

LUFTWAFFE COLOURS



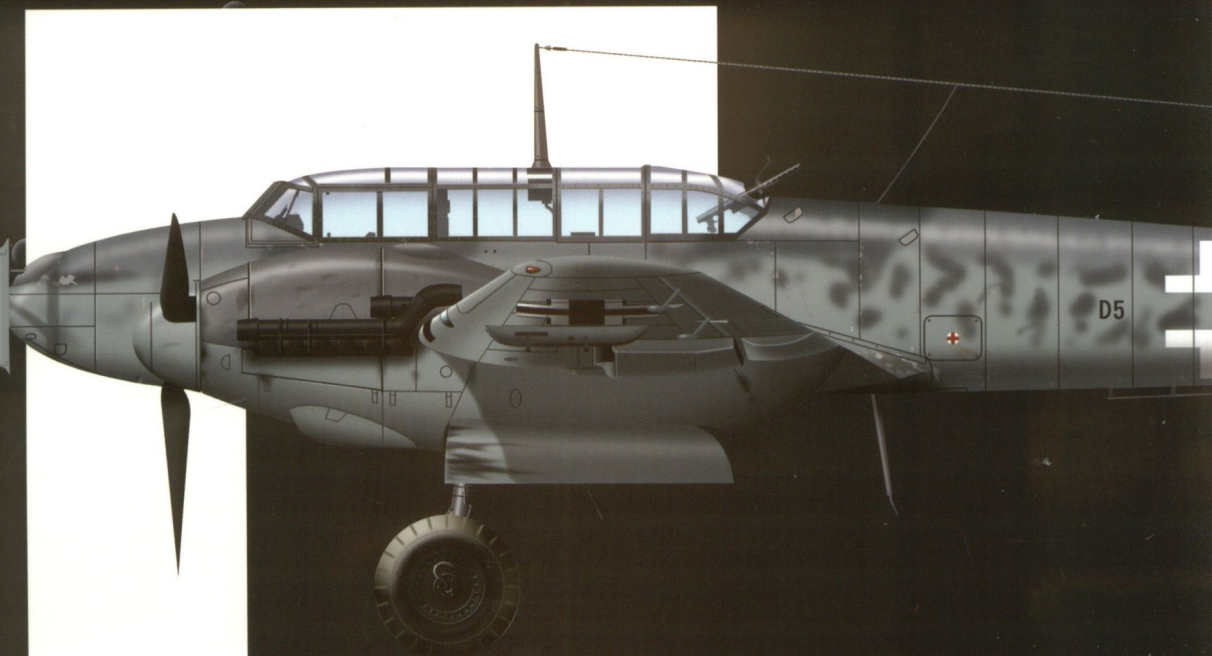
NACHTJÄGER

Volume One

David P. Williams

**LUFTWAFFE NIGHT
FIGHTER UNITS**

1939-1943





CLASSIC

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Publisher's Note

The study of Luftwaffe camouflage and markings is a complex subject compounded by a general lack of quality colour photographs. Inevitably, therefore, most photographs appearing in this series are black and white and, while the authors and publisher have offered their own assessments of the aircraft colours in these photographs, this naturally involved a degree of guesswork. This should always be considered, even when the use of 'believed to have been' or 'thought to have been' etc, has sometimes been deleted in order to avoid tedious repetition. Recognising that readers may have contrary opinions, we have endeavoured throughout Classic Colours to include as many photographs and as much associated information as possible so that, although the photograph captions, colour profiles and badges have been produced in accordance with the publisher's, authors' and artist's best interpretations, the reader may, if he wishes, reach his own conclusions. Furthermore it should be stressed that the personal accounts contained in this series are as they have been related to the authors and are the product of the individual pilot's personal recollections.

About the Author

In recent years David Williams has travelled extensively around Germany and Austria to interview former Luftwaffe pilots and their families in the course of his research into German fighter operations during the Second World War. He has gathered a substantial collection of documentation and photographs. He is the author of *Hunters of the Reich: Day Fighters*, for which he worked closely with five leading German fighter pilots, and a similar biographical study, *Hunters of the Reich: Night Fighters*. He is married and lives in the west of England.

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THE EARLY YEARS 1939-1943

"Germany will not be subjected to a single bomb. If an enemy bomber reaches German soil, my name is not Hermann Göring; you can call me Meier!"

Generalfeldmarschall Hermann Göring

"The Nazis entered this war under the rather childish delusion that they were going to bomb everybody else, and nobody was going to bomb them. At Rotterdam, London, Warsaw, and half a hundred other places they put that rather naive theory into operation. They sowed the wind and now they are going to reap the whirlwind!"

Air Chief Marshal Sir Arthur Harris



Early Night Fighting and the Interwar Years

The German Night Fighter Force or, to give the organisation its correct title, the *Nachtjagd*, was formed in June 1940 and disbanded in May 1945. Yet despite an operational period spanning less than five years, the *Nachtjagd* achieved a large number of successes and a fearsome reputation amongst the opposing crews of Bomber Command. By the war's end, Bomber Command had lost over 10,000 aircraft and some 55,500 aircrew killed by the combined German defences, of which the *Nachtjagd* formed a major part.

It is often incorrectly assumed that night fighting was a method of warfare developed during the Second World War, but its origins can be traced back to the First World War of 1914-1918, when flight itself was still in its infancy. As the First World War progressed, aeroplanes, which had at first been used in the role of aerial reconnaissance, were equipped to become fighters and bombers, and it was as a counter to the latter that the Germans began to formulate a method for attacking them at night. The obvious difficulty facing the Imperial German Air Force was how to track accurately the bombers during the hours of darkness. Such measures as ground observer units and sound detectors, used during the day against the fighters, were rendered virtually useless at night, especially if the bombers frequently changed their course or flew into clouds to avoid searchlight batteries. This usually resulted in the bombers' intended target being identified only when it was too late and the bombs were already falling. The only realistic means of defence against such attacks at that time was the anti-aircraft gun.

During 1916, in an effort to ward off raids against its own airfields, the Imperial German Air Force adopted a method of mounting patrols across the routes most frequently used by Allied bombers. This sounded straightforward in theory, but in practice the pilots found it extremely difficult. The main problem was that the aircraft types in use at that time were basic in design, as were their navigational instruments. Merely flying and navigating at night were difficult enough, let alone locating and shooting down an enemy bomber in the dark, yet despite these initial difficulties, a few successes were achieved. The first of these occurred

a little after midnight on 6 April 1917, when *Leutnant* Wilhelm Frankl of *Jasta* 4 secured the first recognised German night fighter kill after pursuing British bombers that had just attacked his airfield at Douai in Northern France. The unfortunate honour of being the first Allied bomber to fall to a German night fighter was a BE 2b from 100 Squadron which crashed near Quiéry le Motte. Frankl followed this with a second night victory on the 7th, bringing his overall total of victories to 20. Unfortunately for Frankl, his successes were short lived because, on the following day, he was shot down and killed by British fighters from 48 Sqn. near Vitry-Saïilly.

A small number of other victories followed Frankl's, but it was not until May 1918, during Germany's last attack in Flanders, that a concerted effort was made to coordinate the German air defences. Finally, a system of close support and cooperation between the fighters, searchlight batteries, anti-aircraft units and listening posts was implemented. This system, almost identical to the one used 23 years later by Josef Kammhuber, was simple and effective.

Once the listening posts, which had been set up in front of the German positions, had identified an enemy aircraft, its position and direction of travel were passed to anti-aircraft batteries. They in turn would mark the target's position by firing tracer ammunition in its general direction. Searchlights would then attempt to illuminate it so that a fighter, already waiting and circling in a nearby 'Standby Zone' could attempt to engage the enemy aircraft and shoot it down.

On the night of 22/23 May 1918, *Leutnant* Fritz Thiede put this experimental method of night fighting into practice and succeeded in shooting down three enemy aircraft. Other German pilots followed his example and further victories followed. Unfortunately these successes were too little,



ABOVE: Wilhelm Frankl was born on 20 December 1893 and, at the outbreak of the First World War, joined the German Army Air Service as a reconnaissance pilot. He underwent fighter pilot training in 1915 and within a year he had shot down 15 enemy aircraft. His destruction of a BE 2b on the night of 6 April 1917 was his 16th victory, as well as being the first German night victory, but Frankl was killed two days later when his tally of kills stood at 20. In this photograph he is wearing the Pour le Mérite, awarded on 12 July 1916 after his eighth victory.



ABOVE: The first true German night fighting victory occurred soon after midnight on 6 April 1917 when *Leutnant* Frankl of *Jasta* 4 shot down a BE 2b of 100 Sqn. who had attacked his airfield at Douai. Frankl won the Pour le Mérite, took over command of *Jasta* 4 in this Albatross D III, W.Nr. 215 and shot down a BE 2b of 100 Sqn. The British had had carried out bombing attacks against Douai airfield and were shot down on Quiéry le Motte. The following night, Lt. Frankl destroyed a Nieuport of 60 Sqn.

too late and, with the failure of their May offensive, the Germans were steadily pushed back to their own borders. In November 1918 Germany sued for peace and the First World War came to an end.

During the 1920s and the greater part of the 1930s, what had been learnt about night fighting by the early pioneers was simply forgotten. This was not helped by the fact that one of the conditions of the Treaty of Versailles imposed on Germany by the Allies at the end of the First World War prevented Germany from possessing an air force.

This all changed in March 1935 when, just two years after Hitler had come to power, Germany announced the formation of the *Luftwaffe*. However, under the direction of Hermann Göring, the *Luftwaffe* was built as an offensive force and very little thought was given to defence. Nevertheless, some experiments were conducted in 1936 using night fighters in conjunction with searchlight units. The results of these exercises were detailed in a report and further experiments were authorised, which subsequently took place during 1937. By the end of that year, and with the findings set out in the form of a booklet, it was concluded that night fighting, particularly in the role of home defence, was possible.

As a result of these positive findings, the *Reichsluftfahrtministerium* finally authorised the formation of two experimental night fighter *Staffeln* at the beginning of 1939. By June of the same year, further units had been activated, but within just a few weeks all but two of them had been transferred to the day fighter force.

The Formation of the Nachtjagd

With the outbreak of the Second World War in September 1939, Bomber Command began to fly sorties to Germany, initially dropping nothing deadlier than propaganda leaflets. As a consequence of these nuisance raids, three fighter *Staffeln* – all of which were equipped with Bf 109s – were designated as night fighter units. The first of these, 10./(N)JG 26, was stationed at Bonn-Hangelar to provide aerial cover to the area around Cologne. The second, 10./(N)JG 72, is believed to have been stationed at Heilbronn in southern Germany, while the third, 10.(N)/ZG 26, was based in northern Germany to protect the North Sea approaches.

Although they were actually designated as night fighter units, neither formation actually operated in the dark but flew at dawn and during the evening twilight when there was an increased chance of observing a bomber. However, there was no coordination or cooperation with the searchlight batteries and ground stations, and, as a consequence, the chances of achieving any success were extremely slim.

Despite the fact that no intruders had been shot down and Göring himself was of the opinion that there was no need for further expansion of the night fighter establishment, in late December 1939 a night fighter *Gruppe*, IV./(N)JG 2, was formed by amalgamating 10./(N)JG 26 and 10./(N)ZG 26 with 11./LG 2. This *Gruppe* was then transferred to Jever and the East Friesian island of Langeoog, where it was intended that it would patrol the North Sea, thus affording protection to German naval targets in and around Wilhelmshaven and the Heligoland Bight.

There has been much speculation as to which German pilot actually achieved the first night victory of the Second World War, but it would appear that this accolade, according to German claims files, falls to *Oberfeldwebel* Willi Schmale of IV.(N)/JG 2 who claimed to have shot down a Fairey Battle north of Crailsheim, at 00.45 hrs on 21 April 1940. This claim is substantiated in William Chorley's book, 'Bomber Command Losses of the Second World War', which records the loss of a Fairey Battle from 218 Sqn, which failed to return from a reconnaissance mission to Mainz and Darmstadt in Germany on the night of 20/21 April 1940. The aircraft, piloted by Pilot Officer H.D. Wardle, was reported by German radio to have been shot down near Crailsheim, killing two of the three-man crew.

Following this initial success, *Oberfeldwebel* Hermann Förster, also from IV./(N)JG 2, claimed a Hampden bomber at 01.10 hrs on 26 April, in the area of Hörnum, close to the island of Sylt. This aircraft is believed to have been one of three Hampdens lost by 49 Sqn. of the Advanced Air Striking Force during minelaying operations to Kiel and the Friesian islands. The pilot, P/O A.H. Benson, and his three-man crew were all killed.

BELOW: On the night of 20/21 April 1940, Ofw. Willi Schmale of IV.(N)JG 2 shot down a Fairey Battle reconnaissance aircraft over Germany and achieved what is believed to have been the first night victory of the Second World War. The Battle was flown by Pilot Officer H.D. Wardle of 218 Sqn., shown standing, far left, in the officers' mess at Auberville in France during April 1940.



4 • Luftwaffe Night Fighter Units

1939-1943

April 1940 was also the month in which the German invasion of Denmark took place and as a direct result of this, Bomber Command began to target the *Luftwaffe's* newly-acquired Danish airfields. One of these airfields was Aalborg, situated in the far north of the country, where I./ZG 1, a Bf 110 *Zerstörer Gruppe*, was operating in support of the German Army's invasion of Norway with *Hauptmann* Wolfgang Falck in command. By a stroke of good fortune, Aalborg airfield was protected by 'Freyja', a new type of radar that had already been successfully tested against the RAF during the 'Battle of the Heligoland Bight'.¹ 'Freyja' had a range of 120 kilometres and could detect aircraft flying at altitudes of up to 10,000 feet.

This early warning system had already proved its value to the personnel at Aalborg by giving them time to take to their slit trenches before the bombers arrived. Falck envisaged using this time to scramble some of his aircraft and then, in cooperation with the radar installation, intercept and attack the enemy aircraft as they neared the airfield. He also outlined his ideas to the commanders of the searchlight and Flak batteries and divided a large-scale map of the area around Aalborg into rectangular grid squares, or *Planquadrate*. In particular he concentrated on the area north of Denmark and the western North Sea, where each *Planquadrat* was allocated its own two-letter reference.

With everything in place, Falck selected three of his best crews – *Oberleutnant* Werner Streib, *Oberleutnant* Günther Radusch and *Feldwebel* Thier – to evaluate the possibilities of night operations with the Bf 110. It was hoped, in theory at least, that once the bombers had been detected by radar, the fighters would be scrambled and vectored to the enemy's position. Unfortunately for Falck, the practical effectiveness of this system failed to yield any quick results and he was forced to re-think his ideas. The most telling change he made to the system was to arrange for fighters to fly at a pre-arranged height in holding areas where they were in continuous radio contact with the ground radar station. In spite of the modifications, no successes followed and frustrations within the unit increased.

Despite the lack of victories, the crews were, however, gaining invaluable night-flying experience and they soon discovered an important fact. By approaching other aircraft from slightly below, the targets became silhouetted against the lighter northern sky and were therefore easier to see, while the approaching fighter was much more difficult to spot against the dark backdrop of the ground. This technique would soon be adopted by the pilots of the *Nachtjagd* and used throughout the war with devastating effects.

During the night of 30 April/1 May 1940, Wellingtons from 61 Sqn. attacked Aalborg and an infuriated Falck, along with Streib, Radusch and Thier, took off after the bombers and pursued them westwards across the North Sea. It was almost dawn when three of the Wellingtons were spotted and attacked by Falck, Streib and Radusch, but as soon as they came under fire, the bombers dived into the early morning fog and disappeared. No claims were made, but Günther Radusch flew so close to one of the Wellingtons that he came under fire himself and returned to Aalborg with bullet holes in his fighter.

To date, this had been the closest that anyone from the *Gruppe* had come to shooting down a bomber and, with renewed vigour, Falck began to re-think his ideas. He wrote a comprehensive report

detailing how, with flame dampers on the exhausts and ammunition that did not ruin the pilot's night vision when it was fired, the Bf 110 would be better suited to its role as a night fighter. He also emphasised the importance of specialist night-flying training for the crews as well as close cooperation with the other branches responsible for defence, such as the Flak, searchlight batteries and radar.

The report was submitted by Falck to the *Reichsluftfahrtministerium* and amazingly, within approximately one week, he was visited by the *Generalinspekteur der Luftwaffe*, Erhard Milch. In a lengthy discussion, Milch showed a genuine interest in Falck's ideas and recommendations but any further action was frustrated by the beginning of the German invasion of France and the Low Countries on 10 May 1940.

BELOW: In April 1940 Hptm. Wolfgang Falck compiled a report outlining the possibilities of combating the RAF at night. The report made an immediate impression on the staff in the Reichsluftfahrtministerium, and in the same month Generaloberst Erhard Milch, the State Secretary of Aviation and Inspector General of the Luftwaffe (left), visited Falck at Aalborg in Denmark to discuss his report. In the centre is the Gruppenkommandeur of I./ZG 1, Hptm. Reinecke.



1. The 'Battle of the Heligoland Bight' occurred on 18 December 1939 when 24 Wellingtons were sent to attack shipping off Wilhelmshaven. Two of the bombers suffered with mechanical problems, but the rest were intercepted over the North Sea, close to the island of Heligoland, by Bf 109s and Bf 110s which had scrambled after being forewarned by 'Freyja' radar installations situated on the East Frisian Islands. No match for the fast and manoeuvrable German fighters, 12 of the Wellingtons were shot down and another three were damaged and crash-landed on their return to England.

Meanwhile, Falck and I./ZG 1 had been transferred back to Germany in preparation for the invasion, and as the *Wehrmacht* rolled westwards, the *Gruppe* flew sorties against Dutch and Belgian forces. As the campaign developed, I./ZG 1 found itself involved in protecting German troops in France, and it was whilst stationed at Le Havre in June 1940, that Falck and his *Gruppe*, minus one *Staffel*, were ordered by *Generaloberst* Kesselring to fly back to Düsseldorf. There, Falck learnt that his *Gruppe* had been recalled from the front to commence night-flying operations and to counter the growing number of RAF raids mounted against Cologne and the important industrialised Ruhr district.

Being able to attack German industrial targets was a recent and welcome change in tactics for the RAF. Many in Bomber Command had felt ever since the outbreak of the war that, being restricted to attacking shipping and certain military targets, they had been fighting with one hand tied behind their backs. However, since the bombing of Rotterdam on 13 May 1940, the British War Cabinet had authorised the RAF to operate east of the Rhine. The gloves were now off. What was to follow over the next five years was a deadly game of cat and mouse between Bomber Command and the German defences; it would result in the deaths of tens of thousands of German and Allied aircrew and hundreds of thousands of German civilians.

Within several days of being recalled from the Channel Coast, Falck was summoned to a high-level meeting at Wassenaar in Holland, where the commanding officer of *Wehrmacht* forces in the Netherlands, *General* Friedrich Christiansen, had his headquarters. This conference was attended by some of the most powerful and influential *Luftwaffe* personnel including *Feldmarschall* Göring, *General der Flieger* Bruno Loerzer and *Generals* Albert Kesselring, Gustav Kastner and Ernst Udet.

When Falck walked into the conference hall on 26 June 1940, he noticed that as a *Hauptmann* he was the lowest ranking officer in attendance and immediately felt ill at ease. Göring opened the meeting with a long speech about the progress of the war. He then moved on to discuss the raids carried out by the RAF on the Ruhr, which were causing him some embarrassment as he had earlier issued assurances that no bombs would ever fall on the *Reich*. Although the raids themselves had caused little damage, he had decided to counter these attacks by creating the *Nachtjagd*, or Night Fighter Force, which would be designated *Nachtjagdgeschwader 1* (NJG 1). In another surprise announcement, Göring appointed none other than *Hptm.* Falck as the unit's new *Geschwaderkommodore*, a remarkable decision considering that at this time these positions were usually held by officers with the rank of at least *Oberst* or *Oberstleutnant*. In addition to this, Falck's I./ZG 1 was to become the first *Gruppe* of the newly formed unit and re-designated I./NJG 1. In turn, IV./(N)JG 2,² which had been operating at night with Bf 109 Ds from Mönchengladbach, temporarily became II./NJG 1 before being re-designated III./NJG 1 on 1 July 1940.

For Falck, the future task of building up and organising the new *Nachtjagd* was mammoth. Among the most pressing problems was the fact that only a very small number of the men under his command were suitably trained to fly at night and their aircraft had still to be adapted for their new role. These obvious deficiencies, as well as many other technical and training issues, had to be addressed immediately. Falck also had to develop close cooperation with the other facets of the German defences, such as the Flak regiments, searchlight batteries, listening posts and most importantly, the radar units.

The enormity of the task of building up the night fighter organisation must have been obvious even to Göring for, on 17 July 1940, he appointed *Oberst* Josef Kammhuber to command the newly created *Nachtjagddivision*, or Night Fighter Division. His choice was an inspired one as Kammhuber was known to be an exceptional organiser and he quickly set about his work with his usual zeal and enthusiasm. Kammhuber set up his headquarters at Zeist in Holland, where he ran the Division at staff level, while Falck chose to establish his command post at Deelen, situated north of Arnhem, where he assumed responsibility for running the *Nachtjagd* at an operational level.



ABOVE: On 26 June 1940, Göring announced the formation of the *Nachtjagd* and the creation of the first night fighter *Geschwader*, *Nachtjagdgeschwader 1*. At the same time, he appointed Wolfgang Falck, then a *Hauptmann*, its *Kommodore*.

2. At the time of the formation of NJG 1, the *Gruppenkommandeur* of IV./(N)JG 2 was Major Blumensaat. He was, however, replaced a short time later by *Hauptmann* Philip von Bothmer who became the first official *Gruppenkommandeur* of II./NJG 1.

1939-1943

“The Luftwaffe leadership had been caught entirely unprepared!”

HAUPTMANN WALTER KNICKMEIER, NJG 1

In the spring of 1940, when the first English bombers penetrated the North German coastal area during the evening twilight and, in isolated cases, also at night, the *Luftwaffe* leadership was forced to acknowledge that no method of defence against these intrusions existed. There were neither aircrews specially trained for night fighting, nor a ground organisation capable of giving the night fighters the navigational assistance necessary for them to find the enemy. The *Luftwaffe* leadership had been caught entirely unprepared and confusion was absolute.

The urgent necessity was to establish a network of stations to control the night fighters and to assess the air situation. Therefore, priority was given to set up a ground organisation which, until then, had been completely non-existent, and *Nachtjagdgeschwader 1* was set up at the end of July 1940.

By the end of 1940 we had succeeded in setting up an air-defence line in north Germany, Holland and Belgium. ‘*Freya*’ radars were positioned in the coastal areas to the far west and on a number of North Sea islands. The ‘*Freya*’ equipment had a range of about 120 kilometres and made it possible to measure the bearing and range but not, however, the altitude of the target. This respectable range provided the basis for early warning and indicated the exact track that the enemy was flying.

