, été 1940. En camouflage standard cet avion tient marquages d'identification blancs pour indiquer un chef du vol et une lettre individuelle codifiée avec un contour vert pour indiquer un appareil d'état-major. L'insigne est une écusson de la cité Elbing.

Page 27 : Junkers Ju88A-4 de I/KG 77 octobre 1940. En camouflage standard cet avion porta la barre individuelle blanche pour indiquer un chef d'ordre sur les surfaces d'empenage verticales bâbord seulement avec le Werknummer remis en position repeindu dessus. La lettre individuelle verte identifie un avion d'état-major.

Pages 28-29 : Heinkel He111H-6 de 6 Staffel KG 54 opératif dans le secteur du nord et le secteur central de la Front d'est, hiver 1941/42. Détrempe temporaire blanche a été appliquée sur camouflage européen avec seulement marquages d'identification jaunes et lettre individuelle d'avion restants, jaune indiquant avions allemands opératifs dans le secteur du nord et le secteur central de la Front russe, blanc indiquant le secteur du sud. L'insigne de KG 53 tient la raie horizontale rouge de II Gruppe au-dessous de la devise d' Aigle.

Page 30 : Junkers Ju88A-4 de III/KG 30 opératif dans la région Méditerranée à la fin de 1941/42. L'avion retient camouflage européen bien usé par les intempéries, la raie blanche du fuselage identifiant avions allemands dans la région. La 'D' blanche est la couleur de III Gruppe et le Gruppe fut de plus identifié du fond jaune à la devise d' Aigle.

Page 31 dessus : Une sélection de marquages Kampfgeschwader : (A) Le marquage en losange de 7 Staffel/KG 1 sur un Ju88A-4; (B) L'insigne de la 'Main de Fer' de 6 Staffel/KG 2 fut la devise du chevalier Gotz von Berlichingen. La raie diagonale rouge identifia II Gruppe; (C) La devise du griffon de KG 55 'Greif' fut pris de l'écusson de la cité Giessen et ordinairement tint un fond d'un bouclier. La raie rouge identifia III Gruppe; (D) Devise de frelon de 12 Staffel/KG 76 sur un Ju88A-5; (E) Marquage sur fuselage d'un He111H de 5/KG 28, septembre 1939; (F) La devise de 9 Staffel/KG 76 sur un Do17Z-2.

Page 32 dessous : Un Tracteur d'Infanterie 'UE' construit de Renault remorquant un traîneau pour une bombe SC1000.

Originellement fondé sur un dessin britannique ce véhicule capturé fut un de plusieurs enrôlé dans service par les forces allemands.

Page 32 gauche : Feldweibel mis en tenue d'aviateur avec le casque d'acier de distribution standard porté pour sauvegarde contre éclats. Le complet d'aviateur est le modèle de peu de poids sur lequel est porté le gilet de sauvetage rempli de Kapok; l'harnais du parachute est illustré sans sac lequel fut attaché sur crocs bouter-ollés sur les courroies de poitrine.

Page 32 droit : Luftwaffe Obergefreiter mis en tenue de service ordinaire de service comme général de corps d'armée aérienne. Pa pièce de grad fut portée sur le bras comme illustrée et le tuyautage sur le col, pattes d'épaule et grad de métal furent de la nuance jaune du rameau aérien. Le drapeau rouge fut utilisé our 'tenir en place' des avions, le blanc et le vert pour les faire signe à otter.

FARBTAFFELN

Seite 25 : Major 1940 auf Flugkleidungen bekleidet. Der bisterbraune Leichtfluganzug und vliesbesetzte Winterhelm wurden oft zusammengetragen; Schutzbrillen sind des bruch-sichen Typs Nitsche & Günthers mit dunklen Linsen auf beiden Ärmeln bezeichnen einen Major, der in diesem Fall Besitzer des Ritterkreuz ist. Die Helmfuncklinke während eines Appells in die Brusttasche für Nettigkeit gesteckt.

Seite 26 oben : Heinkel He111P der Stab/KG 26 in niederkon-trastierter grüner 70/71 Schutzfärbung charakteristisch für Luftwaffelluftfahrzeuge in dem europäischen Kriegsschauplatz. Das Luftfahrzeug war aussergewöhnlich, weil es zwei Balken-kreuze auf den Obertragflächen jeder Tragfläche zusammen mit dem ganzen Schlüsselchrift behielt und es hat keine keine schwarze Fläche zu dem Hakenkreuz, weil es genügenden Gegensatz zu der weissen Kontur auf dunkelgrün gibt. Dieses Luftfahrzeug war das erste Flugzeug des Feinds seit 1918 auf Englischland zu stossen.