Between the forward ‘*Freya*’ radars and the bombers’ likely targets – Hamburg, Bremen, the Ruhr, Cologne etc – a number of *Flak* and *Scheinwerferregiment* (Searchlight Regiments) were deployed in a so-called ‘*Helle Nachtjagdsriegel*’ (illuminated night fighting barrier). It was their task to pick up enemy aircraft and to keep them coned until a fighter, directed by the control station, could attack. In support of the *Flak* and Searchlight Regiments there were ‘*Würzburg*’ radars which measured the bearing, range and altitude of the approaching aircraft, but only to a range of about 25 kilometres. Within the chain of the ground organisation, the Fighter Control Centre was the most important link, because it was from there that the night fighter was vectored towards the enemy. The fighter control officer evaluated the data that arrived and, by means of radio transmissions, broadcast them to the night fighter crews on a transmitter that was dedicated to the Fighter Control Area.

This organisation, created as it was from very basics, understandably required several months of ‘running in’ before it became efficient, and it was not until after March 1941 that significantly successful results were achieved. During the period from March to December 1941, I was working as a Fighter Control Officer or ‘*Jägerleitoffizier*’ in the area near Meyl in Holland. The night fighters that manned this area were from I./NJG 1 stationed at Venlo, and the number of bombers we shot down in this period was 24.



Walter Knickmeier, shown here as a Hauptmann in 1944, participated in the destruction of some 88 RAF bombers, making him the most successful night fighter controller of the war.

One unfortunate result of Falck’s new position was that Kammhuber, recognising Falck’s value to the organisation, immediately grounded him. At that time, NJG 1 still only consisted of I. Gruppe and, with Falck grounded, Günther Radusch, a friend of Falck’s since their training at Lipetsk³ in Russia, became *Kommandeur* of I./NJG 1.

In order to overcome his disappointment and frustration at being prevented from flying operationally, Falck immediately buried himself in his work. With limited resources at his disposal, and after some consideration, he decided to withdraw searchlight units from other cities and proceeded to set up a belt of searchlights to the north-west of Münster. This city had been chosen with care, for due to its geographical location, the night fighters could protect Berlin in the east, the important German coastal towns in the north and also the Ruhr in the south. As a temporary measure, until ‘*Freya*’ early-warning radars could be incorporated into the defensive system, sound detectors were positioned in front of the searchlight belt to warn of approaching bombers. To avoid impeding the effectiveness of these sound detectors, the fighters of I./NJG 1 were transferred to Gütersloh airfield some 40 kilometres to the east of Münster. It was hoped that once the listening posts had detected the incoming enemy bombers, the night fighters would be alerted. Once airborne, they would patrol to the east of the searchlights at an altitude slightly higher than that of the bombers, until the searchlights were able to illuminate one of them. Once this occurred, the fighter would have about three minutes to intercept and shoot the bomber down before it cleared the searchlight belt.

The most preferred and least dangerous method adopted by night fighter pilots when attacking a bomber was known as ‘*von hinten unten*.’ This involved the night fighter pilot manoeuvring below his target from behind and then pulling up the nose of his aircraft to fire a quick burst, usually into the

3. In April 1925 a secret agreement was signed between the German and Soviet governments allowing German personnel to receive pilot training at Lipetsk, situated 300 miles to the south-east of Moscow, in exchange for technical data. In April 1932, Wolfgang Falck, together with nine other cadets, was chosen to attend this secret training base. Among the other trainee pilots who went there with him were Günther Radusch, Hannes Trautloft and Günther Lützow.

'Himmelbett' Night Fighting

WALTER KNICKMEIER, JÄGERLEITOFFIZIER

Responsibility for all operations within a night intercept area lay in the hands of the *Jägerleitoffizier*. The functioning of the 'Himmelbett' system can be best demonstrated by the description of a controlled night interception; however, it must be mentioned that only a single night fighter could be operated within one intercept area.

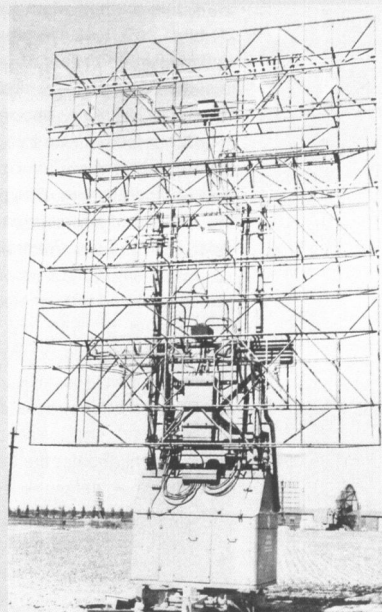
Even in 1941, as their range was so good, the most westerly 'Freya' stations could pick up RAF aircraft shortly after they had taken off, i.e. while they were still within British airspace, and the night fighters allocated to the *Nachtjagdraum* (Night-fighter area) lying on the forecasted approach route were then scrambled. On its way to the *Nachtjagdraum* the fighter had to climb as quickly as possible to operational height. Shortly after take-off the fighter crews and the fighter controllers established radio contact. At the same time, the officer in charge of the 'Würzburg' radar that was to control the fighter, was instructed to pick up the fighter and to begin sending details of its position, etc., to the intercept station. By means of an optical device, the location of the fighter was displayed for the *Jägerleitoffizier* on the glass surface of the 'Seeburgtsch' * as a point of green light. As soon as the information from the 'Freya' radar showed that an enemy aircraft was about to enter the range of the 'Würzburg', the fighter pilot was given a heading which was intended to position him ahead of the enemy. It was most important that while carrying out this manoeuvre he did not fly beyond the range of the 'Würzburg' as he would then not be seen by the *Jägerleitoffizier*.

On the basis of data from the 'Freya', the second 'Würzburg' was informed of the exact direction from which the enemy bomber would approach. As soon as it came within coverage, measurements could begin and the data was sent to the fighter control post where the bomber appeared on the 'Seeburgtsch' as a spot of red light. Details of the movements of the coloured points of light were drawn on the glass surface. Thus the *Jägerleitoffizier* was able rapidly to let the night fighter have the track and ground speed of his target, and to give him instructions on the course corrections he needed to make in order to get within visual range astern of the bomber as quickly as possible. It goes without saying that, from the very start, details of altitude were broadcast to the fighter. It was most important for a successful interception that the fighter flew at the correct ground speed. If he flew too fast there was a danger that he would fly past his target and, given the short acquisition range of the radars, such a miscalculation would mean that a second controlled approach to the bomber was impossible.

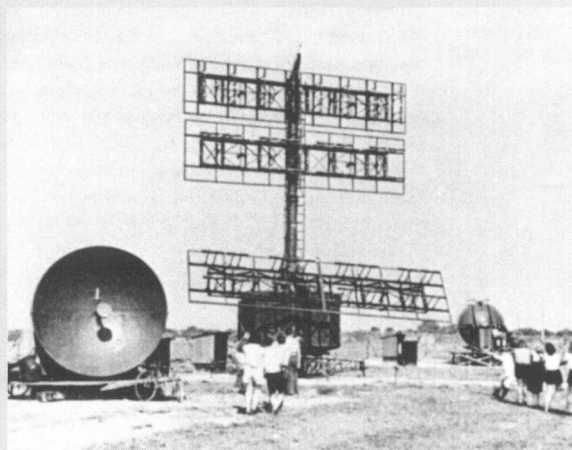
There was always a critical point during an interception when an aircraft flew directly over, or in close proximity, to the radar station. Measurement was impossible in the sector immediately above the radar so that the aircraft was invisible to the *Jägerleitoffizier* on the *Seeburgtsch*. In such a situation the practice was to keep completely silent until the points of light appeared again. In most cases, however, further alterations of course were unnecessary.

To bring a fighter into visual range of its target called for precise work on the part of all involved. Small errors in measurement at the radar posts, in the transferring of the data to the 'Seeburgtsch', an incorrect calculation of the ground speed or course by the *Jägerleitoffizier*, or inexact execution of the flight corrections by the pilot, could easily lead to failure. Such findings applied particularly to the period following the introduction of 'Himmelbett' night fighting, when the aircraft had not yet been equipped with airborne interception radar. After the introduction of 'Lichtenstein', and the subsequent conversion to the considerably improved SN2 radar, which had a greater range and a wider acquisition angle, the number of successful controlled intercepts increased. Close-controlled night interception thus became perceptibly more perfect.

RIGHT: An early ground radar station comprising a 'Freya' (centre) and two 'Würzburg' D model radar installations. It was a station such as this that allowed Lt Ludwig Becker to be guided into visual contact with a Wellington of 311 Sqn. on 16 October 1940. Lt. Becker succeeded in shooting down the bomber and thus achieved the first night kill using the Dunkel Nachtjagd method of night fighting. By the end of the war, 'Freya' had become the Germans most widely-used type of radar.



ABOVE: In the autumn of 1941, and as a result of improving radar technology, the 'Himmelbett' system of night fighting was gradually introduced into the German defences. A typical 'Himmelbett' radar station comprised a single 'Freya' radar, as seen here in the foreground of this photograph, and two 'Würzburg-Riese' radar installations. One such 'Würzburg-Riese' can be seen to the rear and to the right of the 'Freya'.



* See page 46 for details of 'Seeburgtsch'

8 • Luftwaffe Night Fighter Units

1939-1943

wings of the bomber. The night fighter pilot would then quickly dive away into the darkness before the bomber's rear gunner had an opportunity to return fire. This form of interception was to become known as *Helle Nachtjagd* (Illuminated Night Fighting). *Oblt.* Werner Streib from 2./NJG 1 achieved the first recorded success using this method when he shot down a Whitley at 02.15 hrs on the morning of 20 July 1940. This aircraft was almost certainly a Whitley Mk.V from 51 Sqn. based at Dishforth and piloted by Flight Lieutenant S.E.F. Curry. It was shot down during a raid on Gelsenkirchen and is reported to have crashed 20 kilometres west of Osnabrück, killing all but one of the crew.

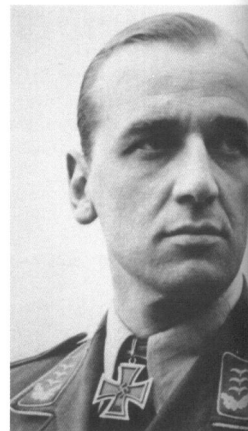
Streib followed up this success with another on 22 July and, by the end of the month, a total of six bombers had fallen victim to night fighter pilots using the *Helle Nachtjagd* procedure. Despite these initial successes, however, it was obvious that this method of interception was only a temporary measure until the introduction of radar and the acquisition of more searchlights and better-suited aircraft.

Eventually it became obvious to Bomber Command that the German defences had constructed their searchlight belt in and around Münster, so the bombers simply flew around it. With the initiative temporarily lost, Kammhuber used all his persuasiveness and organisational skills to obtain further searchlights and set about extending his illuminated belt. The task took almost a year, but when completed it was almost 900 kilometres long and 30 kilometres wide and ran from Schleswig Holstein in the north down as far as Liège in Belgium, with a second, shorter searchlight belt to the north-west of Berlin.

In the meantime, the Germans began to regain the initiative by introducing the long-awaited 'Freya' radar into their defensive system. Since the beginning of the war, *Leutnant* Hermann Diehl, a signals officer stationed at an experimental early-warning station on the island of Wangerooge, had been conducting experiments using 'Freya'. Diehl's theory was that 'Freya' could be used as a close-control radar to direct a fighter into visual contact with a bomber by means of communication from a ground station. Initial difficulties with its accuracy were overcome by the introduction of a newer, improved model that possessed a direction-finding capability known as 'AN-Peilung'.⁴ The receiving aerial on this particular model was divided into two parts, left and right. An electronic switch within the unit would transmit from one to the other at a rate of 75 times a second and both aircraft would appear on a cathode ray tube divided by a central vertical line which represented the vertical time base. The bomber would appear on this line and it was the fighter controller's task to direct the night fighter until its signal was positioned symmetrically on the same line, at which point the night fighter was directly behind its intended target. The night fighter pilot was then constantly updated from the ground until visual contact was made. Despite the obvious difficulties, the most serious being that 'Freya' had no height measuring capability, Diehl carried out a series of practice daylight interceptions and successfully directed a fighter to its target.

In June 1940, when Falck had been transferred to Düsseldorf, he had the good sense to realise the importance of radar and had taken Diehl with him. Several months later, in August, both Falck and Diehl visited Kammhuber at his headquarters and outlined the theory of radar controlled interception. Kammhuber immediately recognised the potential of 'Freya' and authorised operational trials to begin the following month. After some careful consideration, it was decided to build a 'Freya' installation in Nunspeet in north-west Holland, a village often overflown by RAF bombers on their way to Germany. The problem of estimating the height of the bomber was overcome by using the second operational radar that the Germans had at their disposal. This was known as 'Würzburg' and had originally been designed to control anti-aircraft guns. It was then adapted for use with searchlights, before finally becoming an integral part of close-controlled night fighting. 4./NJG 1 was selected to take part in the first trials using this system, which became known as *Dunkel Nachtjagd* (Dark Night Fighting).

Using this method of interception, Diehl manoeuvred *Leutnant* Ludwig Becker into visual contact with a Wellington bomber on 16 October 1940. At 21.25 hrs, Becker opened fire and with its starboard engine on fire the Wellington went into a dive and crashed near Oosterwolde, some 28 kilometres north-west of Apeldoorn, Holland.⁵ Following this victory, the first *Dunkel Nachtjagd* victory of the war,



ABOVE: Werner Streib with the insignia of Hauptmann, wearing the Knight's Cross awarded on 6 October 1940. 20 July 1940: Streib achieved the first Helle-Nachtjagd victory by shooting down a Whitley bomber during an attack against Gelsenkirchen.

4. AN-Peilung means direction finding.

5. The crash site recorded by Becker matches that of Wellington L7844 from 311 squadron, which is recorded in W.R. Chorley's 'Bomber Command Losses' as having crashed near Oosterwolde, Holland. The pilot, P/O B. Landa was killed, as were three other members of the six-man crew.

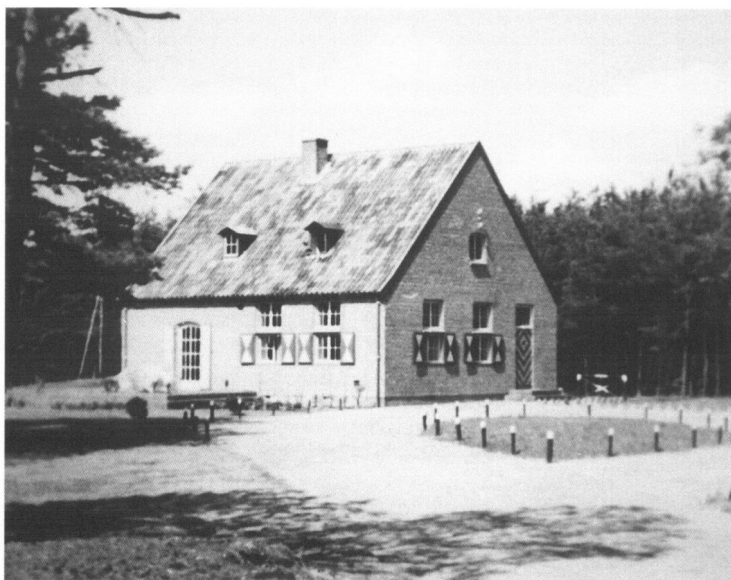
BELOW: Werner Streib himself, a night fighter pilot, his severe injuries were an important factor in the creation of the Helle-Nachtjagd.

BELOW: The 'Freya' radar installation at Nunspeet, a village often overflown by RAF bombers on their way to Germany. The problem of estimating the height of the bomber was overcome by using the second operational radar that the Germans had at their disposal.

other similar installations were set up along the Dutch and German coastlines, and by the end of 1940 the *Nachtjagd* had claimed a total of 42 victories. Compared with what was to come, this was a very small number but it was certainly a step in the right direction and 1941 would see further technological advances and a large increase in the number of bombers shot down.

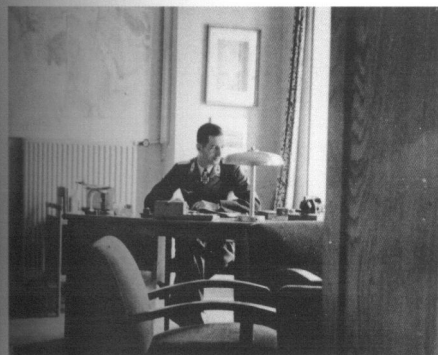
In the summer of 1940, a third night fighting technique was devised that combined the principals of *Helle* and *Dunkel Nachtjagd*, and was known as *Kombinierte Nachtjagd*, or combined night fighting. It was hoped that all the facets of the German defences, Flak, searchlights, radar and the *Nachtjagd*, could be coordinated to work together. A number of combined night fighting zones were established around some of Germany's principal cities such as Berlin, Frankfurt, Cologne, Bremen and Hamburg, in an effort to afford them better protection. Unfortunately, this particular technique proved almost unworkable, principally because a system could not be satisfactorily implemented that would prevent the Flak from firing on its own fighters. At this stage of the war aircraft did not carry the appropriate electronic equipment that could identify them as friend or foe, and the only way aircrew could identify themselves to the ground defences was to fire coloured flares. The increased threat of being shot down by their own defences undoubtedly made the German night fighter pilots wary about entering these zones, hence only a small number of bombers was shot down using this technique.

BELOW: Although Wolfgang Falck himself never shot down a bomber at night, he was decorated with the Knight's Cross on 1 October 1940 for his seven day victories and, more importantly, for his contribution in the creation of the *Nachtjagd*.



LEFT AND BELOW: Towards the end of 1940 an airfield was constructed at Deelen where Falck set up his headquarters. Seen in these photographs is the Kommodore's new office (**LEFT**) and (**BELOW**) the officers' mess.

BELOW: From his command post at Deelen, Falck began the unenviable task of organising and expanding the *Nachtjagd* from nothing. At that time, there was no aircraft designed as a night fighter, and ground and airborne radar were both in their infancy.



Josef Kammhuber

Josef Kammhuber was born on 19 August 1896 in the small Bavarian town of Burgkirchen, close to the German/Czechoslovakian border, where his father was a local farmer. After obtaining his *Abitur*, or Higher School Certificate, at the Ludwigs Grammar School in Munich, he joined the Army as a volunteer in 1914. In August of that year Kammhuber joined the 3rd Bavarian Pioneer Battalion in Ingolstadt, and two years later he had become an officer cadet with the 20th Bavarian Infantry Regiment. In 1917, Josef Kammhuber was commissioned as a *Leutnant* and by the end of the First World War he had been decorated with the Iron Cross First and Second Class.

Kammhuber was one of the 100,000 men who remained in the *Reichswehr* after the war, serving first with the 3rd Battalion of the 19th Bavarian Infantry Regiment until 1923, when he was transferred to Munich. He then joined the Regiment's 1st Battalion and was later promoted to Battalion Adjutant. Between 1926 and 1929 he served on the General Staff of the Army at the *Reichswehrministerium*, and at the same time began training as a pilot and an observer. In May of 1930, Kammhuber was temporarily released from his duties, becoming one of a select band of German aviators to receive specialist flying training at Lipetsk in Russia. By the end of September 1930, with his training complete, he returned to Germany and on 1 February 1931 he was promoted to *Hauptmann*.

Two years later, in August 1933, Kammhuber left the Army and joined the newly formed *Reichsluftministerium* (RLM) where he was employed as the head of its organisational department. When the *Luftwaffe* was formed on 1 March 1935, Kammhuber was transferred to the new organisation and, in July of the same year, he underwent fighter pilot training at Schleissheim near Munich.

On his return from Schleissheim Kammhuber joined the General Staff at the RLM where he remained until 12 March 1936, when he was transferred to Dortmund as *Kommandeur* of I./JG 134. In 1937, Kammhuber became Operations Officer and head of the *Wehrmacht's* field training staff for *Luftkreiskommando* II in Berlin, a post that he held until returning to the organisational staff of the *Luftwaffe* a year later. After being promoted to *Oberst* in January 1939, Josef Kammhuber was appointed Chief of Staff for *General* Helmuth Felmy, the commanding officer of *Luftflotte* 2, and when war broke out in September 1939, he was Chief of Staff to V. *Fliegerkorps*.

In March 1940, prior to the invasion of France and the Low Countries, Kammhuber was given command of *Kampfgeschwader* 51 'Edelweiss', which he successfully led during the initial stages of the French campaign in May 1940. However, on 3 June 1940, while leading a bombing raid against airfields in the Paris area, Kammhuber's aircraft encountered technical difficulties that forced him to leave the main formation. During the return flight the lone German bomber was attacked and shot down by French fighters over Meaux and the entire crew was taken prisoner. Fortunately for Kammhuber, the French



ABOVE: Oberst Josef Kammhuber shortly before taking command of the newly formed Nachtjagddivision on 17 July 1940. Several months later, on 17 October 1940, he was promoted to Generalmajor.

BELOW: With the expansion of the Nachtjagd and the formation of the Nachtjagddivision on 17 July 1940, Josef Kammhuber, shown here later in the war as a Generalleutnant, was placed in command.

BELOW: On 17 July 1941, a year after assuming command of the Nachtjagd, Kammhuber was awarded the Knight's Cross for his achievements in building up the organisation and its successes in Bomber Command.



capitulated several weeks later and, following his repatriation, he was appointed *Kommodore* of *Kampfgeschwader 1 'Hindenburg'*.

Following the formation of the *Nachtjagd* in June 1940, Kammhuber was given command of 1. *Nachtjagddivision* and set up his headquarters at Zeist in Holland on 17 July 1940.

Widely regarded by others in the *Luftwaffe* hierarchy as an exceptional organiser, Kammhuber immediately began to organise the German air defences into a cohesive and effective force. In October 1940 he was promoted to *Generalmajor* and on 9 July 1941 he was awarded the Knight's Cross in recognition of his development of the *Helle Nachtjagd* and *Himmelbett* night fighting procedures, which had by this time accounted for some five hundred bombers.

As the *Nachtjagddivision* continued to expand it became difficult to operate effectively, and in an effort to overcome mounting organisational problems it was redesignated XII. *Fliegerkorps*, which had overall command of a newly formed *Nachtjagddivision* under the command of *Generalmajor* von Döring. This principally amalgamated all the units of the night defences and Kammhuber became the Commanding *General* of XII. *Fliegerkorps*, as well as *General der Nachtjäger* on 1 August 1941. Several months later, in October 1941, he was promoted to the rank of *Generalleutnant* and, in January 1943, to *General der Flieger*.

Following the disastrous raids against Hamburg in July 1943, and the introduction of 'Window', which rendered the German radar systems useless, Kammhuber was replaced as Commanding *General* of XII. *Fliegerkorps* on 15 September 1943 by *Generalmajor* Joseph Schmid. On 15 November 1943 he was transferred to Norway to command *Luftflotte 5* following continual differences of opinion with the German High Command. He remained with *Luftflotte 5* until 10 October 1944, when, after further differences with the *Luftwaffe* hierarchy, he was removed from his command and placed on the reserve list. After spending several months without a command, he was recalled to active duty in February 1945 and appointed special representative for jet fighters and combating four-engined bombers.

At the end of the war, Kammhuber was taken prisoner by the Americans and interrogated for almost 18 months before being released in December 1947. After more than 30 years as a soldier, Josef Kammhuber began to rebuild his life as a civilian and found work as a sales representative. When Germany began to reform its military in 1955, Kammhuber joined the *Bundesluftwaffe* in June 1956 with the rank of *Generalleutnant*. He was put in command of *Abteilung VI* within the German Ministry of Defence and on 1 June 1957 he was made the first *General Inspekteur* of the *Bundesluftwaffe*.

During the remainder of his service he oversaw the expansion of the new *Bundesluftwaffe* and the introduction of the F-104 Starfighter. By the time of his retirement in September 1962, he had been promoted to *Generaloberst* and was awarded the Grand Service Cross of the Federal Service Organisation for his work in building up the *Bundesluftwaffe*. Josef Kammhuber spent the remainder of his life in Munich, where he died on 25 January 1986.



ABOVE: The General takes advantage of some free time to play billiards with his staff.

LEFT: On 10 August 1941, following the growth of the *Nachtjagd*, the *Nachtjagddivision* was renamed XII. *Fliegerkorps* and came under the command of *Generalleutnant* Kammhuber on 1 October 1941.

12 ● Luftwaffe Night Fighter Units

RIGHT: From the left: Falck; unknown (half hidden); and Kammhuber dining with the aircraft designer Professor Ernst Heinkel at his factory in Rostock-Marienehe in January 1942. Professor Heinkel is shown fourth from left.



ABOVE: Josef Kammhuber delivered the eulogy at the funeral for Hauptmann Herbert Bönsch of II./NJG 2 and his crew, Feldwebel Otto Böttcher and Oberfeldwebel August Wille, who were killed in a flying accident near G. Rijen. Here Kammhuber is saluting the graves of the fallen airmen.



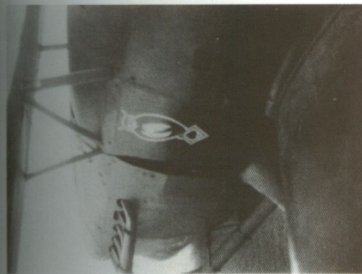
ABOVE AND RIGHT: Between 10 and 15 August 1942, an Italian delegation led by General Biseo flew to Germany and visited various night fighter units in Holland and Germany. The delegation was accompanied on their inspection tour by Kammhuber and his staff.

On May 1939, a single-engine night fighter Staffel was created with the formation of 10.(Nacht)/JG 2 and in September, 11.(Nacht)/JG 2 was formed by redesignating 11.(Nacht)/JG 2. Also in September, a further single-engine night fighter unit was formed.



Emblem of
10 (Nacht)/JG 72

On May 1939, a single-engine night fighter Staffel was created for the 10. (Nacht)/JG 72, which was redesignated 11. (Nacht)/JG 2. Also in September, a further single-engine night fighter Staffel was formed with the creation of 10. (Nacht)/JG 26, but this was redesignated 12. (Nacht)/JG 2 in December to form a full Gruppe, the IV. (Nacht)/JG 2, equipped with the Ar 68 F and the Bf 109 D-1. These early, single-engine night fighter units existed only for a short time before being disbanded or absorbed by the day fighter force. Note that the Ar 68 Fs (*EAR RIGHT*) were sometimes fitted with an early type of flame damper, shown more clearly (*RIGHT*). Although the Pik As, or Ace of Spades emblem, has led to the assumption that this aircraft belonged to JG 53, it is believed that it was in fact operated by 10. (Nacht)/JG 72, which had been formed in July 1939 from personnel of II./JG 53. In February 1940, 10. (Nacht)/JG 72 was redesignated 12. (Nacht)/JG 2 before finally becoming 6./NJG 1 in June 1940. A similar emblem but showing an owl on a branch was sometimes employed by 11. (Nacht)/JG 2.



Arado Ar 68 F-1 'Red 1+N' of 10. (Nacht)/JG 72, Oedheim/Heilbronn, September 1939

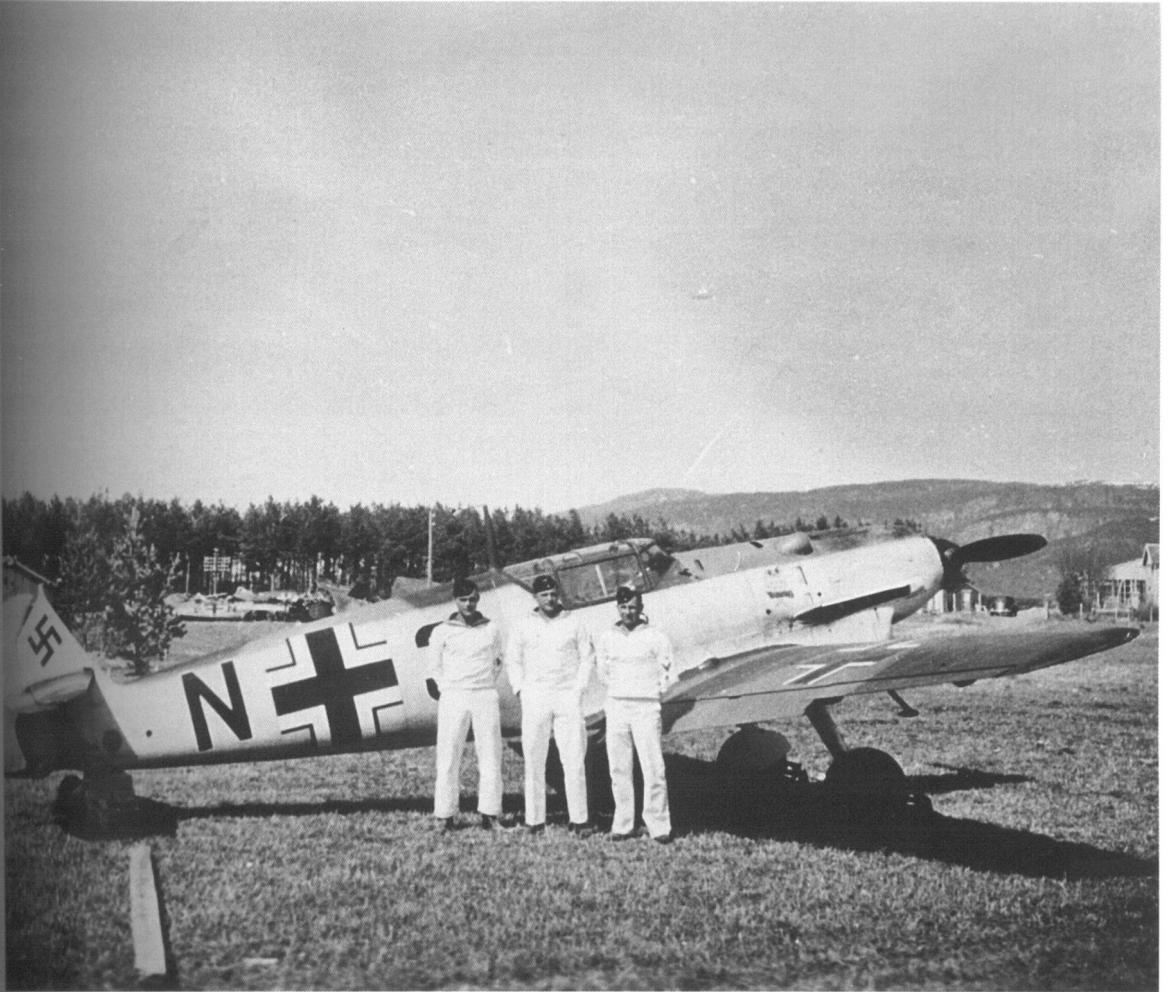
This aircraft was camouflaged in an uppersurface splinter pattern of 70/71 which extended well down the sides of the fuselage to meet a permanent black where the original 65 undersurfaces had been overpainted. Note the propeller blades are light grey on the front faces but black on the rear and that the national insignia on the uppersurface of the mainplane were either toned down or completely overpainted.

1939-1943

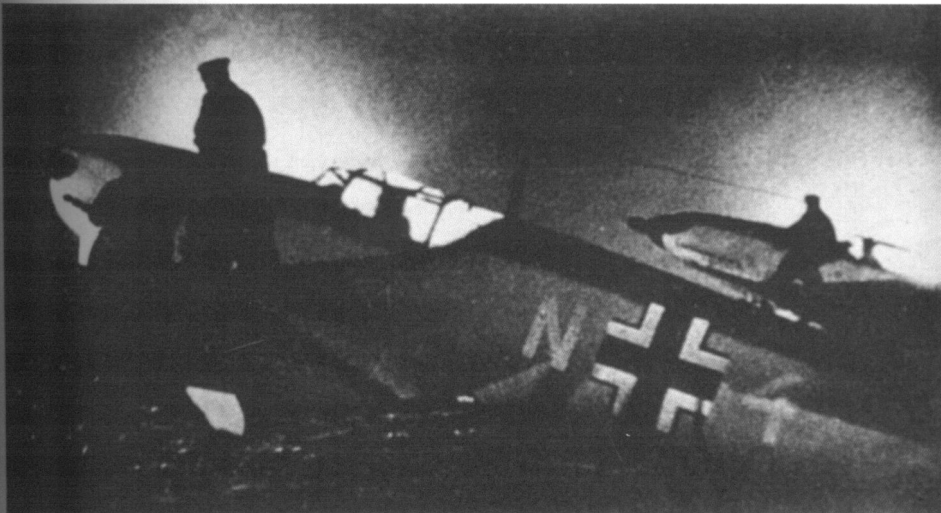


ABOVE AND BELOW: These two views of another Ar 68 F of 10.(Nacht)/JG 72 which crashed in south-west Germany in 1940 clearly show the splinter pattern on the uppersurfaces, but this time apparently in 71 and 02.





ABOVE:
This photograph of Bf 109 D-1s of 11.(Nacht)/JG 2 was taken shortly after the German invasion of Norway in April 1940, and shows sailors of the Kriegsmarine with one of the Staffel's aircraft at Oslo-Fornebu.

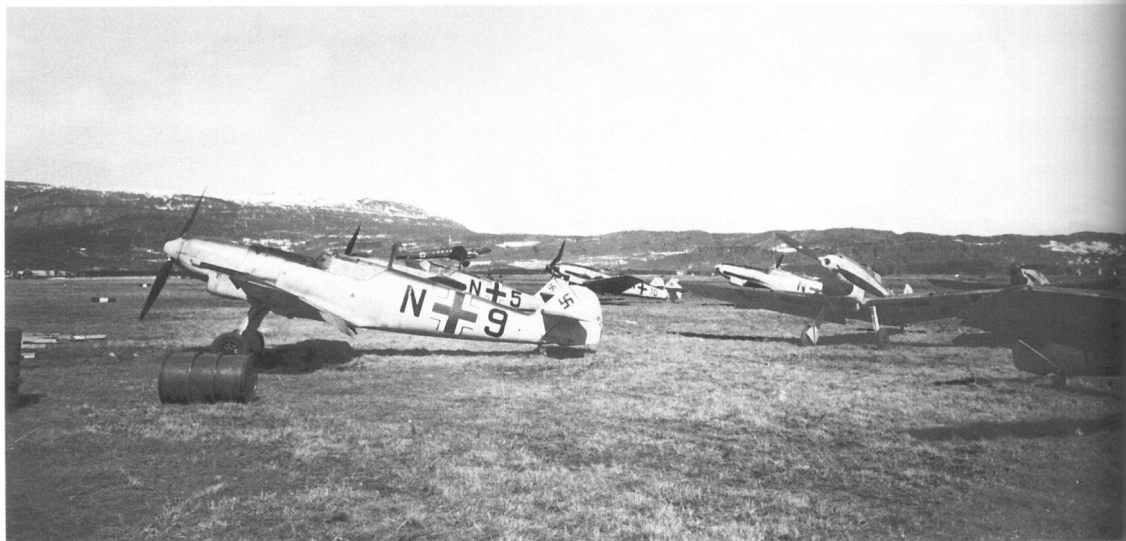


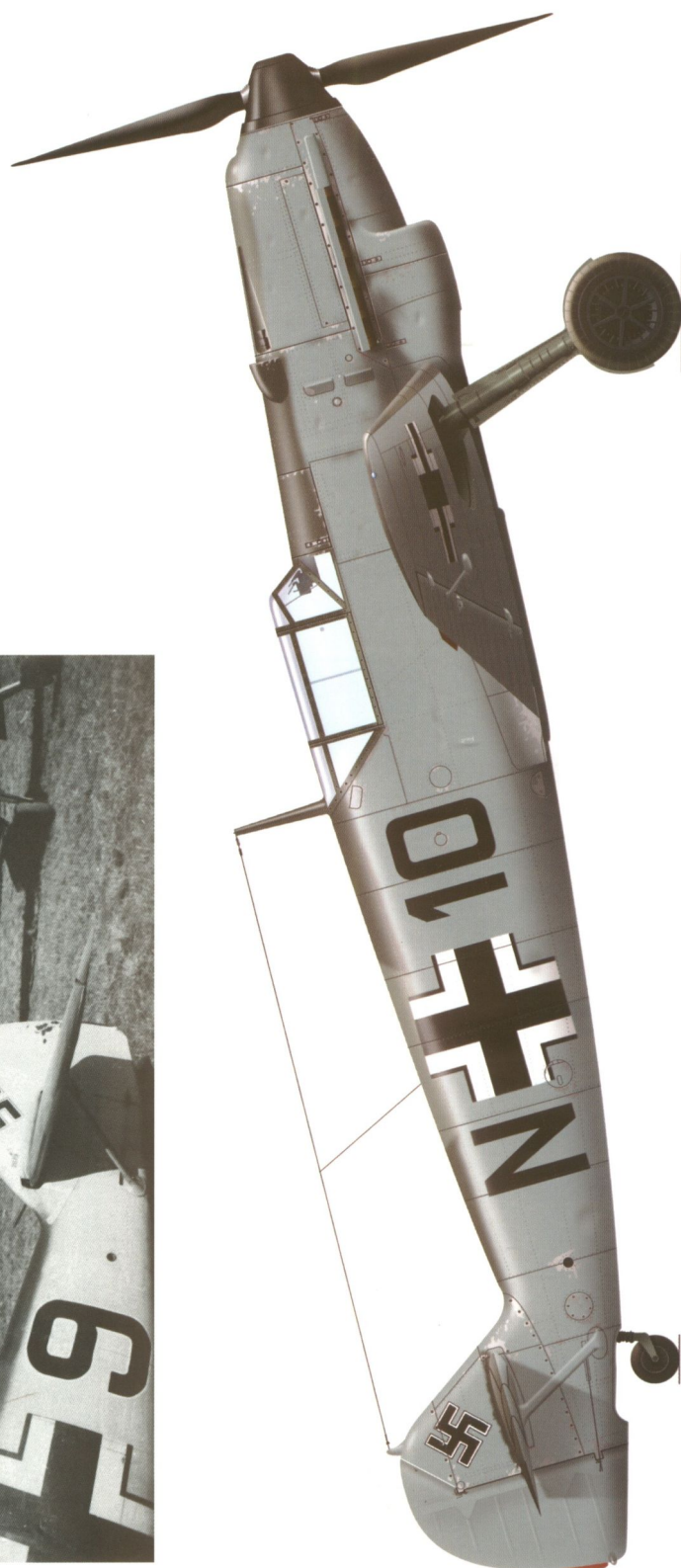
LEFT: Bf 109 D-1s of IV.(N)/JG 2 apparently being readied for a night sortie, although the use of bright lighting to illuminate the scene suggests the photograph may have been taken for propaganda purposes.

1939-1943



ABOVE, BELOW AND OPPOSITE PAGE: Although the Bf 109 D-1 was originally delivered in a factory finish of 70/71/65 with a low demarcation line which ran along the lower fuselage, this defensive scheme was later changed to one better suited to conceal the aircraft while in the air. The demarcation line between the upper- and undersurface colours was therefore raised so that most of the fuselage sides were in 65, and the green 70 on the uppersurfaces was replaced by grey 02. These aircraft, some clearly showing spinners finished in 70 while others are 65, belonged to 11.(Nacht)/JG 2 and were probably photographed at Oslo-Fornebu or Trondheim-Vaernes in the late spring or early summer of 1940. 'Black 10', the subject of the accompanying profile, may be seen in the background of the photographs (*BELOW AND OPPOSITE*). In June 1940, when NJG 1 was formed under Hptm. Wolfgang Falck, IV.(N)/JG 2 was redesignated II./NJG 1.





Messerschmitt Bf 109 D-1 'Black 10+N' of 11.(Nacht)/JG 2, Norway, 1940

This machine had been recently repainted in 70/02/65 and was therefore quite clean with minimal weathering and exhaust staining. Note the modified exhaust stubs and that, to prevent the pilot's night vision being affected by exhaust glare during night operations, an anti-glare shield has been fitted over the port and starboard exhaust outlets. The spinner on this aircraft was 70 overall.

The First Radar-Controlled Night Fighter Victory, 16 October 1940

OBERLEUTNANT LUDWIG BECKER, 4./NJG 1

I flew the first sortie in fighter-control area 'Zuidersee' at about 21.20 hrs. I was under the tactical control of *Leutnant* Diehl using the systems known as 'Freya mit Zusatz' and 'Würzburg'. We were using Morse wireless transmissions.

I was controlled very well by *Leutnant* Diehl to the correct height of 3,300 metres in a curve-of-pursuit approach to the enemy machine from starboard and astern with frequent course corrections until, in the moonlight and about 100 metres to port and above, I saw an aircraft. As I came closer, I recognised it as a Wellington.

I gradually positioned myself astern of it and manoeuvred in very close. Aiming at the fuselage and wing-roots I gave it a burst of about five or six seconds. The starboard motor caught fire at once; I pulled my machine above the bomber and away. For a short period the British machine flew on, losing height; then the fire went out and I saw the enemy aircraft dive to earth in a typical spinning motion. There was a fire where he hit the ground. I did not see any parachutes. I went back to my holding area.

Note: This aircraft was almost certainly Wellington L7844 from 331 Squadron based at East Wretham. The aircraft had been on a mission to Kiel and its pilot, Officer Landa, and three of the crew were killed. This account was translated from Becker's own combat report submitted after the encounter.



LEFT: In the centre of this photograph is Karl Bolle, a pilot who shot down 36 enemy aircraft in the First World War and who was awarded the Pour le Mérite in August 1918. During the Second World War, Bolle was given the role of special advisor to the Luftwaffe and is seen here at Arnhem with Wolfgang Falck, celebrating the second anniversary of the formation of the Nachtjagd.

RIGHT: Another photograph of Obstdt. Karl Bolle shown in conversation with members of NJG 1. From the bottom left corner of the photograph and working clockwise around the table, the personalities are: Hptm. Walter Ehle (Kommandeur of II./NJG 1); unknown; Major Edler, with his hand raised to his face; Hptm. Wolfgang Thimmig; Hptm. Werner Streib, the Kommandeur of I./NJG 1; Obstdt. Bolle; and in the centre foreground with his back towards the camera, Hptm. Adolf Edler von Graeve, the Kommandeur of III./NJG 1.





LEFT: The level of daytime British radio traffic intercepted by the Luftwaffe monitoring service as RAF crews flight-tested their machines frequently provided advance warning of bomber raids and activity on Luftwaffe night fighter flight lines increased accordingly as units were brought to readiness.

BELOW: A similar scene showing aircraft of Lehrgeschwader 1. Although these aircraft carry the Staffel letter 'K' of 3(Jagd)/LG 1, this Staffel was redesignated 15./LG 1 in August 1939 but retained its Staffel letter. When the unit was again redesignated and became 3./NJG 3 in October 1940, the original letter 'L' was again appropriate although the 'L1' code was retained for some time afterwards.



Wolfgang Falck

Early Career

Generally regarded as the creator and father of the *Nachtjagd*, Wolfgang Falck remained with the organisation from the time of its formation in June 1940 to its eventual demise in May 1945. Under his leadership and guidance he saw it expand from humble beginnings to an effective and deadly force feared and respected by its adversaries in Bomber Command.

Wolfgang Falck was born in Berlin on 19 August 1910, the son of a priest and the youngest of three children. He spent his entire childhood in the German capital where he witnessed Germany's defeat in 1918, the Kaiser's abdication, life under the Weimar Republic and experienced all the political changes of that period. After finishing his schooling in 1931 he applied to join the Army, which at that time was still restricted in size to 100,000 men under the provisions of the Treaty of Versailles. Falck's application was successful, but before he could join his Regiment he was selected by the *Reichswehrministerium* (Air Ministry) as one of 30 officer cadets most suitable to receive pilot training.

In April of that year Falck was posted to the *Deutsche Verkehrsfliegerschule* (German Commercial Flying School) at Schleissheim near Munich where he underwent basic flight training. Although the school trained commercial pilots for *Luftbansa*, there were also men like Falck who, it was intended, would become fighter pilots. At the conclusion of the training, ten of the 30 students were selected to go to Lipetsk in Russia for fighter pilot training. Falck was one of the lucky ten and he departed for Russia in April 1932 together with the future *Luftwaffe* aces Günther Lützow and Hannes Trautloft.

Returning to Germany six months later, he resumed his army training with the training battalion of the 7th Infantry Regiment at Schweidnitz where he underwent 14 weeks of basic infantry training. Between February 1933 and September 1934 he attended the Infantry School at Dresden, and on 1 October 1934 he was promoted to *Leutnant*. On receiving his commission, he was advised to resign from the Army so that he could join the *Luftwaffe*. At that time, however, the *Luftwaffe* did not officially exist as far as the rest of the world was concerned and, to keep its existence secret, the pilots and personnel operated under the guise of the *Luftsportverband* (Air Sports Association).

With his resignation accepted, Falck returned to the *Deutsche Verkehrsfliegerschule* at Schleissheim as a pilot instructor and for the next eighteen months he was responsible for assessing student pilots, deciding which were suitable to become fighter pilots and which were not. On 1 April 1936 he was promoted to *Oberleutnant* and transferred to *Jagdgeschwader* 132 '*Richtbofen*' which was based at Jüterbog-Damm near Berlin. As one of the most accomplished and capable fliers in the *Geschwader*, Falck was automatically chosen to instruct any new pilots joining the unit and to pass on his valuable expertise.