Seite 26 unten : Dornier Do17Z-2 der Stab/KG 3, Sommer 1940. In Standardtarnung besitzt dieses Luftfahrzeug weisse Hoheit-sabzeichen, um ein Flugleiter zu bezeichnen und es besitzt auch einen grünen umgereisten Einzelschlüsselbuchstabe um ein Stafflugezeug zu bezeichnen. Die Wappen ist das Wappenschild Stadt Elbing.

Seite 27 : Junkers Ju88A-4 der I/KG 77, Oktober 1940. In Standardtarnung trug dieses Luftfahrzeug den weissen Einzels-treifen nur auf den Backbordscheitelrumpffendflächen, um ein Flugdromungleiter zu bezeichnen, mit der neugestellten Werknummer höher wiederangestrich. Der grüne Einze buchstabe bezeichnet ein Stafflufthfahrzeug.

Seiten 28-29 : Heinkel He111H-6 der 6 Staffel KG 54 in Winter 1941/42 über den Nord- und Mittel-Geländeabschnitten der östlichen Front operiert. Zeitweise weisse Temperfarbe ist über europäischer Tarnung aufgetragen worden und nur die gelbe Hoheitsabzeichen und Einzelnummer Luftfahrzeugs sind gelassen worden, gelb bezeichnet deutsche Luftfahrzeuge über den Nord- und Mittel-Geländeabschnitten der russischen

Front operiert, weiss bezeichnet den Südgeländeabschnitt. Das Abzeichen KG 53s besitzt den roten waagerechten Streifen II Gruppe unter dem Adlersinnbild.

Seite 30: Junkers Ju88A-4 der III/KG 30 spät 1941/42 in der mittelländischen Zone operiert. Das Luftfahrzeug behaltet europäische Tarnung sehr verwittert von den Wetterverhältnissen, der weisse Rumpfstreifen identifiziert deutsche Luftfahrzeuge in der Zone. Der Weiss 'D' ist die Farbe III Gruppe und die Gruppe wurde weiter von einem gelben Hintergrund zu dem Adlersinnbild identifiziert.

Seite 31 oben: Eine Auswahl aus Kampfgeschwaderabzeichen: (A) Das Rauteabzeichen der 7 Staffel/KG 1 auf einem Ju88A-4; (B) Das Abzeichen "Eiserne Hand" der 6 Staffel/KG 2 war das Sinnbild des Ritters Gotz von Berlichingen. Der rote diagonale Streifen identifizierte II Gruppe; (C) Das Affenpinschersinnbild der KG 55 'Greife' wurde von dem Wappenschild Stadt Giessen genommen und gewöhnlich besass es ein Schuldhintergrund. Der rote Streifen identifizierte III Gruppe; (D) Hornissesinnbild der 12 Staffel/KG 76 auf einem Ju88A-5; (E) Rumpfabzeichen eines He111H der 5/KG 28, September 1939; (F) Das Sinnbild der 9 Staffel/KG 76 auf einem Do17Z-2.

Seite 31 unten: Ein Renault gebaute Tracteur d'Infanterie 'UE' schleppend einen Schlitten für eine SC1000 Bombe. Ursprünglich auf einem britischen Entwurf basiert war dieses gefangenes Fahrzeug ein viler in Dienst von den deutschen Truppen gepresst.

Seite 32 links: Feldwebel auf Flugkleidung mit dem Standardstahlhelm als Schutz vor Granatsplittern getragen. Der Fluganzug ist das Leichtmodell mit dem Kapok gefüllten Schwimmweste darüber getragen; der Fallschirmgurt hat man ohne das Ruckpack illustriert, das auf Karabinerhaken auf den Brustgurten festgehalten wurde.

Seite 32 rechts: Luftwaffe Obergeflüelter auf Dienstuniform für alle Tage im Dienst als Luftmarschall. Wie illustriert wurde das Rangabzeichen auf dem Ärmel getragen und der Kragenschnurbesatz, Achselstücke und Gradabzeichen aus Metall waren aus der gelben Farbstufe der Flugwaffengattung. Die rote Flagge wurde benutzt, um Luftfahrzeuge in der Luft zu behalten, die Weiss und die Grüne als Zeichen wegzufiegen.

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