In early 1937 he was transferred to the staff of *Jagdgeschwader* '*Richtbofen*' and appointed *Geschwader Adjutant*. The monotony of the paperwork, combined with its numerous administrative duties, however, soon took its toll on Falck who began looking for a way to return to flying duties. An opportunity to do so presented itself in July 1938 when it was decided to add a third *Gruppe* to the *Geschwader's* establishment and Falck, on hearing the news, immediately applied to become a *Staffelkapitän* in the new unit. The *Geschwaderkommodore*, Major Gerd von Massow, accepted his application and Falck became the *Staffelkapitän* of 8. *Staffel*, stationed at Fürstenwalde.

After the German occupation of Czechoslovakia, Falck's *Gruppe* was transferred to Olmütz in Bohemia-Moravia, where they received familiarisation training on the new, twin-engined Messerschmitt Bf 110. As it became available, this heavy fighter gradually replaced the *Gruppe's* Bf 109s and, once conversion was complete, the III. *Gruppe* was redesignated I./*Zerstörergeschwader* 76 (I./ZG 76), one of the first such Destroyer *Gruppen* to be formed.

The Outbreak of War

Towards the end of August 1939, as war loomed ever closer in Europe, I./ZG 76 was transferred to a small airfield at Ohlau, Silesia, close to the Polish border. When war finally broke out on 1 September 1939, Falck and his men flew a bomber escort mission to Krakow but, disappointingly, failed to engage the Polish Air Force. On 5 September, however, I./ZG 76 attacked Dalikow airfield and Falck achieved his first confirmed victory of the war when he shot down a PZL P-23 bomber. Less than a week later, on 11 September, he increased his tally to three victories when he shot down a Fokker F IX and a single-engined reconnaissance aircraft. Two days later, as the highest-scoring pilot of his *Gruppe*, Falck was decorated by Göring himself with the Iron Cross, Second Class.

When the Polish campaign came to an end, I./ZG 76 moved to Nellingen, near Stuttgart. On 16 December, after several months of flying border patrols, Falck was promoted to *Hauptmann*, and the *Gruppe* was transferred to Jever. The following day, 24 Wellington bombers were dispatched from England



ABOVE:
bombers
press con
Seated se
Kommod
Wilhelms
10./(N)JG



ABOVE: In the autumn of 1932, Wolfgang Falck joined 15th Company of Infantry Regiment No.7 and then underwent 14 weeks of basic army training at Schweidnitz, where this picture was taken.

to attack the docks at Wilhelmshaven. However, as they crossed the North Sea, they were intercepted over the Heligoland Bight by a large number of German fighters. In the ensuing air battle, Falck claimed two of the 12 Wellingtons shot down but the RLM credited him with only one. The German press immediately took advantage of this propaganda opportunity, and Falck, together with other successful pilots, soon became well known to the German public.



ABOVE: Following the Luftwaffe's successful interception of RAF Wellington bombers over the Heligoland Bight on 18 December 1939, a few days later a press conference was called to announce the news to the German public. Seated second from the right in this photograph is Obstlt. Carl Schumacher, the Kommodore of JG 1, responsible for protecting the German naval bases at Wilhelmshaven. Two places to his right is Oblt. Johannes Steinhoff of II./NJG 26, soon to be redesignated to form part of IV.(N)/JG 2.



ABOVE: After the press conference, the Reich's Press Officer, Dr. Otto Dietrich (centre), speaks with Obstlt. Carl Schumacher and Hptm. Wolfgang Falck (right).

As a direct result of the RAF losses experienced over the Heligoland Bight, Bomber Command changed its strategy and began operating mainly at night. It did, however, carry out a number of raids against German shipping in the North Sea, and it was against raids on 10 January and 17 February 1940 that Falck shot down two Blenheims, increasing his personal tally of victories to six. Both bombers were from 110 Sqn. and were shot down whilst carrying out reconnaissance flights over the North Sea.

Two days later, on 19 February, Falck was transferred from ZG 76 and appointed *Kommandeur* of I./ZG 1. This *Gruppe* was based at Barth on the Baltic Coast and on 9 April it took part in the invasion of Denmark. During the first day of the operation, code-named '*Weserübung*', Falck claimed his seventh and what proved to be his last victory when he shot down a Fokker D-21 over Copenhagen-Vaerløse. When the Danes capitulated, I./ZG 1 flew sorties against Norway from its new airfield at Aalborg in Northern Denmark. Whilst operating from Aalborg, the airfield was often attacked by British bombers returning from operations against Germany and, as a consequence of these nuisance raids, Falck began to formulate plans to counter the bombers. He reported his theories to the *Luftwaffe's* High Command and, within a week, Falck was visited by *Generaloberst* Erhard Milch. The possibilities of night fighting were discussed at the meeting, but before any plans could be put into effect Germany invaded France and the Low Countries on 10 May 1940.

The Creation of the Nachtjagd

Thoughts of night fighting were soon forgotten as the *Wehrmacht* rapidly advanced to the English Channel. Falck's own *Gruppe* flew countless sorties in support of the ground forces and losses began to rise accordingly. Then, just as the French capitulated, Falck's own *Gruppe*, minus one *Staffel*, was ordered back to Düsseldorf. Since the German bombing of Rotterdam, Bomber Command had been flying nocturnal operations to attack industrial targets in the Ruhr and Falck was tasked with defending them. On 26 June 1940, Falck was summoned to a meeting at Wassenaar where Göring appointed him the *Kommodore* of NJG 1. However, with this appointment came the task of organising, expanding and developing Germany's night defences, a role in which Falck would prove instrumental.

Falck returned to Düsseldorf and began the mammoth task that lay ahead of him and, together with *Oberst* Josef Kammhuber, German night defences were transformed into an effective and formidable obstacle against Bomber Command. On 1 October 1940, in recognition of this pioneering night defence work and his previous operational service, he was awarded the Knight's Cross.

At the same time, however, Kammhuber banned Falck from all operational flying, although he remained *Kommodore* of NJG 1 until the end of June 1943. Thus, in addition to the day to day running of his *Geschwader*, Falck spent the next three years visiting all theatres of operations to improve existing night fighter defences or to establish them where they were most needed.

After the catastrophic raids against Hamburg in July 1943, during which some 40,000 civilians were killed in a single night, Kammhuber was replaced by *Generalmajor* Joseph Schmid and transferred to Norway to take charge of *Luftflotte* 5. Falck, who had been promoted to *Oberst* on 1 July 1943, was

22 • Luftwaffe Night Fighter Units



LEFT: One of only a few colour photographs taken of Falck during the war. This one was taken whilst he was at Rom in Northern Denmark co-ordinating protection flights for the battle cruisers Admiral Scheer and Prinz Eugen which, in February 1942, left their berths at Wilhelmshaven for the safety of the Norwegian Fjords.



ABOVE: The heavy cruiser Prinz Eugen with two of its escorts.



ABOVE: This photograph was taken on 24 February 1942 at Trondheim in Norway, and shows members of 5./NJG 1 who took part in 'Donnerkeil'. Fourth from the left is Lt. Georg Greiner. Sixth from left is Lt. Heinz Schnauffer and third from the right is Schnauffer's Bordfunker, Fritz Rumpelhardt.



ABOVE: Temporarily setting aside the initial difficulties of establishing and building up Nachtjagd, Falck relaxes at a garden party at grounds of his headquarters at Deelen.



LEFT AND RIGHT: Falck at Velno showing his unit's aircraft and command post to visiting Italian officers of the Regia Aeronautica. The two parties also exchanged relevant technical data.



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THIS PAGE: This Bf 110 C-1 coded G9+AA was flown by Major Wolfgang Falck, the Kommodore of NJG 1, shown (ABOVE) as an Oberleutnant. Major Falck led this Geschwader from 26 June 1940 to 30 June 1943, during which period the unit was based entirely at Deelen-Arnhem in Holland. Falck having been prevented from flying combat missions by Kammhuber in 1940, this machine was used purely for non-operational flying.



Messerschmitt Bf 110 C-1 'G9+AA' flown by Major Wolfgang Falck, Kommodore of NJG 1, Deelen-Arnhem, 1942
As explained previously, when Major Falck became Kommodore of NJG 1, he was forbidden to fly operational missions but retained a Bf 110 C bearing the markings G9+AA in grey 77 with the aircraft letter in the bright blue of the Geschwaderstab. The camouflage consisted of a green 70/71 splinter pattern on the upper surfaces which had evidently been lightly polished and showed a slight sheen, with 65 on the undersurfaces. Note that although this was a non-operational machine, the white areas of the fuselage Balkenkreuz have been oversprayed grey while the Balkenkreuz under the wings have been removed entirely.

24 ● Luftwaffe Night Fighter Units



LEFT AND BELOW: During a fact-finding tour of the Eastern Front in August and September 1942, Major Falck visited numerous Luftwaffe units to evaluate their ability to protect themselves at night against Russian bombers. In the course of this tour he met up with Hannes Trautloft, a close friend and Kommodore of Jagdgeschwader 54. These photographs were taken at Siverskaya where Trautloft had his headquarters.



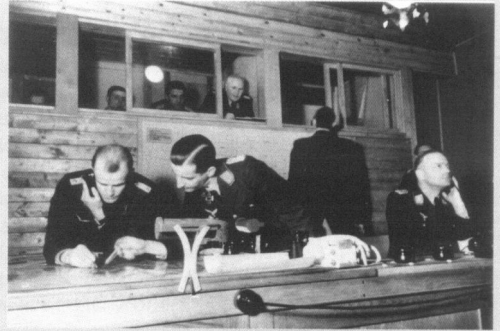
ABOVE: Photographed at the Luftwaffe testing facility at Werneuchen in the spring of 1943 are, from left to right: Falck; General Wolfgang Martini (Chief of Communications); Generaloberst Hans-Jürgen Stumpf (Chief of Luftflotte 5); and with his back to the camera, Generalmajor Andreas Nielsen.

RIGHT: In early 1943, Kammhuber ordered Falck to Rumania where he was to set up Jagdfliegerführer Balkan, a command post for the protection of the Ploesti oilfields. This photograph shows Falck with his operations officer, Major Douglas Pitcairn (standing) and, at the head of the table, Ritterkreuzträger Obstdt. Bernard Woldenga, the officer responsible for fighter units in the Balkans.



BELOW:
1945, Major
Falck, who
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transferred to the General Staff and had to hand over command of NJG 1 to his friend and fellow pioneer of night fighting, Werner Streib. In September 1943, Falck was assigned to Berlin where he became head of operations for the *Reich's* night fighter defences. Coincidentally, just a few short weeks before Falck arrived in Berlin, Air Chief Marshal Harris had begun an offensive against the German capital. The 'Battle of Berlin', as it was known, was destined to last almost seven months and from the time of the first raid on 23 August 1943 until the last raid on 24 March 1944, Bomber Command mounted 19 raids against the city, killing over 10,000 of its inhabitants. From his bunker at Berlin-Wannsee, Falck was able to oversee the *Reich's* defences in response to the strength and direction of any incoming bomber stream. By the time of the last raid, the combined efforts of the German defences had accounted for more than 600 bombers. Apart from representing a huge loss in men and machines, the loss rate was one that Bomber Command could not sustain indefinitely.



ABOVE: In September 1943 Falck was transferred to Berlin-Wannsee where he became operations officer of Luftflotte Reich and was responsible for all ground defences and day and night fighters operating throughout the Reich. On the right in this photograph is Generalmajor Andreas Nielsen, and on the left, Oberleutnant Wever, the son of General Wever.



LEFT: On 11 May 1944, Oberst Walter Oesau was shot down and killed south-west of St. Vith in Belgium. His subsequent funeral was attended by a large number of high ranking Luftwaffe officers including Wolfgang Falck (left); Generaloberst Hans-Jürgen Stumpff (foreground); and Generalmajor Walter Grabmann (behind and to Stumpff's left).



ABOVE: Wolfgang Falck in conversation with the commander of 2. Jagddivision, Generalmajor Walter Schwabedissen (left), whose divisional headquarters were located at Stade. Schwabedissen was responsible for all the night fighter units based in north-west Germany.

BELOW: On 2 May 1945, Wolfgang Falck, on the right, was taken prisoner by American troops at Schloss Schönau in Bavaria, where he was briefly interrogated before being released several weeks later.



On 20 July 1944, *Oberst* Claus von Stauffenberg attempted to assassinate Hitler during a military conference at Rastenburg in East Prussia. This came as a shock for Falck, as he was related by marriage to the Stauffenberg family and had met Claus von Stauffenberg a week before the attempt. Fearing arrest because of his close association with the family, he approached his friend, the *General der Jagdflieger*, Adolf Galland. After a brief discussion, Galland agreed to transfer him to Pancevo near Belgrade as *Jagdführer* (Fighter Leader) Balkans. Falck arrived in Yugoslavia in August and remained there until the beginning of October. During this time the Soviets invaded Rumania and Bulgaria and when they were advancing into Yugoslavia, Falck was obliged to transfer his headquarters to Vienna. However, within a short time of his arrival in Austria he was again transferred, this time to Potsdam where he became Chief of Staff to *Generalmajor* von Massow who was responsible for flying training at Potsdam-Werder near Berlin.

In March 1945, Falck was seconded to Army Group B, commanded by *Feldmarschall* Model at Bensberg, near Cologne. With the Allies expected to cross the Rhine at any time, his task was to identify landing areas that could be used by enemy gliders and parachutists and to advise preventative measures, but it was immediately obvious to him that the situation for Germany was grave and that the war was as good as lost. By the end of April 1945, Falck was at Bad Aibling in Bavaria, awaiting the inevitable German capitulation. On 2 May he was captured by American troops but spent just five weeks in captivity before being released.

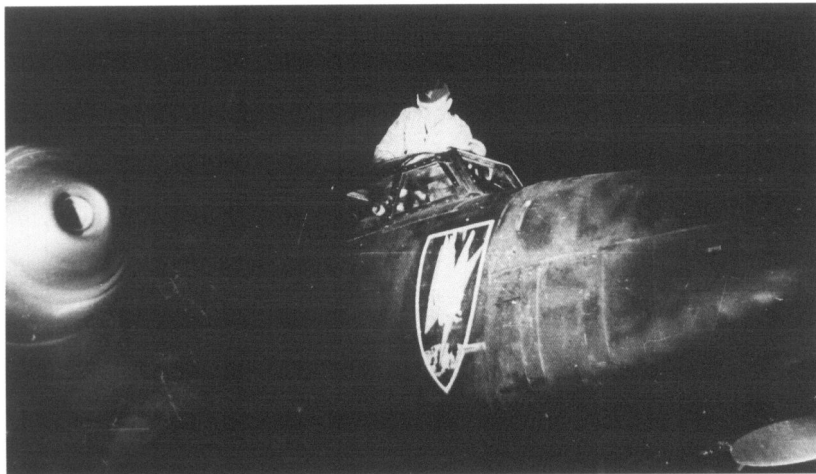
Post-War Life

In July 1950, following a variety of jobs which included working for the British Army in Germany, Wolfgang Falck secured a job as a sales representative with a company manufacturing playing cards. He remained with this company until 1961, by which time he had risen to the position of Chief Executive Officer, but then left. He was then approached by North American Aviation and offered a position as a consultant, which he accepted, and in 1966 he was offered a similar position with McDonnell Douglas, remaining with this company until his retirement in March 1986. At the time of publication, Wolfgang Falck is approaching his 95th birthday and lives quietly at his Tyrolean home in the Austrian Alps.

Fernnachtjagd – Intruder Operations Over England

From the moment he took command of the *Nachtjagd*, Josef Kammhuber was determined to engage his night fighters not only in the defence of the Fatherland, but to take the fight to the enemy and engage him in an offensive role. With this in mind, he chose II./NJG 1 to become the *Nachtjagd*'s first long-range night fighters, or *Fernnachtjäger*. The *Gruppe*, which had first been formed from IV./(N)JG 2, was reformed on 1 July 1940 from the *Zerstörer Staffel* of KG 30⁶, which was equipped with Ju 88 C-2s and Do 17 Z-10s. The pilots and crews were transferred to Düsseldorf where, together with crews from other units, they received their night fighter training.

Within a matter of weeks the *Gruppe* found itself on the move again, this time to Schiphol near Amsterdam. On 1 September 1940 the *Gruppe*, under the command of Major Karl-Heinrich Heyse, was re-designated I./NJG 2 and transferred to Gilze-Rijen. This airfield was better suited to night fighting operations and had previously been used by the Dutch as a military landing ground. Prior to the German invasion, the Dutch had begun to extend the airfield and the Germans themselves finally completed this work when they took it over so that when finished the airfield had three concrete runways, each 1,700 metres long, and an abundance of workshops, hangars and dispersal shelters.

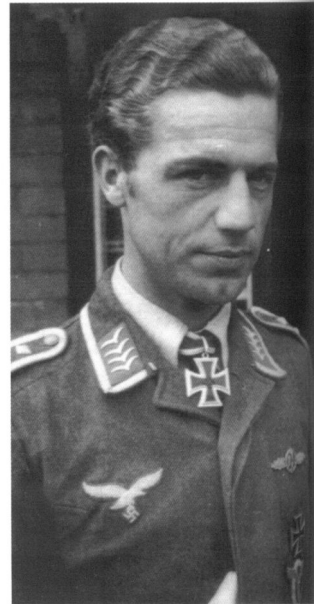


ABOVE: Although possibly accentuated by the bright light which enabled this night photograph to be taken, this view of a Bf 110 shows the uneven finish sometimes seen on Luftwaffe night fighters. Such an appearance could result from an overspray in varying densities on the aircraft's original camouflage colours, although normal weathering would also be an additional factor. The pilot seen here entering the cockpit of his machine is believed to be Ofw. Paul Gildner of NJG 1.

Now that the unit had its own identity, aircraft and trained personnel, it began to concentrate on establishing procedures and tactics for the role ahead. One of the most important elements introduced was that of the German wireless telegraphy interception service, whose job it was to monitor the transmissions between the British bombers and their ground control units as they prepared for a forthcoming operation. Any information that was received via the transmissions was passed directly to the control centre at Gilze-Rijen by 15.00 hrs each day.

When the idea of taking the offensive to Bomber Command was first conceived it was initially envisaged that the night fighters would be sent out in three waves. The first of these would attack the bombers as they took off from their airfields. The second would then patrol along the known routes flown by the bombers over the North Sea, while the third wave would fly to selected Bomber Command airfields and wait for the bombers to return, shooting them down as they attempted to land.

Unfortunately, putting the first two proposals into practice was a far more complicated proposition than the theory had first suggested. Neither the information received from the interception service, nor the standard of navigation, was sufficient at that time for the night fighters to attack easily the bombers on take-off. In addition, it was virtually impossible without airborne interception radar to locate the bombers as they flew in over the North Sea. What therefore proved to be the most effective way of attacking the bombers was the third proposal, which involved night fighters being filtered into the bomber stream as it headed back to England. As the bombers neared their illuminated airfields with landing and navigation lights switched on, and with many of the crews fatigued and preoccupied, the German fighters chose this vulnerable moment to make their attacks against the bombers.



ABOVE: Ofw. Paul Gildner of 5./NJG shot down a Hampden bomber the night of 20 September 1940, achieving one of the first recorded victories of the unit. He was one of the early innovators of the organisation, his loss on 24 February 1941 keenly felt.

6. This Staffel had formerly been stationed at Trondheim in Norway.

As the vast majority of Bomber Command airfields were situated in the east of England this area was divided into three patrol zones, designated A, B and C. A covered the Yorkshire region of the country, whilst B covered the Midlands and Lincolnshire, and C incorporated East Anglia and London. While preparations were being made to begin operations against the British, Kammhuber was busy trying to enlarge the *Gruppe* and had received authority from Göring to establish two entire *Geschwader*. Later, in December 1940, he received further authorisation to establish a third. Unfortunately for Kammhuber, due to shortages in equipment, most noticeably in aircraft, the force remained at *Gruppe* strength, and at most I./NJG 2 rarely had more than 20 aircraft at its disposal.

Despite its organisational and logistical difficulties, I./NJG 2 achieved its first confirmed victory over England on the evening of 24 October 1940 when, at 21.30hrs, *Oblt.* Kurt Herrmann attacked a Blenheim from No. 17 Operational Training Unit making a cross-country flight over Norfolk. The attack set the bomber's port fuel tank on fire and damaged its hydraulic system, but despite this the pilot was able to land his aircraft at Docking airfield. Five minutes later, Herrmann attacked and damaged a Beaufort, but this aircraft too was able to land without further incident. Later that night, at 22.10 hrs, *Fw.* Hans Hahn met with greater success when he shot down a Whitley from No. 102 Sqn. which was taking off from Linton-on-Ouse. The aircraft crashed in flames killing two of the crew and injuring the other three.

Two further victories followed in the early hours of 28 October when *Lt.* Heinz Völker attacked two Hampden bombers from No. 49 Sqn, which were returning from a raid on Hamburg. The first was slightly damaged in the attack but was able to land safely at Lindholm, whereas a less fortunate machine from the same squadron was so severely damaged that it crashed into the North Sea half a mile off the coast of Skegness, killing the four-man crew.

In addition to its main role of shooting down bombers, I./NJG 2 also attacked targets of opportunity when they presented themselves. It was not uncommon for the *Gruppe* to drop fragmentation bombs on the airfields or to strafe parked aircraft and their ground crews, causing considerable damage to equipment and buildings, as well as the inevitable disruption to night-flying operations.

By the end of 1940, claims from I./NJG 2 amounted to a total of 18 aircraft destroyed although, according to official RAF records, only two bombers were actually lost and three others damaged. This was certainly not by any means an auspicious start for the *Gruppe*, especially in view of the high price they paid for these few successes. From the time of its formation in July 1940, the unit lost a total of 12 aircraft plus 32 aircrew killed, one of whom was the *Kommandeur*, *Major* Heyse. He was lost on 23 November 1940 during a sortie to England and is believed to have been shot down into the North Sea, possibly by the gunners of a Hampden bomber from No. 83 Sqn. The death of its commanding officer was a harsh blow for the *Gruppe*, and to minimise the effect on morale, *Hptm.* Karl Hülshoff, formerly the *Staffelkapitän* of 3./NJG 2, replaced Heyse the following day.

Despite the losses and difficulties experienced by I./NJG 2 in 1940, the New Year started well with four claims being made in the first three days of 1941. In the early hours of 16 January, *Oblt.* Albert Schulz from the 2. *Staffel* opened his account with a 'double', reporting the destruction of two Blenheims over Church Fenton, Yorkshire. In fact, these aircraft were Boulton Paul Defiants from No. 54 Operational Training Unit, which were taking part in a night-flying exercise. Both crash-landed as a result of being attacked by Schulz and their respective pilots escaped serious injury.

BELOW LEFT AND BELOW: *Oblt.* Albert Schulz of I./NJG 2 with other members of the *Gruppe* (BELOW LEFT) and in the cockpit of his Do 17 Z at Gilze-Rijen (BELOW). Clearly seen on the fuselage of the aircraft is the night fighter emblem which was designed in 1940 by Viktor Mölders and which subsequently adorned many of the *Nachtjagd*'s aircraft. By the time long-range intruder missions against Britain were cancelled in October 1941, Schulz had six kills to his credit. He would increase this total to 17 by the time of his death on 31 January 1944.



1939-1943

Combat Report Submitted by Oberleutnant Egmont Prinz zur Lippe-Weissenfeld, 4./NJG 1



On 15 January 1941 I was briefed to fly a *Dunkel Nachtjagd* in the area of Den Helder. After several unsuccessful attempts at interception I was given a heading of 320 degrees at an altitude of 3,200 metres. After two alterations of course to port, I saw a dark shadow at a distance of about 150 metres. I altered course towards it and approached with a high speed advantage.

In order not to overtake, I pulled up and recognised the target with certainty as a Whitley-Armstrong (sic)*. I positioned myself some 30 metres away in order to make my attack, but from this distance I could no longer see my target because my bulletproof windscreen was almost completely obscured by frost.

At this moment the enemy saw me. He made a number of evasive manoeuvres and the rear gunner gave several long bursts of fire without actually hitting me. I now approached closely and, through the armoured windscreen, was able to see the two exhaust flames from the twin engines at a distance of about 10 metres. I gave a short burst, and as I pulled away I could see that the bomber was on fire. After about two minutes the wing came off and the aircraft went down.

* It would appear that this aircraft was almost certainly Armstrong Whitworth Whitley N1521 GE-J from No. 58 Squadron, flown by Pilot Officer W.E. Peers. This aircraft had taken off from Linton-on-Ouse at 17.55 hours as one of 96 aircraft taking part in a raid on Wilhelmshaven. According to W.R. Chorley's 'Bomber Command Losses', the aircraft crashed at 22.46 hrs between the Zwanenwater Lake and Callantsoog, just south of Den Helder in North Holland.

BELOW: Oblt. Paul Semrau, seen here facing the camera and saluting members of his ground crew after returning from a night sortie later in the war, first made a name for himself as a night fighter with I./NJG 2. With this unit he participated in long-range intruder operations to the British mainland in 1941, during which time he claimed to have destroyed a total of nine enemy aircraft.



The following month the *Gruppe* claimed another 12 victories, six of which were achieved in a single sortie on the night of 10/11 February. Oblt. Paul Semrau, eventually credited with 46 confirmed night victories, claimed to have shot down two Blenheims returning from a raid against Hannover. One of these aircraft was Blenheim Z5877, which was attacked by Semrau as it made its final approach. The aircraft caught fire as it came to a stop and only the gunner, Sgt. Birch, survived the attack. On his return to Gilze-Rijen, Oblt. Kurt Herrmann also claimed to have destroyed two bombers which he identified as Hampdens. Indeed, according to W.R. Chorley's 'Bomber Command Losses of the Second World War', two Hampdens were lost that night, but the first of these was credited to Lt. Leopold Fellerer of 5./NJG 1, whose victim crashed in Northern Holland. The second Hampden, AD719 piloted by Sgt. G. Bates from 49 Sqn, is listed as having been shot down by Herrmann and crashed three miles north-east of Lincoln, killing two of the four-man crew. Another Hampden from 144 Sqn. was reportedly attacked and sustained damage to its hydraulic system and undercarriage, but was able to land safely at its airfield at Hemswell.

This marked increase in the number of claims obviously buoyed the confidence of the crews, and despite making only six further claims during March, I./NJG 2 followed this in April by having the most successful month in its operational history. Lt. Heinz Völker submitted the first of the month's 25 claims on 4 April when he shot down a Wellington of No. 115 Sqn. as his first victory. The Wellington was on the return leg of an operation, having just participated in an attack against German battle cruisers harboured at Brest, and crash-landed on mud flats close to King's Lynn. Only one of the three-man crew survived. According to German records, Völker went on to claim four Bristol Blenheims on 25 April, all of which were shot down in the space of 15 minutes.

7. See 'Intruders Over Britain' by Simon Parry.

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In the meantime other pilots such as *Fw.* Hans Hahn were also steadily increasing their personal scores. At the beginning of April, Hahn had already been credited with four victories, and after shooting down a Hampden and a Wellington on the 8th, he increased his tally to eight with a further Hampden on the 17th and another on 21 April. Other pilots who also contributed to the successes of the unit were the *Gruppenkommandeur*, *Hptm.* Hülshoff, and *Lt.* Johannes Feuerbaum from 2. *Staffel*, both of whom claimed two bombers each on 8 April.

Oberfeldwebel Hermann Sommer completed this outstanding month for the *Gruppe*, claiming the destruction of three Blenheims and a Beaufort in the air, whilst destroying five further aircraft on the ground during the early hours of 30 April. Taking off from Gilze-Rijen late on the night of the 29th, Sommer entered the region of The Wash. At about 00.15 hrs he reported seeing aircraft firing recognition flares and, having flown towards them, located an illuminated airfield that he later identified as Tollerton, south-east of Nottingham. After discreetly infiltrating the airfield's circuit he was able to close within two to three hundred metres of an aircraft before opening fire. In his post-mission report, Sommer claimed that the aircraft simply exploded before crashing to the ground. Five minutes later he attacked a second aircraft which had its landing lights switched on. At a range of just 80 metres he dispatched this bomber in the same way as its unfortunate predecessor. Before leaving the airfield, Sommer dropped his bombs on the runway and reported the destruction of three parked aircraft and two preparing to take off. Approximately 20 minutes later, whilst circling over Hucknall, he attacked a Blenheim that was in the process of landing and shot it down from behind at 00.50 hrs. His last claim that night was for a Bristol Beaufort, which he reportedly intercepted near to the Norfolk town of Bircham Newton during his flight back to Gilze-Rijen.

During May and June, I./NJG 2 reported the destruction of a further 36 bombers, taking its overall number of claims, since its formation, to over 100. However, while the number of victories had increased dramatically, the British defences – particularly the RAF's night fighters – had become so formidable that the *Gruppe* was obliged to revise its tactics. Henceforth, an increasing number of interceptions were carried out over the North Sea, and of the 22 bombers claimed in June, 18 were shot down over the sea.

Operations by I./NJG 2 were then carried out almost on a daily basis. Throughout July the *Gruppe* completed in the region of 270 sorties and claimed to have attacked 58 airfields resulting in the destruction of 19 aircraft, of which almost half were over the North Sea. The most successful pilot that month was *Ofw.* Wilhelm Beier, who claimed a total of five bombers and so increased his personal tally of victories to 11. Another event in July that undoubtedly boosted flagging morale was the award of the Knight's Cross to *Ofw.* Hans Hahn, the first of only two *Fernnachtjäger* pilots to win this much sought-after decoration, after his tenth victory.



ABOVE: *Hptm.* Karl Hülshoff (left) in conversation with the *Kommandeur* of I./NJG 1, *Werner* Streib. Hülshoff led I./NJG 2 during its long-range intruder missions over the British mainland and shot down four RAF bombers.

BELOW: *Lt.* Hans Hahn (right) pictured with his *Bordfunker*, *Ofw.* Weisser. Between 28 October 1940 and 11 October 1941, Hahn flew numerous sorties in Britain and was credited with 12 victories until his death on 11 October 1941 when his aircraft collided with his own and final victim.

BELOW: Taken shortly before his death, this photograph shows Hans Hahn wearing the Knight's Cross awarded on 9 July 1941 for destroying ten bombers.



ABOVE: Generalmajor Josef Kammhuber (centre), the commander of I. *Nachtjagddivision*, with *Lt.* Hans Hahn of I./NJG 2 (left) and *Ofw.* Paul Gildner of 5./NJG 1. This photograph was almost certainly taken on or soon after 9 July 1941, on which date all three men were awarded the Knight's Cross.

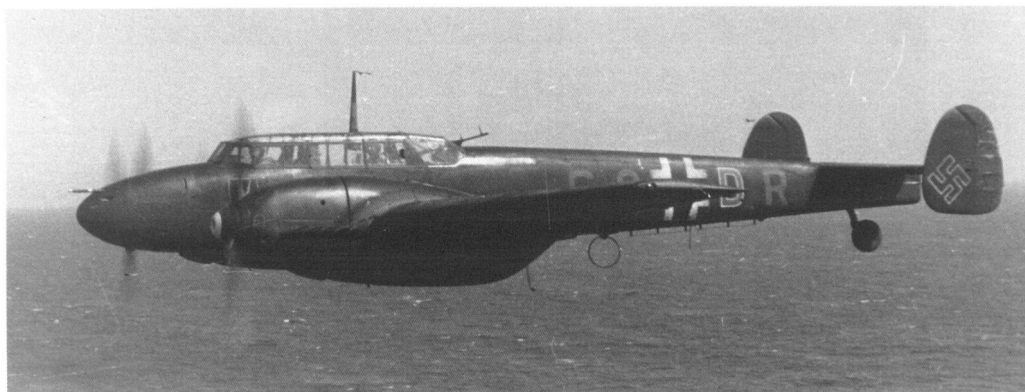
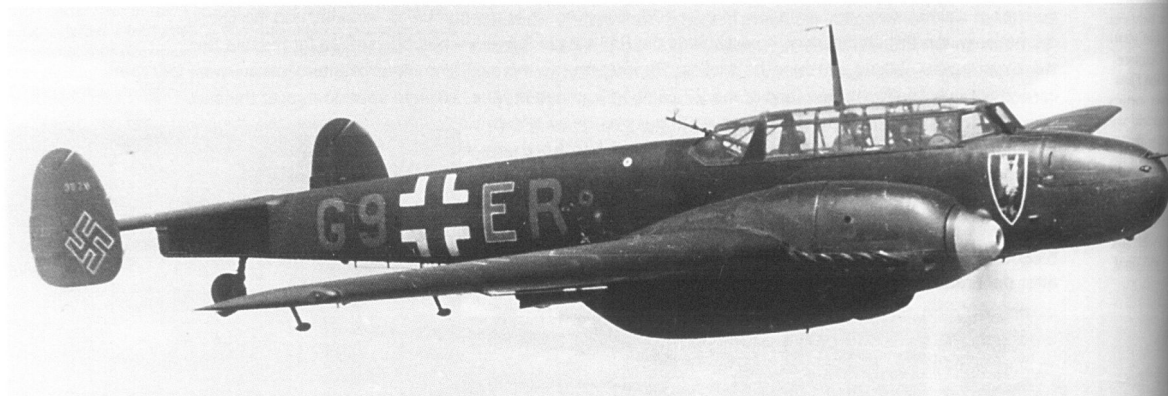


1939-1943

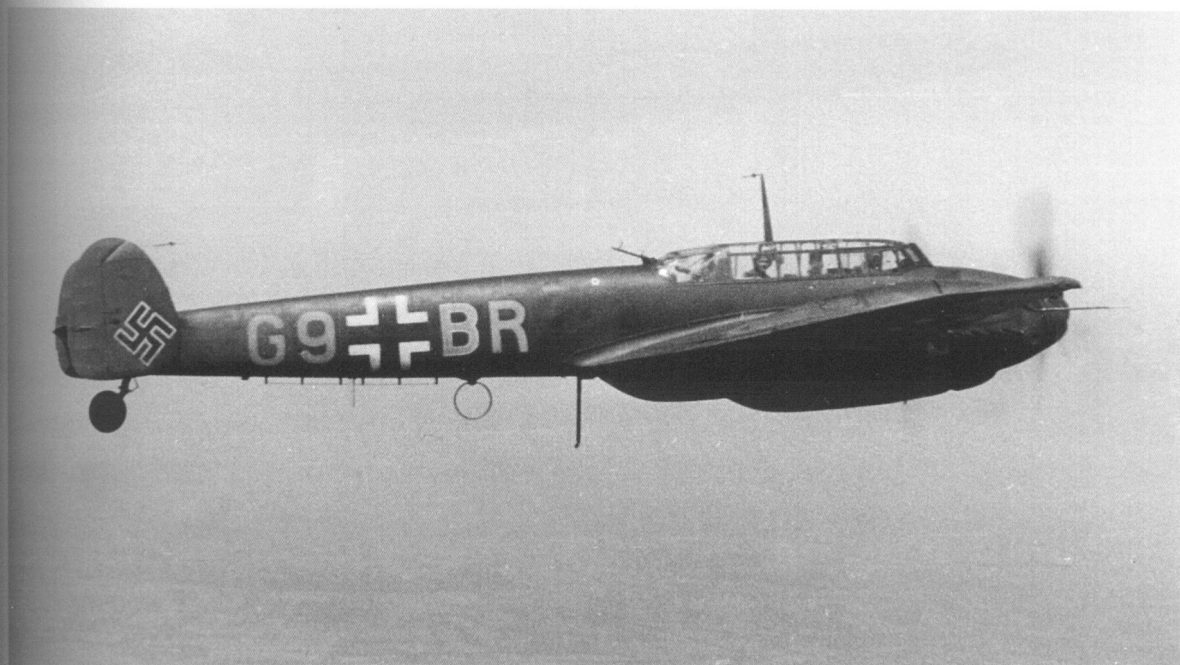
The second *Fernnachtjäger* pilot to win the Knight's Cross was *Oberfeldwebel* Wilhelm Beier, who was personally decorated with the award by *General* Kammhuber on 10 October 1941 for his 14 victories. Beier's last three victories had actually been achieved two months previously on 8 August when he claimed to have shot down a Blenheim, a Halifax and a Wellington, all during the same operation to the east coast of England. These were three of five claims submitted that night and were destined to make Beier the highest scoring of all the *Fernnachtjagd* pilots. Further multiple claims were made during the same month; *Ofw.* Robert Lüddecke was credited with two Wellingtons on 15 August and *Ofw.* Heinz Strüning with two Blenheims four days later.

By the end of August 1941, I./NJG 2 had claimed a total of 135 victories, more than any *Nachtjagd* unit, although during the following month the *Gruppe*'s pilots only managed to add a further four victories to this number. In October, however, the *Gruppe* was dealt a series of devastating blows. On the evening of 11 October, Hans Hahn was patrolling over the town of Grantham, in Lincolnshire, when he intercepted an Airspeed Oxford of No. 12 FTS on a training flight. In the pilot's seat was Cpl. Edwards with his instructor, Sgt. Tom Graham, next to him. Hahn opened fire on the advanced trainer, but in his eagerness to ensure the victory he collided with his victim and both aircraft plummeted to the ground. After having survived so many daring intruder missions, Hahn's luck had finally run out.

Then, only hours after the *Gruppe* received the news that Hahn was missing, Kammhuber called the personnel of I./NJG 2 together and informed them that the *Gruppe* was being transferred to Sicily. The news was received with absolute incredulity and a sense of betrayal. After more than a year of a hard-fought and costly campaign in which they had taken the fight to the very heart of Bomber Command, the aircrew of I./NJG 2 felt that they were the elite of the night fighter force. But despite the effect of its raids on operational as well as training units, it was decided that the missions to England were to terminate immediately and that the *Gruppe* would be better employed in the Mediterranean where it was to protect Axis convoys carrying reinforcements and supplies to Rommel's forces in North Africa. It would be almost two years before German intruders would reappear in English skies.



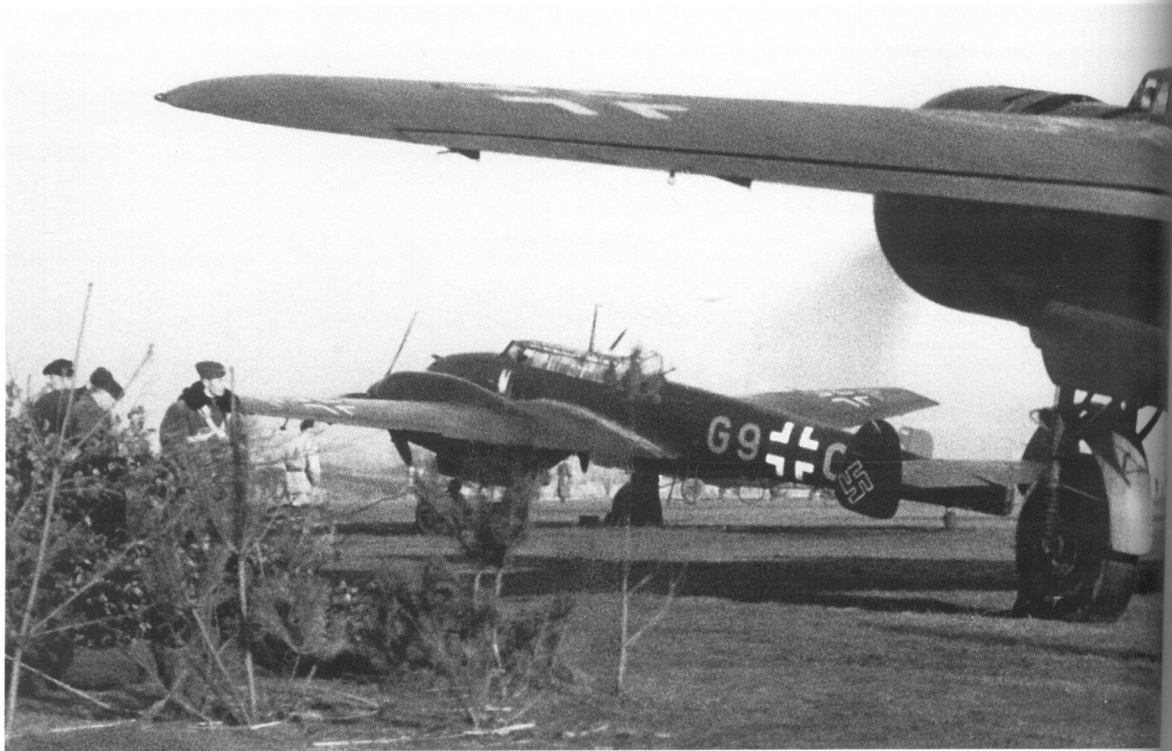
ABOVE: A Bf 110 of I./NJG 2 coded G9+ER. Note the entire spinners appear to be white, which corresponds to the Staffel colour, whereas G9+DR (LEFT) has the spinner tips painted white. The individual aircraft on both machines have also been outlined white.



ABOVE AND BELOW: Two views of G9+BR, also with its individual aircraft letter outlined in white and with white spinner tips.



1939-1943



ABOVE: An overall black Bf 110 of 6./NJG 1 with the fuselage markings G9+CP. Note, however, that the Staffel letter 'P' has been repeated on the upper wingtip instead of the individual aircraft letter 'C'.

BELOW: Bf 110 night fighters of 9./NJG 1, apparently at Schleswig in early 1941. Note the unusual presentation of the fuselage Balkenkreuz on G9+BT in the foreground and also on G9+HT behind it.

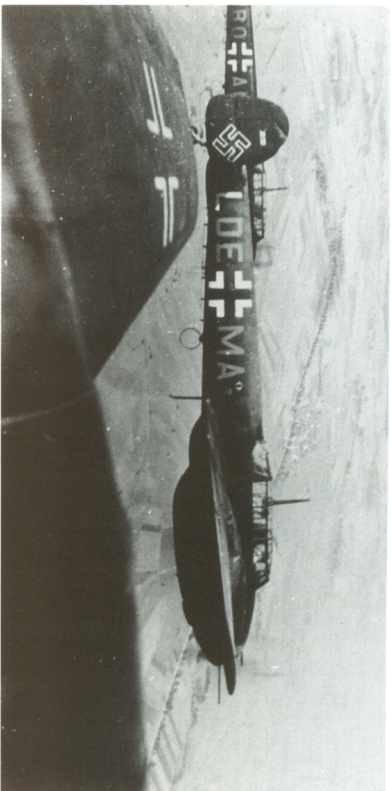




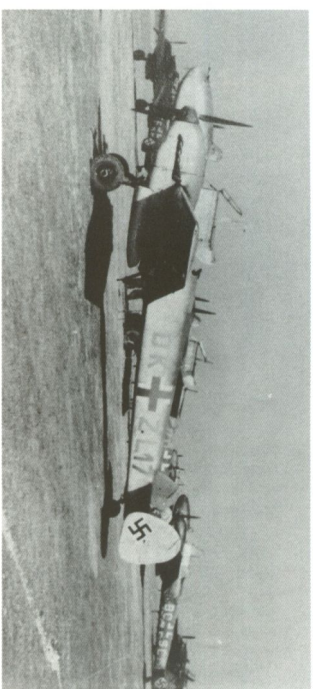
LEFT: Luftwaffe technical ground staff refuelling a Bf 110 of II./NJG 1 at Deelen-Arnhem in the autumn of 1940. The aircraft is camouflaged black overall and the machine's individual aircraft letter has been applied to the nose. Note also the Roman II adjacent to the Englandblitz emblem.

BELOW: This Ju 88 C of NJG 2 appears to be camouflaged overall in a single dark grey, probably RLM 75, with the fuselage code in RLM 74. This supposition is based on the contrast between these colours compared with the known black of the fuselage Balkenkreuz where the original white segments have been overpainted.

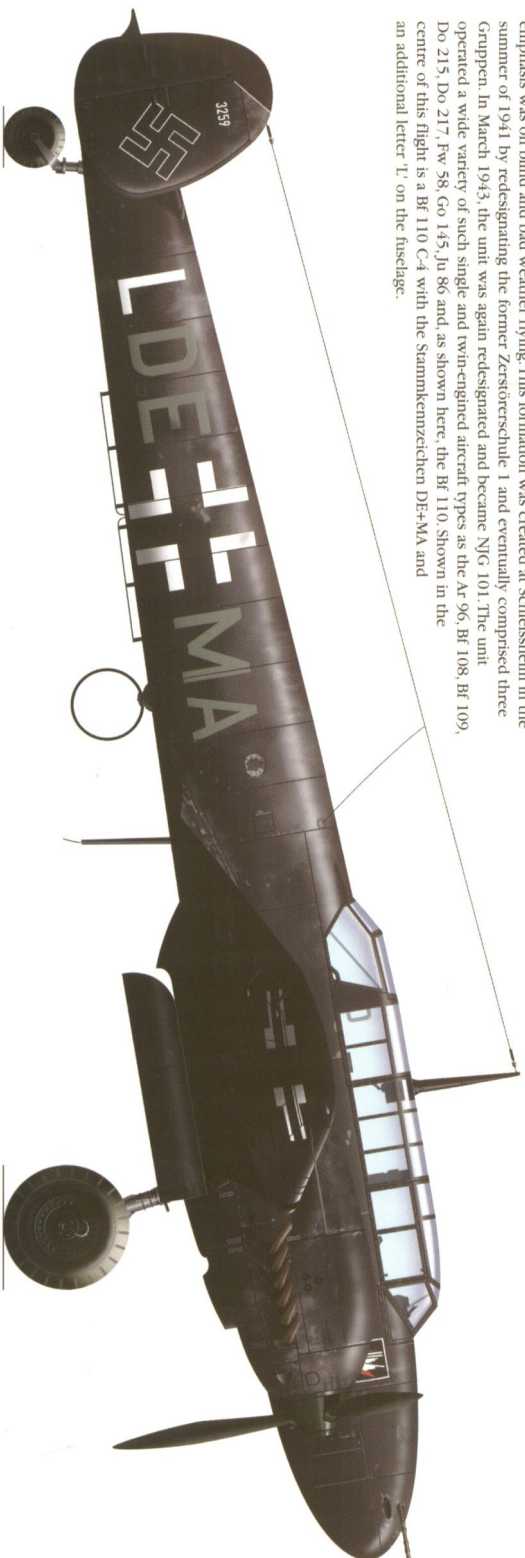




ABOVE: One of the units raised to train night fighter pilots was Nachtjagdschule 1 where the emphasis was on blind and bad weather flying. This formation was created at Schleissheim in the summer of 1941 by redesignating the former Zerstörerschule 1 and eventually comprised three Gruppen. In March 1943, the unit was again redesignated and became NJG 101. The unit operated a wide variety of such single and twin-engine aircraft types as the Ar 96, Bf 108, Bf 109, Do 215, Do 217, Fw 58, Go 145, Ju 86 and, as shown here, the Bf 110. Shown in the centre of this flight is a Bf 110 C-4 with the Stammkennzeichen Df+MA and an additional letter 'L' on the fuselage.

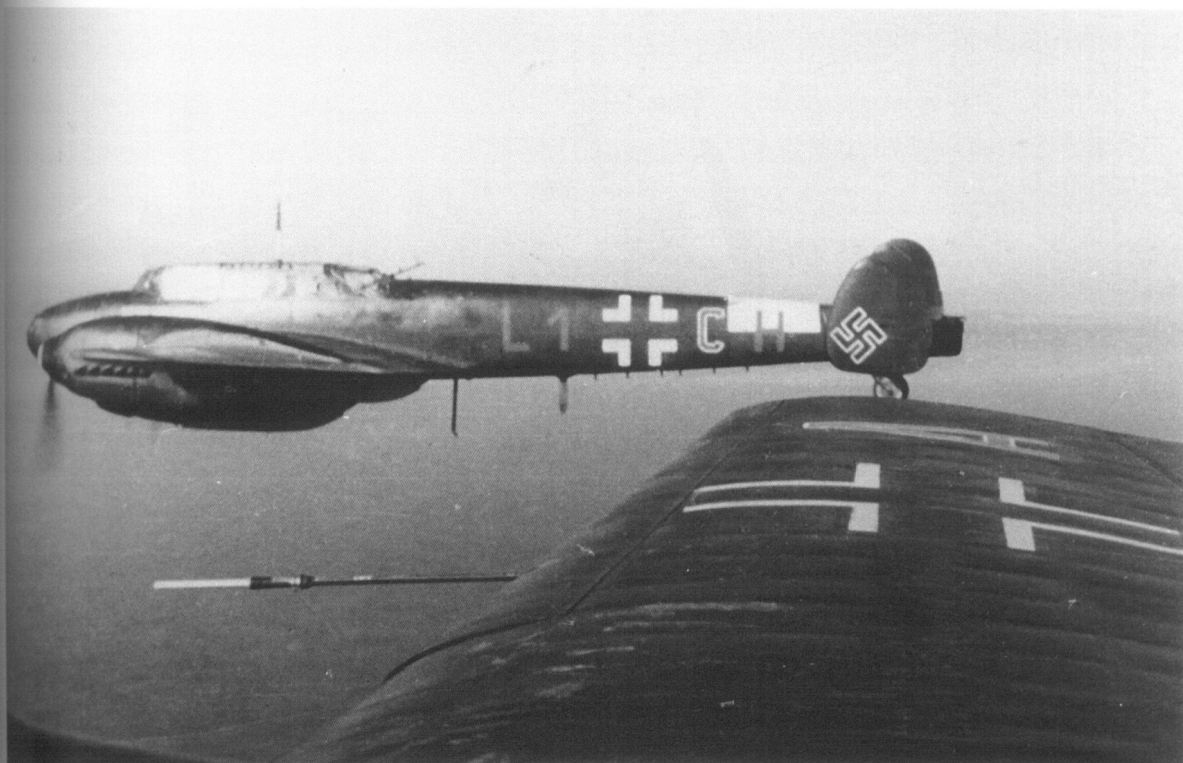


ABOVE: Another Bf 110 which served with Nachtjagdschule at Schleissheim, shown with the Stammkennzeichen DK+ZL. Note that the individual aircraft identification is now a numeral, in this case '17'.



Messerschmitt Bf 110 C-4 'White L' of Nachtjagdschule 1, Schleissheim

This machine was camouflaged in an overall black night finish which had faded on the spine and is believed to have carried the Nachtjagd emblem on the nose as shown. Although the aircraft's four-letter Stammkennzeichen had been retained and overpainted in grey 77, a white letter 'L' was added for unit identification purposes. The spinners and propeller blades were green 70 and the W.Nr. 3259 was painted in white on the fin.



ABOVE AND BELOW: A particular feature of V(Z)/LG 1, the destroyer Gruppe of the instructional and demonstration unit Lehrgeschwader 1, was that throughout its existence it used Staffel letters corresponding to I. Gruppe. Similarly, when V(Z)/LG 1 was redesignated in October 1940 to form I./NJG 3, the Gruppe continued to use its old 'L1' code at least until June 1941. These photographs of L1+CH of I. Staffel were taken sometime between February and May 1941 when I./NJG 3 was based in Sicily. The aircraft, a Bf 110 C, is finished black overall but with the tips of the spinners and the individual aircraft letter 'C' painted in white, the Staffel colour, which was repeated above and below each wingtip. The emblem on the nose only came into existence with the formation of I./NJG 3 and shows an owl perched on a quarter moon. It was normal for German aircraft operating in the Mediterranean area to have a white theatre band around the rear fuselage as a recognition marking, but on this machine it has been applied only to the upper part of the fuselage to avoid compromising its night finish when viewed from below.

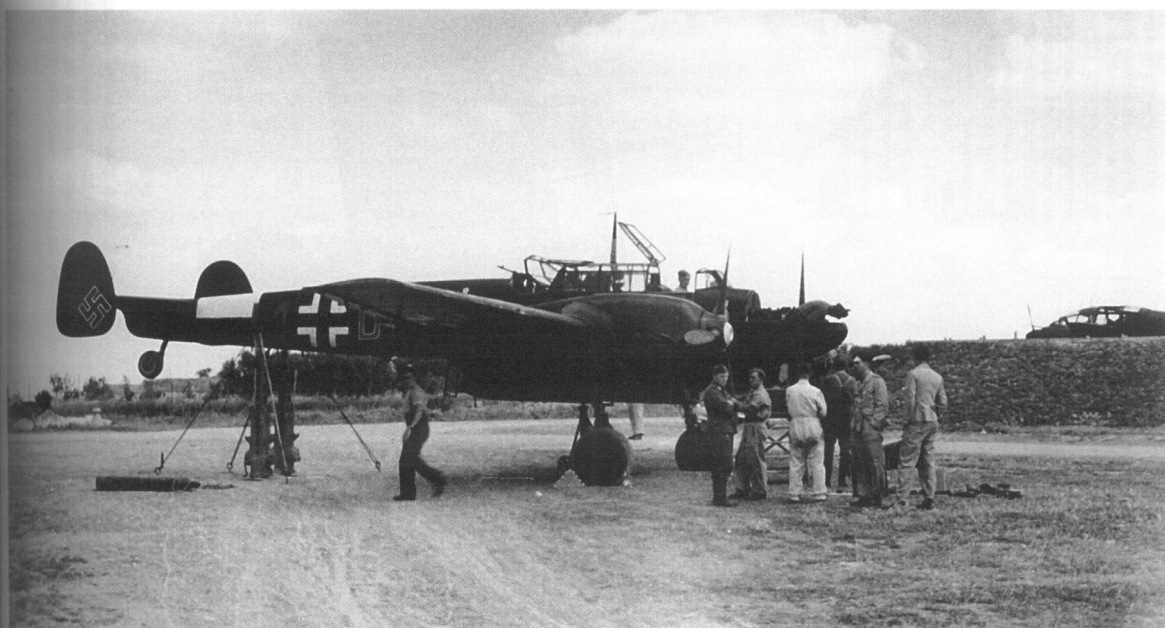
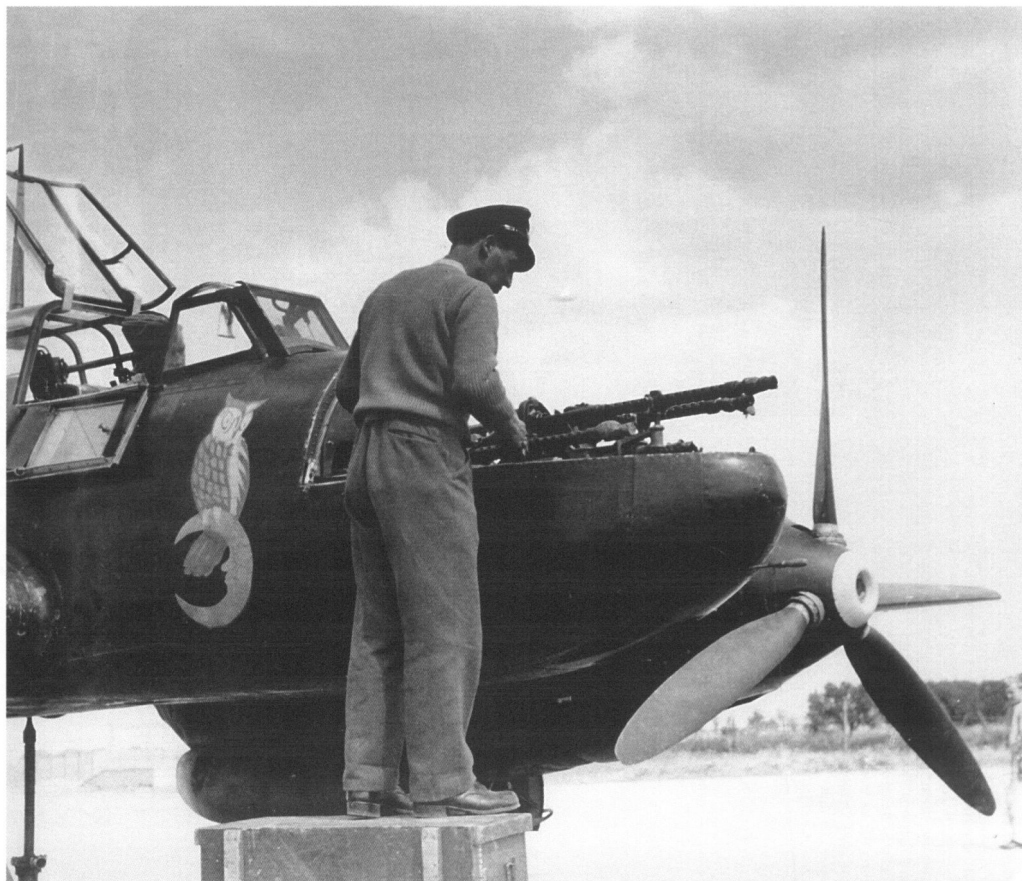


1939-1943



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photographs showing
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illustrates that the
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the nose.

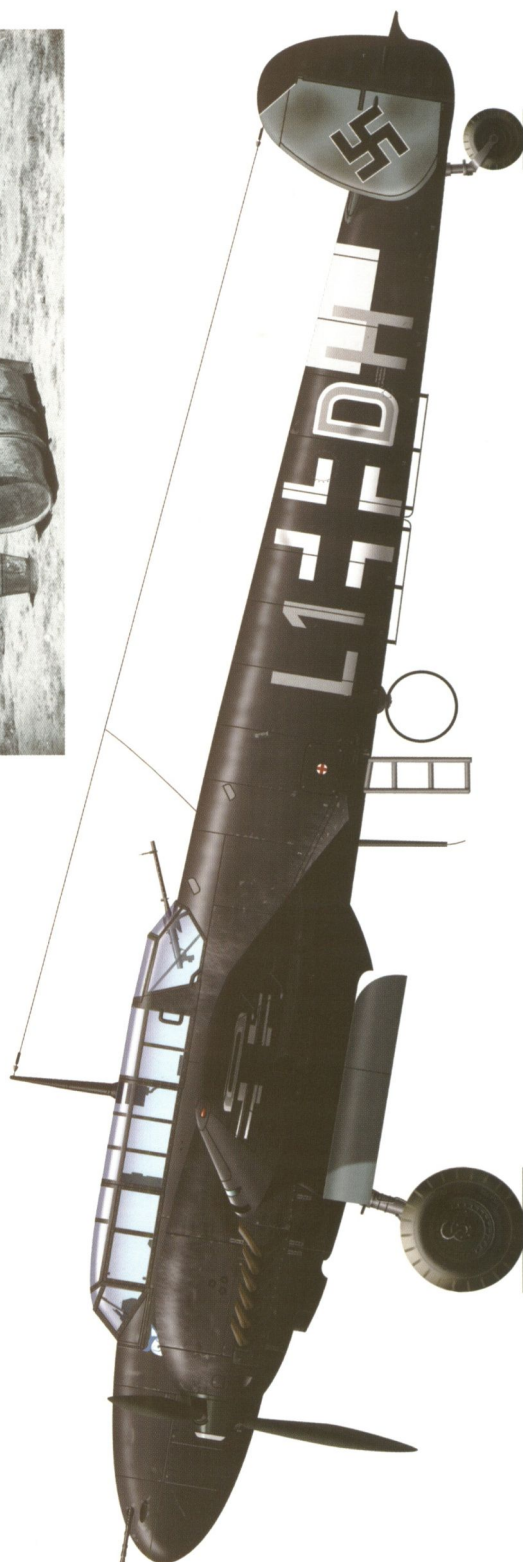




RIGHT: The practice of repeating the aircraft letter under the wing of some machines is seen more clearly in this photograph of L1+DH, another Bf 110 C-4 of 1./NJG 3. This photograph, however, is thought to have been taken a little later than the one of L1+CH (shown on page 35), probably after the Staffel had moved from Sicily to Benghazi where it operated under Fliegerführer Afrika from May to August 1941 and from Derna until October. As the aircraft shown here still carries the unit code 'L1', which was not changed to 'D5' until June 1941, this photograph was almost certainly taken at Benghazi. In this scene, the aircraft is being repaired and although already fitted with replacement undercarriage doors and tail components, these have yet to be camouflaged in black.



Emblem of
1./NJG 3



Messerschmitt Bf 110 C-4 'L1+DH' of 1./NJG 3, North Africa, Summer 1941

This aircraft was finished black overall but with its replacement undercarriage door and tail components still in the day fighter finish of blue 65 with a light mottle of 71 on the tail. The propeller blades were green 70, as were the spinners, which had white tips. The fuselage code was grey 77, and the individual aircraft letter 'D' was outlined in white. The badge of 1./NJG 3 appeared on both sides of the forward fuselage and only the upper half of a wide white band appeared on the rear fuselage.

RIGHT: In mounting British bombs located by 11 September redesignated intruder and the end of 1941. In m ordered to was based at Catania, missions to destined for Crete and flown by L although the unknown, Bordmecha absence of exhausts su predomina although it Lichtenstei intended as 70/71/76 s mirror over spinners.

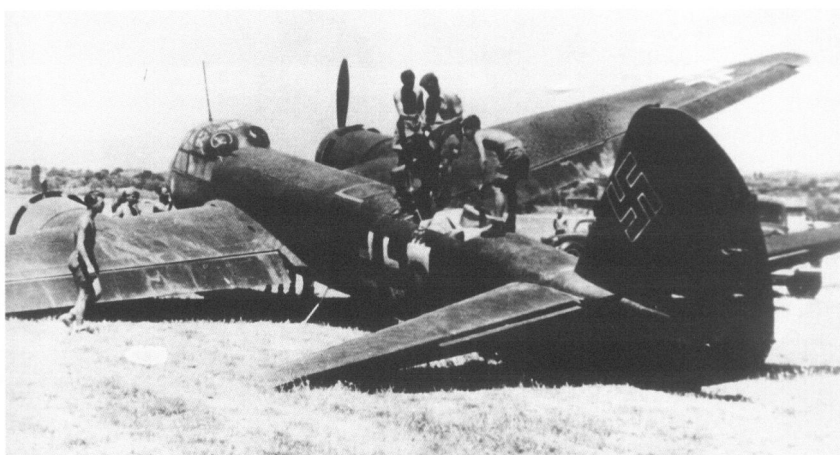
RIGHT: Lt Röcker of flew this Ju W.Nr. 5664 Catania aft accident in port under collapsed. coded R44 evidently o 2. Staffel.

RIGHT: In July 1940, II./NJG 1 specialised in mounting night intruder operations to British bomber aerodromes which had been located by radio intercepts. On

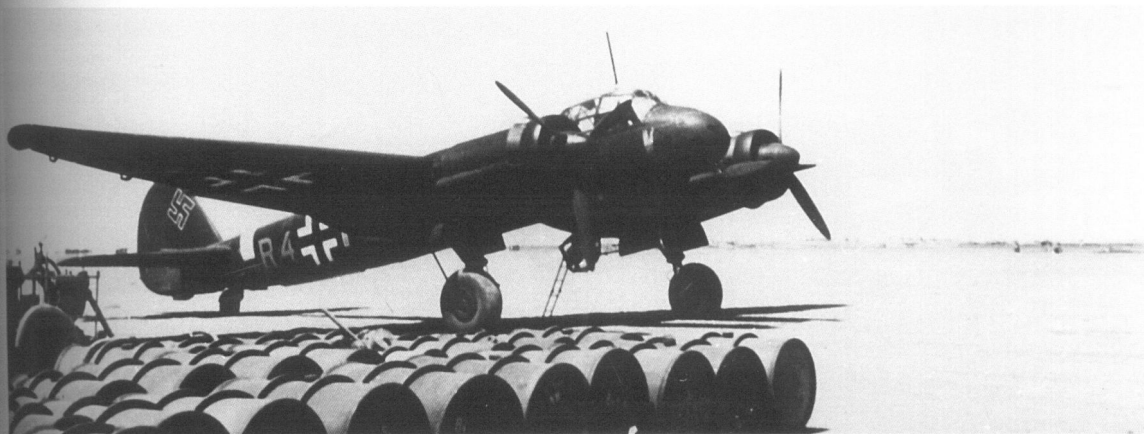
11 September 1940, the Gruppe was redesignated I./NJG 2 but the number of intruder aircraft available was inadequate and the perceived lack of results resulted in the end of such operations on 12 October 1941. In mid-November 1941, I./NJG 2 was ordered to the Mediterranean theatre and was based at Catania in Sicily. On its arrival at Catania, the Gruppe flew daylight missions to escort convoys of vital supplies destined for German troops in North Africa as well as night intruder sorties over Malta, Crete and North Africa. This Ju 88 C-6 was flown by Lt. Heinz Rökker of 1. Staffel and although the person on the right is unknown, the NCO on the left is Rökker's Bordmechaniker, Uffz. Georg Friebe. The absence of flame dampers over the exhausts suggests the aircraft was used predominantly for daylight operations although it is clearly equipped with Lichtenstein radar. As the C-6 was originally intended as a day Zerstörer, it is finished in a 76/71/76 scheme but with a tan wave-narrow overspray on the upper surfaces and spinners.



RIGHT: Lt. Heinz Rökker of I./NJG 2 also flew this Ju 88 C, WNr 5664, shown at Catania after a landing accident in which the port undercarriage collapsed. The aircraft, coded R4+CK, was evidently on loan from 1. Staffel.



BELOW: Another Ju 88 C, believed to have been flown by 2. or 3./NJG 2 in the Mediterranean showing a partial white band around the rear fuselage. Note also the weathered area at the base of the tail where the action of sand, thrown up by the propellers, has abraded the finish.



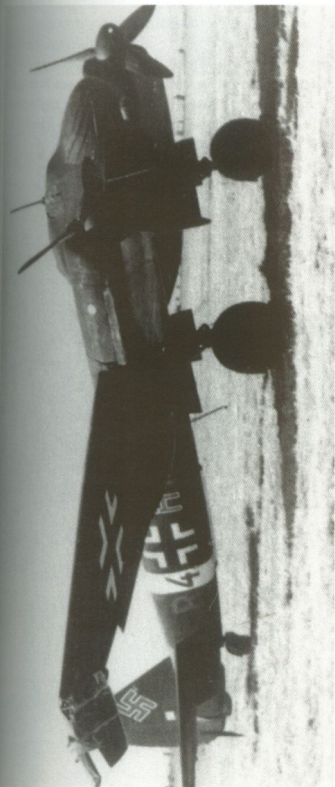
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LEFT: In addition to its Ju 88 C-6 night fighters, 1./NJG 2 used a number of Ju 88 A-4s for bombing operations. One such aircraft, R4+DK, operated by 2./NJG 2 is shown here with the white band around the fuselage, applied to almost all Luftwaffe aircraft operating in the Mediterranean area at the time. The yellow undersurfaces of the engine cowlings were also used to assist Axis ground forces in identifying friendly aircraft.

BELOW: This Ju 88 C, also from 1./NJG 2 but probably seen in Holland or Belgium, has retained its 70/71 upper surfaces but has had the undersurfaces, including the engine cowlings, repainted national markings and most of the code letters, overpainted matt black. Only the individual aircraft letter 'C' remains. The sooty appearance of the black suggests this may have been a temporary disguise. This machine carried only a single gun in the rear fuselage.





Emblem of the
Nachtjagd

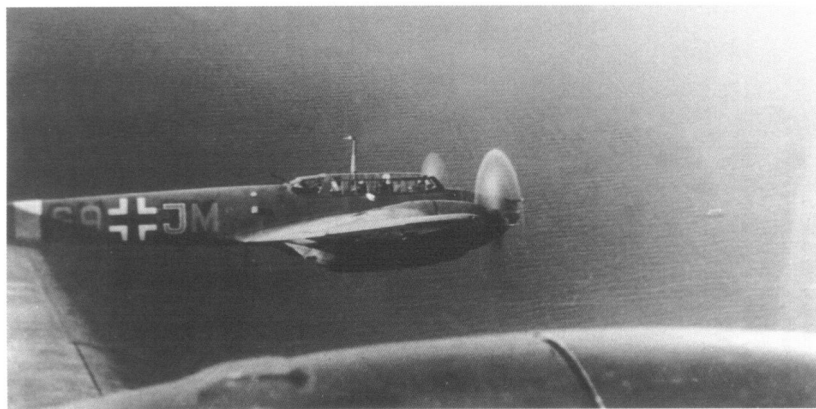
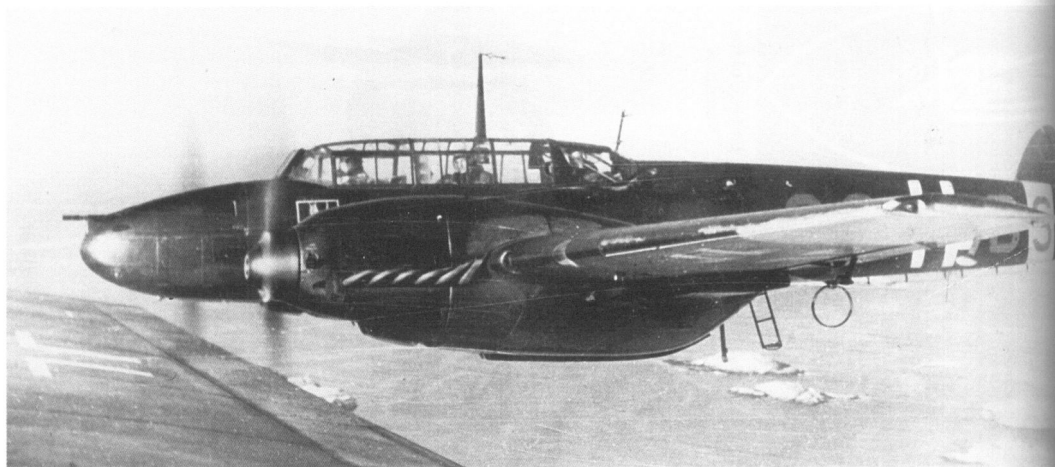
ABOVE AND ABOVE RIGHT: The yellow identification markings under the engines are also shown in these views of two otherwise overall black Ju 88 Cs, also of 1./NJG 2, but with the white fuselage band positioned further forward. The aircraft coded R4+HH with the damaged wingtip (**ABOVE**) is believed to have been flown by Oblt. Gerhard Böhme of 1./NJG 2, and although the forward part of the fuselage is covered to protect the cockpit from the sun, the Engländerblitz emblem was almost certainly carried on the nose in the same position as shown in the detail (**ABOVE RIGHT**).



Junkers Ju 88 C-6 'R4+HH' of 1./NJG 2, Catania, early 1942

Although camouflaged in a dull, overall matt black scheme, the overall appearance of this aircraft was relieved by the white of the national markings, the grey 77 code, the white fuselage band and the yellow identification panels under the engines. The tail was marked with three victory bars and although this aircraft is believed to have been flown by Oblt. Gerhard Böhme in early 1942, he had only two confirmed victories at that time: a Blenheim, destroyed on 17 April 1940 when he was flying with 1./ZG 76, and a Whitley on 3 January 1941. Note that although the whole nose is covered in the accompanying photograph (**ABOVE LEFT**), what appears to be a Nachtjagd badge shows faintly though the material and has therefore been shown in the profile.

1939-1943



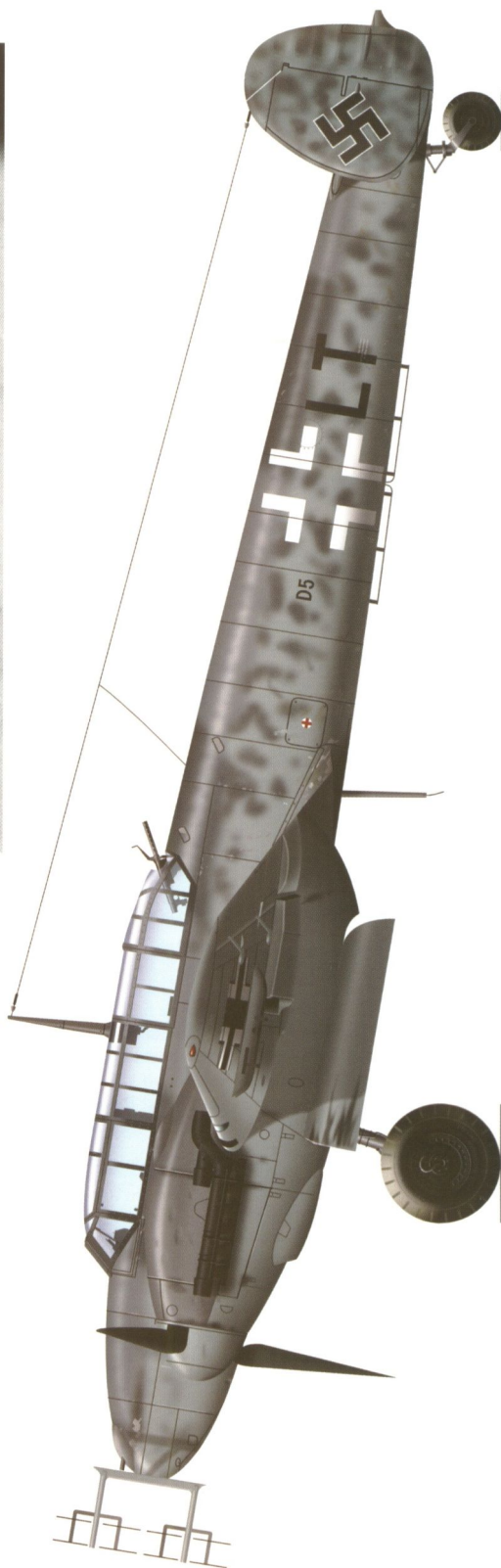
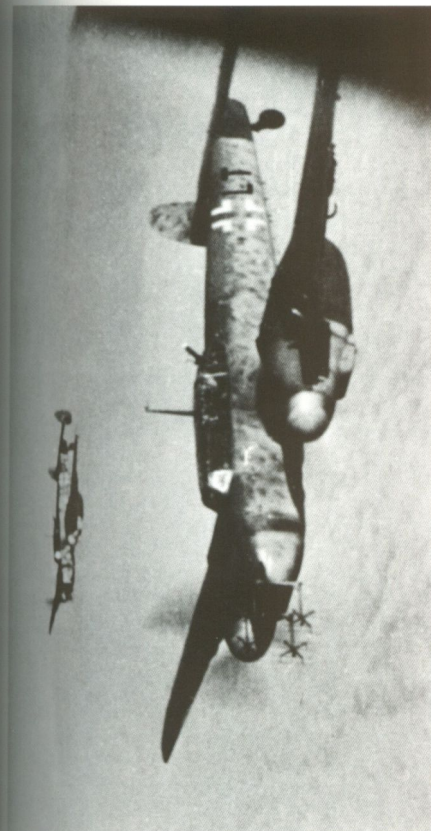
ABOVE: A number of photographs depicting night fighters belonging to units known only to have been based in the West show the application of theatre markings normally associated with the Eastern Front in the Mediterranean. The white band around the rear fuselage and the white under the wingtips of G9+MR Bf 110 of 8./NJG 1, are therefore unusual but may have been applied as a recognition aid during Operation 'Donnerkeil' when the battleships Scharnhorst and Gneisenau and the heavy cruiser Prinz Eugen sailed from France to Germany via the English Channel.

LEFT: This aircraft belonged to 4./NJG 1 and is reported to have taken part in Operation 'Donnerkeil', for which purpose the uppersurface was re-camouflaged in a green finish more appropriate for operations over the sea. Note also the white rear fuselage band, possibly applied in the operation to identify the aircraft as friendly to the German warships.

RIGHT: Similarly anomalous are the yellow wingtip and fuselage band on G9+MR of 7./NJG 1. These cannot be easily explained but were certainly intended as some form of recognition aid as opposed to a theatre marking. It is, however, interesting to note that while some units were taking all precautions to eliminate any bright areas on their machines, even to the extent of overpainting the thin white outline to the swastikas on the tails of their aircraft, others not only retained the white of the national insignia but added large areas of white or yellow.



delivered to III./NJG 3 at Stade in early 1943 and this photograph showing two aircraft of 9./NJG 3 in flight. The aircraft in the foreground is a D5+DT, which was painted in the standard 1943 day fighter scheme of grey 76 and 75 on the undersurfaces with 74 and 75 on the upper surfaces, these two colours breaking up into mottles on the fuselage sides. The fuselage Balkenkreuz was the white outline type and the fuselage code was in black. Note that this aircraft retained the bomb racks under the wings and fuselage and has the same tail fins as an earlier Bf 110 variants.



Messerschmitt Bf 110 G-4 'D5+DT' of 9./NJG 3, Stade, early 1943

This aircraft was finished in the standard 1943 day fighter scheme of grey 76 and 75 on the undersurfaces with 74 and 75 on the upper surfaces, these two colours breaking up into mottles on the fuselage sides. The fuselage Balkenkreuz was the white outline type and the fuselage code was in black. Note that this aircraft retained the bomb racks under the wings and fuselage and has the same tail fins as an earlier Bf 110 variants.

1939-1943

"I saw ahead of me the shadow of a Wellington"

Lt. Heinz Rökner, I./NJG 2

In November 1941, just a month after the cessation of their long-range intruder missions to England, I./NJG 2 was transferred to Catania in Sicily. From here they were deployed on long-range night fighter missions to Malta, Sicily, Crete and to North Africa where, in June 1942, Lt. Heinz Rökner of I./NJG 2 achieved his first night victories.

My first night fighter victory came on 25 June 1942 in North Africa. With Carlos Nugent as my radio operator and Georg Friebe as mechanic, we had taken off from Derna at 22.00 hrs with the task of finding and shooting down in freelance action, enemy aircraft that were bombing German supply traffic.

It was a bright, moonlit night. Visibility was good, as one would expect in a desert climate. In order to better locate their targets, the British were using flares, but by doing so they made our job easier because, logically, they must have been close to and above the flares. Finding the bombers' altitude, however, was a matter of luck. We discovered that the height from which they carried out their attack was mostly in the region of 500 to 1,000 metres, because at this altitude they were just out of the range of the light Flak, and the 8.8 cm guns of the German anti-aircraft units could only rarely be brought into action because it was more important to deploy them in the front line.

At 23.45 hrs, in the vicinity of Mersa Matruh, at an altitude of about 500 metres and a range of about 400 metres, I saw ahead of me the shadow of a Wellington. At once I switched on my guns and the reflector sight (*Revi*) and opened my throttles in order not to let the enemy out of my sight. I had not, however, allowed for the slow speed of the Wellington, so that I approached the aircraft so rapidly that I only had time to throttle back and give a short burst. I scored hits in the fuselage and the tail unit without coming under fire from the rear gunner, who had been taken completely by surprise by our rapid appearance. I had approached the bomber so quickly that it was only with difficulty that I avoided a collision. I managed to dive away when I was only a few metres below the burning enemy aircraft. I flew a full circle and then, through a thin layer of cloud, we saw the enemy machine hit the ground in flames.

During the same night, at about 00.09 hrs, we located another Wellington at about the same altitude. I adjusted my speed to that of the bomber and then shot its port engine into flames with a single burst. Without any defensive fire from the rear gunner, the aircraft went into a dive, but when it was near the ground it pulled out and made a belly landing. As it did so, the fabric covering the fuselage caught fire, and we could clearly see the lattice construction in the light of the flames. We landed at Derna without any problem at 02.10 hrs.

I had a very negative experience when I shot down my next Wellington on 28 June 1942, again near to Mersa Matruh, which I picked up at a height of 600 metres. We had taken off from Derna at 21.40 hrs and saw the Wellington at approximately 23.58 hrs. After matching its speed I moved into firing position and pressed the firing buttons. Unfortunately, only one machine gun and one cannon fired. We saw that we had scored hits, but the Wellington did not catch fire and immediately went into a dive. I was faster, however, and by reason of the good visibility it was unable to escape. In pursuing it we came close to the ground. Although we were flying close to the Wellington we did not receive any defensive fire from the rear gunner. It is probable that he was hit in the first burst of fire. Finally, we were flying so low that I could clearly see a group of lorries below me. I opened fire again, and set its port engine on fire. As I did so the Wellington lost speed so suddenly that despite throttling back I was unable to stay behind the enemy but overtook him on his port side. Suddenly there was a metallic noise in our cabin that I recognised from the first time I was shot down. We had come under fire from the nose gunner of the Wellington flying alongside, who was bravely defending his machine despite the burning engine. Again we saw the Wellington make a belly landing.

As we had been hit in the crew cabin and my radio operator and I both had slight splinter wounds, I began to climb in order to return to base. Suddenly we noticed that the water temperature indicator and the oil temperature on the starboard engine had risen to 'maximum'. I immediately feathered the airscrew and switched the engine off. As we did this, we were no higher than about 200 metres. Suddenly Carlos Nugent shouted out, "The port engine's on fire!" Because I was concentrating on switching off the starboard engine I hadn't been looking at the port instruments. Red flames were coming from the port engine.

The pilot of a Ju 88 had only a remote chance of survival if he tried to bale out through the ventral gondola at so low an altitude, and I tried to get out through the cabin roof he was in great danger of hitting the tail fin, so I decided to make a belly landing in the desert. To make matters worse, as happened almost every night, a sheet of fog had formed on the ground. We had to rely on fliers' luck to find a suitable spot in the desert floor. The landing flaps were lowered successfully, and in that way we came down towards the ground in a state of tense awareness.

With my good night vision I could soon see the desert floor and started my first belly landing. In doing so, however, I stalled the aircraft very early in order not to hit the ground at high speed and so increase the danger of fire. The result was a 'passenger lift landing'. Our tail wheel touched the ground first. There was a heavy bump and the aircraft came to a halt after skidding no more than about 50 metres. There was a great cloud of dust, and then an eerie silence. My radio operator jettisoned the cabin roof as we touched down.

We left the aircraft by the rear exit as quickly as possible. The port engine was no longer burning as it had probably been extinguished in the desert sand. The belly gondola had been ripped off and was lying about 50 metres behind us. Fortunately, however, the ground thereabouts was relatively flat. After our first shock we were able to inspect the damage to the engines at our leisure. We could only find two shell holes in each engine and one in the cabin. It was a puzzle to us how we had come to be forced to make an emergency landing by only three hits. Probably the same hits had penetrated the water pipes in each motor. As we were getting our parachutes out of the aircraft, German soldiers approached out of the darkness with their machine pistols at the ready. They thought they were going to be able to take a British crew prisoner.



continued on opposite page

We identified ourselves as a German crew and told them of our success and our bad luck. The Wellington was probably lying in the desert several kilometres away and further from the road. We never heard what became of the crew.

It was with heavy hearts that we took our leave from our fine Ju 88. It felt to me as if I was having to leave a badly wounded comrade behind. The German soldiers took us in a lorry to their camp. They belonged to a reinforcement unit. We were supplied with blankets and offered one-man foxholes to sleep in and as protection against bomb splinters, because there were several hours to go before sunrise. When I woke up the following morning, there was a scorpion on my blanket. He was carefully shaken off and quickly disappeared beneath some stones. Because of the distance involved and the remoteness, there was no question of informing our unit. Naturally, we wanted to be back at Derna as soon as possible. We left our parachutes behind and were able to travel in the back of an empty lorry in the direction of Tobruk, where the two drivers were going to recover food from a British supply depot which had fallen undamaged into German hands following the fall of Tobruk. Following an adventurous ride in the open lorry we reached Tobruk that evening.

The next day we began by going for a swim in the bay of Tobruk. Suddenly, Carlos gave a loud cry, waving his hands about and thrashing with his feet. We didn't know what was happening at first, but when he got back on land we saw that he had been bitten by a shark. On the lower part of his back could be seen the bleeding row of wounds of a shark's teeth. When we had recovered from the shock we went to the British supply depot. We each stuffed a British rucksack with preserved foods from all over the world. The contents of a pineapple tin had never tasted so good to me as they did on that day. Then we reported to our unit, which had already posted us missing. The same day we were picked up by car and greeted enthusiastically by our unit.



LEFT: Luftwaffe aircraft participating in Operation 'Anton', the German occupation of Vichy France which followed the Allied 'Torch' landings in North Africa in November 1942, were marked with narrow white bands on each wing. This marking is clearly visible on these Ju 88 Cs of 2./NJG 2, apparently on a flight to Bordeaux which, prior to Operation 'Anton', was just outside the unoccupied area of France.

'Himmelbett' and the 'Kammhuber Line'

Towards the end of 1940, Kammhuber, impressed by the first successes using radar, began to integrate this technology into his air defence plan. His first step was to introduce a number of radar night interception areas, or *Dunkelnachtjagdräume*, in front of the searchlight belt, which ran along the Dutch and North German coastlines. Initially there were six *Räume*, each with a codename that, in these specific cases, related to an animal or a fish, i.e. 'Lobster' or 'Tiger'. Each *Raum* was equipped with a radio beacon and allocated its own 'Freya' and 'Würzburg' radars. The information and readings obtained from these was then evaluated by a fighter-control officer, known to the Germans as a *Jägerleitoffizier*, whose task was to direct the fighter towards a potential target.

The year 1941 saw several important technological advances that would eventually allow the German night fighters to intercept and ultimately shoot down greater numbers of bombers. The first of these was the continued improvement of the 'Würzburg' radar and the subsequent introduction of the 'Würzburg-Riese' ('Würzburg Giant') in the autumn, the effective range of which was increased from 18.6 to 49.7 miles. Furthermore, the 'Würzburg-Riese' benefited from being able to rotate through 360 degrees and was fitted with a height-finding capability, an important advance for the controllers and the night fighters alike.

With these improvements, a new system of tracking and plotting the course of the bombers was devised. The 'Freya', with its greater operational range of up to 120 kilometres, was used primarily to detect the approach of an enemy aircraft, and would track it until it entered one of the *Dunkelnachtjagdräume* (radar-control areas). Once inside the *Raum*, one of the 'Würzburg' radars, known as the 'Rote Würzburg' ('Red Würzburg'), would take over the tracking. In the meantime, a night fighter would have been scrambled to the relevant *Raum* and would be standing by, orbiting a radio beacon until

BELOW AND

BELOW RIGHT:

This Dornier Do 17 Z-10 was one of a small number of aircraft fitted with 'Spanner I', an experimental infrared device that had been designed to help pilots see in the dark. It consisted of an infrared searchlight mounted in the nose of the aircraft and a sight mechanism that protruded through the windscreen. Once the aircraft was airborne, the device would be switched on and the searchlight emitted an infrared light. The sight was then used by the pilot to detect any reflected energy, principally from the exhausts of a bomber's engines. However, in practice, the device proved to be rather ineffective and its operational life was short. 'Spanner II' was different in that the searchlight was deleted and the sight had a wider acquisition angle.

the *Jägerleitoffizier* could vector it towards the bomber. The second 'Würzburg', known as the 'Blaue Würzburg' ('Blue Würzburg'), would then track and follow the course of the fighter. The position of each aircraft was then reported by telephone to the fighter control centre and their positions marked on a plotting table in appropriately coloured chinagraph pencils. This plotting table was known as the 'Seeburgtisch' and was basically a ground glass table upon which was etched a map of the area covered by the radar. As the system became more refined, the chinagraph pencils were replaced with appropriately coloured lights projected onto the 'Seeburgtisch' from below. Although there was a small delay between the times the target and the night fighter were reported and their positions plotted on the 'Seeburgtisch', the *Jägerleitoffizier* was still presented with a fairly accurate picture of the aerial situation. The information was constantly updated and, with practice and experience, the *Jägerleitoffizier* was able to increase the number of occasions he accurately guided the night fighter into visual contact with the target.

Although not always possible, the intention was to bring the night fighter at least to within several hundred metres of the target. However, once this occurred, visual acquisition depended very largely on the weather and visibility. Therefore, in a further attempt to improve detection at night, the Germans produced a device codenamed 'Spanner', an infrared system fitted in the nose of the night fighter. The device emitted an infrared light in order to illuminate any aircraft ahead of it, while a receiver detected the reflected energy from the target. Despite positive expectations, the Germans soon discovered that the range of 'Spanner' was poor and that, usually, by the time the presence of an aircraft had been detected, the pilot could already see the target with his own eyes. Consequently, a new model, known as 'Spanner II' was introduced. This model consisted only of a sight which resembled a telescope and was fitted in the cabin of the aircraft so that it protruded through the front of the canopy. It had been designed principally to detect the heat emissions from an aircraft's engine exhausts, the theory being that, once the pilot had been guided to the vicinity of an aircraft, he was to use the device to pinpoint its exact location. Again, test results did not live up to expectations. It was found that in order to detect the heat emissions, the night fighter had to be directly behind and at the same altitude as its target. In further tests, its performance was so poor that it could not even differentiate between exhaust emissions and stars, and once flame dampers were introduced, 'Spanner II' was rendered completely useless. The failure of these systems, and the knowledge that the British were ahead of them in the field of radar, led directly to the second German technological advance in 1941 – the development of an airborne interception radar.

Prior to the outbreak of the war, the British had already developed their own airborne interception radar, and after



overcoming what seemed like myriad technical problems with its effective range and reliability, the AI Mark III was fitted to Blenheim night fighters in the autumn of 1939. Nearly a year went by without any operational successes but, on the night of 22 July 1940, the honour of achieving the first radar intercepted victory fell to F/O Glyn Ashfield, flying a Blenheim from the Fighter Interception Unit, who intercepted and shot down a Do 17Z⁸ at 23.37 hrs, off the Sussex Coast between Bognor Regis and Selsey Bill. By the end of 1940, several enemy bombers had been shot down using the new system but it was still far from perfect.

Despite this, Kammhuber became increasingly concerned by the British successes against German bombers which made him starkly aware of the deficiencies in his own defences and he therefore immediately invited the German radio industry to submit tenders for an airborne interception radar. One

8. This aircraft was from 2./KG 3 and piloted by Lt. Kahlfuss. Both he and his three-man crew were rescued from the sea.

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of the first companies to reply was Telefunken, who proposed adapting an existing radio altimeter, known as 'Lichtenstein A', into an airborne interception radar. Subsequent testing of the device confirmed that such a conversion was possible, despite its operating wavelength being much longer than that of its British counterpart. This meant that *Lichtenstein*, unlike the British model, would require the fitting of large external aerials on to whichever aircraft it was installed. This did not sit comfortably with the *Luftwaffe*'s High Command who at first rejected the idea because it was feared that the aerials would reduce the fighter's speed and operational ceiling, as well as its rate of climb. After some delay resulting from this rejection, the aerials were fitted and operational testing of the prototype, 'Lichtenstein BC (FuG 202), began at Leeuwarden in Holland.

Once again it fell to pilots from 4./NJG 1 to be Kammhuber's guinea pigs in the testing of this new equipment, just as it had fallen to them in 1940 when they had proved the operational effectiveness of *Dunkel Nachtjagd* close-controlled night fighting. At first, many of the pilots, and their *Bordfunkers* (radio operators), were opposed to the idea of having 'Lichtenstein' fitted to their aircraft because of its detrimental effect on the fighter's performance. Despite these reservations, testing continued at Leeuwarden and the potential of 'Lichtenstein' gradually became apparent to even the most cynical of the aircrew.

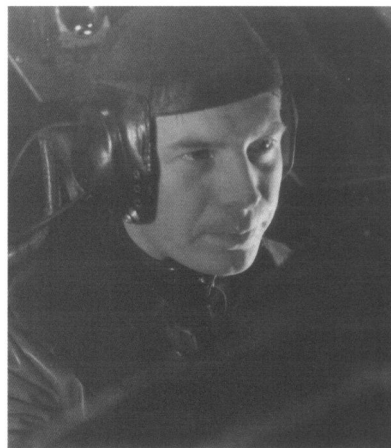
The importance of the role that the *Bordfunker* was to play in future night fighting operations should not be underestimated. Previously, it had been his responsibility to man the radio, provide navigational assistance to the pilot, and help defend the aircraft in case of attack by operating the rear-facing 7.92 mm MG 15 machine gun, but with the advent of airborne intercept radar it became his responsibility also to operate the 'Lichtenstein' set. The device itself consisted of three circular cathode-ray tubes. The first provided the target's range, the second indicated whether it was above or below the night fighter and the third indicated whether the target was to its port or starboard side. It was able to detect another aircraft's presence up to two to three kilometres away and, with a capable operator, the pilot could be directed to within about 200 hundred metres of it. This was a tremendous step forward for the *Nachtjagd* crews who hoped that it would increase their chances of success against the growing number of bombers now flying almost nightly to Germany, and also boost their confidence in this new technology as their victories grew. Much, however, depended on the ability of the *Bordfunker* to interpret the information displayed to him and then direct the pilot towards a target. All the most highly-decorated night fighter pilots in the history of the *Nachtjagd* benefited greatly from having a competent and reliable *Bordfunker* to whom they owed much of their personal success.

The first success using 'Lichtenstein' was not long in coming. At 00.25 hrs on the morning of 9 August 1941 *Oblt.* Ludwig Becker, the same pilot who had claimed the first *Dunkel Nachtjagd* victory, shot down a Wellington⁹ which subsequently crashed near the town of Nieuweschans on the Dutch-



ABOVE: By the time of his transfer to the *Nachtjagd* in 1941, Wilhelm Herget had already shot down 14 enemy aircraft by day, nine of which were destroyed over England in 1940. He was one of a number of established *Zerstörer* pilots who made a successful transition to night fighting and finished the war with 58 night victories and 15 day victories.

RIGHT: The role of the *Bordfunker* was extremely important in night fighter operations. Carlos Nugent was posted to L/NJG 2 in May 1942 and became Heinz Rökker's *Bordfunker*. Nugent flew almost 70 missions with Rökker, participating in 62 of his 64 victories and on 28 April 1945 became one of only a very few *Bordfunkers* decorated with the Knight's Cross. In this portrait, Carlos Nugent is shown wearing the German Cross in Gold which he received on 1 January 1945.



LEFT: After entering the *Luftwaffe* in October 1939 and qualifying as a pilot, Heinz Rökker underwent night fighter training at Neubiberg near Munich. On joining the *Nachtjagd* he was posted to L/NJG 2 on 6 May 1942 and remained with this Gruppe until the end of the war.

9. This aircraft was from 301 Squadron based at Hemswell and was one of 44 Wellingtons tasked with bombing railway and shipyard targets in Hamburg. The Wellington was flown by F/O M. Liniewski who was killed, together with his entire crew. It was the only aircraft lost that night.

48 • Luftwaffe Night Fighter Units

1939-1943

BELOW: The introduction of airborne radar in August 1941 was intended to simplify the last phase of a night interception. However, the 'Himmelbett' defensive system, in which ground controllers directed night fighters to within visual range of their target was now well established and early technical difficulties with 'Lichtenstein' resulted in the use of airborne radar being rejected by aircrews more experienced in the use of the purely radar-assisted ground control system. Only perseverance by the likes of Hptm. Ludwig Becker and his crew - whose aircraft was equipped with the only operational set until it became defective in October 1941 - proved the value of the airborne equipment and demonstrated that successes could be achieved, particularly on very dark nights. By 1 July 1942, Oblt. Ludwig Becker, second from right, had accounted for 25 enemy bombers and was rewarded with the Knight's Cross. The decoration was presented by Generalleutnant Kammhuber, on the far left, and the award ceremony was also attended by Hptm. Helmut Lent (third from left) and Oblt. Paul Gildner (fourth from left). The officer to the right of Becker is Oblt. Walter Grabmann.



BELOW: Originally a pilot with I./ZG 1, Ofw. Paul Gildner, seen here standing the far left, claimed four day victories before becoming a night fighter pilot and when awarded the Knight's Cross on 9 July 1941, had been credited with 14 night victories, raising his total to 18. In this photograph showing aircrew of 5./NJG 1 at Leeuwarden in Holland in July 1942, the tail of Gildner's Do 17 may be seen in the background. The scoreboard records 33 night victories, the latest being a Lancaster which he destroyed in the early hours of 9 July 1942. With a final tally of 44 night victories, he was killed on 24 February 1943 when his aircraft crashed following an engine fire. Gildner was posthumously awarded the Oak Leaves two days later.



German border. This first victory using airborne intercept radar against Bomber Command was soon followed by five others, all achieved by Becker. This system of close-controlled night fighting, which had slowly developed over the previous year using ground radar units, *Jägerleitoffiziere* and airborne intercept radar, was to become known to the Germans as the 'Himmelbett' procedure.

The full impact of this procedure was delayed due to the limited number of sets available for testing, and the *Nachtjagd* was unable to exploit this advance in technology. It would take further months of frustration before replacement sets from *Telefunken* began to arrive at the front-line units. In fact, it was not until February 1942 that the first four were actually delivered to II./NJG 1. There then followed several more weeks of delay before they were finally installed and declared operational. These few 'Lichtenstein'-equipped night fighters were then eagerly distributed between the *Gruppenkommandeur* of II./NJG 1, Hptm. Walter Ehle, and the *Gruppe's* other leading crews. It then took until the end of the year before sufficient sets were available to supply most of the *Nachtjagd's* front-line units.

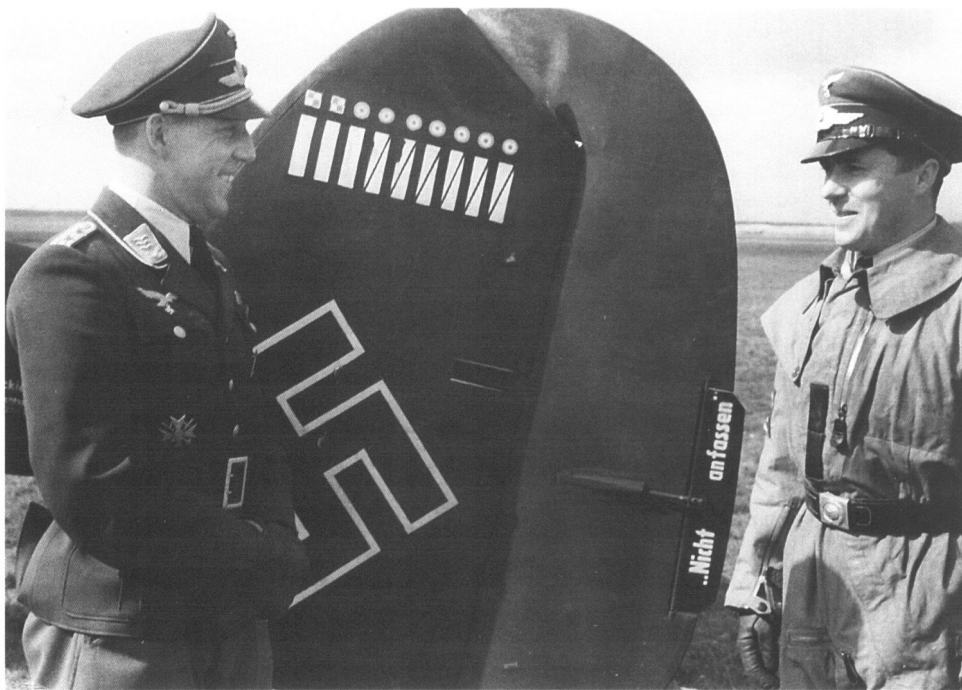
By the end of 1941, however, the German defences, nicknamed 'The Kammhuber Line' by Bomber Command crews, provided a formidable barrier. In the centre lay the 'Helle Gürtel' or 'Illuminated Belt', approximately 20 kilometres wide and equipped with radar assisted searchlights and anti-aircraft guns. To the west were the *Dunkelnachtjagdräume*, each containing up to three roving night fighters that circled a radio beacon until they could be vectored on to a target, either by a ground controller or, when within range of 'Lichtenstein', by airborne intercept radar. To the east of the Illuminated Belt were other night fighters waiting in the darkness for a bomber to be lit up by the searchlights, before they moved in to attack.

The effectiveness of the *Nachtjagd*, using the various techniques available to it, can be measured by the number of victories claimed during these early formative years. By the end of 1940, just 42 bombers had fallen to the guns of the night fighters. With improvements in technology this figure increased dramatically during the next 12 months to 421 - a ten-fold increase by the end of 1941.¹⁰

10. Figures taken from the 'History of the German Night Fighter Force' by Gebhard Aders and published by Jane's Publishing Company.

RIGHT: Originally a pilot with I./ZG 1, Ofw. Paul Gildner, seen here standing the far left, claimed four day victories before becoming a night fighter pilot and when awarded the Knight's Cross on 9 July 1941, had been credited with 14 night victories, raising his total to 18. In this photograph showing aircrew of 5./NJG 1 at Leeuwarden in Holland in July 1942, the tail of Gildner's Do 17 may be seen in the background. The scoreboard records 33 night victories, the latest being a Lancaster which he destroyed in the early hours of 9 July 1942. With a final tally of 44 night victories, he was killed on 24 February 1943 when his aircraft crashed following an engine fire. Gildner was posthumously awarded the Oak Leaves two days later.

RIGHT: Walter Ehle (right) originally flew with 3./ZG 1 and was credited with three daylight kills before the unit was re-designated 3./NJG 1 and Ehle became a night fighter pilot. He is seen here as a Hauptmann with an NO member of his crew and the tail of his Bf 110 G9+AC, showing nine victory bars. Following the first three bars representing day victories are six more bars each with a black diagonal line to denote night victories. At the time of this photograph, Hptm. Ehle was the Kommandeur of II./NJG 1 and his sixth night victory was a Heinkel which he shot down in the early hours of 2 June 1942. Ehle was one of the longest serving Kommandeure and led I./NJG 1 from October 1940 until 17 November 1943 when he and his crew were killed near St. Erond. Since promoted to Major he was landing when the airfield lights were extinguished; the aircraft crashed and he and his crew perished. Major Ehle was awarded the Knight's Cross on 29 August after 31 victories and at the time of his death he was credited with 39.



RIGHT: Another photograph of Walter Ehle (left) who became the Kommandeur of II./NJG 1 in October 1940. In the centre is Hptm. Wolfgang Thimmig and on the right is Major Werner Streib.



LEFT: The Nachtjagd's 100th victory was scored on 10 April 1941 when Oblt. Egmont Prinz zur Lippe-Weissenfeld of 4./NJG 1 shot down a Wellington south of Den Helder in Holland. Lippe-Weissenfeld was of Austrian descent and a former member of the Austrian Air Force. At the outbreak of the war he was operating with II./ZG 76 but transferred to the Nachtjagd shortly after its formation and scored his first victory on 17 November 1940. At the time of his death on 12 March 1944, he had been awarded the Oak Leaves and had 51 victories.



RIGHT: Falck addressing members of NJG 1 gathered at the Hotel Amstel in Amsterdam on 26 April 1941 to celebrate the Geschwader's 100th victory.



The First 100 Victories Achieved by the *Nachtjagd*

	Rank & Name	Unit	Type Claimed	Time	Date	Location
1.	Feldw. Fritz Förster	8./NJG 1	Whitley	02.50	09.07.40	Heligoland
2.	Oblt. Werner Streib	2./NJG 1	Wellington	02.00	20.07.40	Münster
3.	Oblt. Walter Ehle	3./NJG 1	Wellington	01.40	21.07.40	Münster
4.	Oblt. Siegfried Wandam	Stab NJG 1	Wellington	07.40	21.07.40	Borken
5.	Oblt. Werner Streib	2./NJG 1	Whitley	07.40	22.07.40	Münster
6.	Feldw. Otto Wiese	5./NJG 1	Wellington	22.30	23.07.40	North Sea
7.	Feldw. Georg Schramm	5./NJG 1	Wellington	22.30	23.07.40	North Sea
8.	Lt. Pack	3./NJG 1	Wellington	01.14	26.07.40	Coesfeld
9.	Ofw. Peter Lauffs	4./NJG 1	Hurricane	23.00	17.08.40	England
10.	Ofw. Merbach	Stab NJG 1	Hurricane	21.30	27.08.40	England
11.	Oblt. Werner Streib	2./NJG 1	Wellington	23.24	30.08.40	Emmerich
12.	Oblt. Werner Streib	2./NJG 1	Whitley	00.30	31.08.40	Arnhem
13.	Feldw. Paul Gildner	3./NJG 1	Whitley	00.45	03.09.40	Sittard
14.	Lt. Kurt Hermann	4./NJG 1	Wellington	23.00	08.09.40	England
15.	Feldw. Hermann Sommer	5./NJG 1	Blenheim	23.15	10.09.40	England
16.	Feldw. Paul Gildner	3./NJG 1	Hampden	22.30	18.09.40	Groenlo
17.	Feldw. Paul Gildner	3./NJG 1	Hampden	00.2s	19.09.40	Ziuwent
18.	Oblt. Heinrich Gries	1./NJG 1	Wellington	00.34	30.09.40	Bramsche
19.	Oblt. Werner Streib	2./NJG 1	Wellington	22.49	30.09.40	Bersenbrück
20.	Oblt. Werner Streib	2./NJG 1	Handley Page	23.19	30.09.40	Badberge
21.	Oblt. Werner Streib	2./NJG 1	Wellington	23.21	30.09.40	Menslage
22.	Oblt. Heinrich Gries	1./NJG 1	Wellington	00.38	01.10.40	Lonsingen
23.	Lt. Hans-Georg Mangelsdorf	2./NJG 1	Whitley	24.00	02.10.40	Arnhem
24.	Ofw. Gerhard Herzog	3./NJG 1	Wellington	00.55	15.10.40	Gardeleben
25.	Lt. Hans-Georg Mangelsdorf	2./NJG 1	Handley Page	03.02	15.10.40	Röwitz
26.	Hptm. Werner Streib	Stab NJG 1	Handley Page	03.05	15.10.40	Kalbe
27.	Lt. Ludwig Becker	4./NJG 1	Wellington	21.25	16.10.40	Zuidersee
28.	Hptm. Karl Hülshoff	3./NJG 2	Hampden	21.30	20.10.40	England
29.	Lt. Kurt Hermann	1./NJG 2	Blenheim	22.05	24.10.40	England
30.	Lt. Kurt Hermann	1./NJG 2	Blenheim	22.10	24.10.40	England
31.	Oblt. Walter Fenske	1./NJG 1	Wellington	22.40	24.10.40	Bremervorde
32.	Feldw. Hans Hahn	3./NJG 2	Wellington	23.03	24.10.40	England
33.	Lt. Heinz Völker	2./NJG 2	Hampden	00.30	28.10.40	England
34.	Oblt. Lippe-Weissenfeld	4./NJG 2	Wellington	02.05	17.11.40	Medemblik
35.	Hptm. Karl Hülshoff	3./NJG 2	Wellington	18.30	23.11.40	England
36.	Lt. Kurt Hermann	1./NJG 2	Hampden	18.45	23.11.40	England
37.	Feldw. Heinz Strüning	1./NJG 2	Wellington	18.40	23.11.40	England
38.	Feldw. Hans Rasper	4./NJG 1	Wellington	23.23	15.12.40	In sea
39.	Oblt. Paul Böhn	3./NJG 2	Hampden	04.00	17.12.40	England
40.	Feldw. Wilhelm Beier	3./NJG 2	Hurricane	06.36	17.12.40	England
41.	Uffz. Gerhard Blum	1./NJG 2	Blenheim	09.00	21.12.40	England
42.	Lt. Heinz Völker	2./NJG 2	Blenheim	21.15	22.12.40	England
43.	Lt. Rudolf Stradner	1./NJG 2	Wellington	18.40	01.01.41	England
44.	Uffz. Helmut Arnold	1./NJG 2	Wellington	18.45	02.01.41	England
45.	Feldw. Hans Hahn	3./NJG 2	Whitley	19.02	02.01.41	England
46.	Lt. Gerhard Bohme	3./NJG 2	Whitley	18.50	03.01.41	England
47.	Oblt. Reinhold Eckardt	6./NJG 1	Whitley	23.18	09.01.41	Erlekom

48.	<i>Oblt.</i> Lippe-Weissenfeld	4./NJG 1	Whitley	22.46	15.01.41	Petten
49.	<i>Oblt.</i> Albert Schulz	2./NJG 2	Blenheim	02.30	16.01.41	England
50.	<i>Oblt.</i> Albert Schulz	2./NJG 2	Blenheim	02.45	16.01.41	England
51.	<i>Hptm.</i> Walter Ehle	<i>Stab</i> NJG 1	Wellington	23.28	10.02.41	Nunspeet
52.	<i>Lt.</i> Leopold Fellerer	5./NJG 1	Handley Page	03.56	11.02.41	Alkmaar
53.	<i>Oblt.</i> Albert Schulz	2./NJG 2	Blenheim	01.10	11.02.41	England
54.	<i>Hptm.</i> Rudolf Jung	2./NJG 2	Wellington	02.30	11.02.41	England
55.	<i>Oblt.</i> Paul Semrau	3./NJG 2	Blenheim	04.15	11.02.41	England
56.	<i>Oblt.</i> Paul Semrau	3./NJG 2	Blenheim	04.20	11.02.41	England
57.	<i>Oblt.</i> Kurt Hermann	1./NJG 2	Hampden	06.49	11.02.41	England
58.	<i>Oblt.</i> Kurt Hermann	1./NJG 2	Hampden	06.58	11.02.41	England
59.	<i>Oblt.</i> Jusgen	<i>Stab</i> NJG 3	Whitley	23.19	14.02.41	Nijmegen
60.	<i>Feldw.</i> Heinz Strüning	1./NJG 2	Hudson	09.15	15.02.41	England
61.	<i>Feldw.</i> Heinz Strüning	1./NJG 2	Wellington	19.58	15.02.41	England
62.	<i>Feldw.</i> Ernst Kalinowski	6./NJG 1	Wellington	23.05	15.02.41	Zutphen
63.	<i>Oblt.</i> Herbert Bönsch	1./NJG 2	Blenheim	01.25	16.02.41	England
64.	<i>Feldw.</i> Ernst Ziebarth	2./NJG 2	Blenheim	23.40	25.02.41	England
65.	<i>Oblt.</i> Herbert Bönsch	1./NJG 2	Blenheim	00.10	27.02.41	Scampton
66.	<i>Oblt.</i> Kurt Hermann	1./NJG 2	Blenheim	01.40	27.02.41	Waddington
67.	<i>Ofw.</i> Paul Gildner	4./NJG 1	Wellington	02.58	01.03.41	Groningen
68.	<i>Oblt.</i> Herbert Bönsch	1./NJG 2	Blenheim	02.55	02.03.41	Scampton
69.	<i>Hptm.</i> Werner Streib	<i>Stab</i> NJG 1	Hampden	22.18	10.03.41	Venlo
70.	<i>Feldw.</i> Hans Rasper	4./NJG 1	Wellington	21.46	12.03.41	Medemblik
71.	<i>Feldw.</i> Heinz Mittelstadt	2./NJG 2	Blenheim	22.10	12.03.41	England
72.	<i>Oblt.</i> Heinrich Wohlers	8./NJG 1	Hampden	00.05	13.03.41	Nordhorn
73.	<i>Uffz.</i> Karl Kupfer	3./NJG 3	Wellington	00.55	13.03.41	Gr. Fullen
74.	<i>Feldw.</i> Hans Hahn	3./NJG 2	Blenheim	01.15	13.03.41	Leeming
75.	<i>Feldw.</i> Hans Hahn	3./NJG 2	Hudson	22.00	13.03.41	Waddington
76.	<i>Ofw.</i> Paul Gildner	4./NJG 1	Blenheim	22.48	13.03.41	Tolbert
77.	<i>Ofw.</i> Paul Gildner	4./NJG 1	Wellington	23.10	13.03.41	Burlanger
78.	<i>Lt.</i> Ernst Schmidt	3./NJG 3	Wellington	00.54	14.03.41	Cloppenburg
79.	<i>Feldw.</i> Hans Rasper	4./NJG 1	Wellington	03.20h	14.03.41	Petten
80.	<i>Hptm.</i> Werner Streib	<i>Stab</i> NJG 1	Wellington	22.32	14.03.41	Helenaveen
81.	<i>Feldw.</i> Peter Lauffs	1./NJG 2	Wellington	06.53	18.03.41	Cromer
82.	<i>Lt.</i> Rudolf Pfeiffer	1./NJG 2	Wellington	07.20	18.03.41	Mildenhall
83.	<i>Ofw.</i> Gerhard Herzog	3./NJG 1	Wellington	23.05	27.03.41	Helenaveen
84.	<i>Ofw.</i> Gerhard Herzog	3./NJG 1	Manchester	23.30	27.03.41	Bakel
85.	<i>Oblt.</i> Walter Fenske	3./NJG 1	Wellington	23.50	27.03.41	Heuschen
86.	<i>Feldw.</i> Karl-Heinz Scherfling	7./NJG 1	Wellington	22.36	31.03.41	Harn
87.	<i>Lt.</i> Heinz Völker	3./NJG 2	Wellington	01.20	04.04.41	Raynham
88.	<i>Ofw.</i> Paul Gildner	4./NJG 1	Whitley	00.27	08.04.41	Groningen
89.	<i>Lt.</i> Hans Leickhardt	2./NJG 3	Whitley	00.29	08.04.41	Papenburg
90.	<i>Lt.</i> Hans Feuerbaum	2./NJG 2	Hudson	0 1.20	08.04.41	Wells
91.	<i>Lt.</i> Hans Feuerbaum	2./NJG 2	Hampden	01.23	08.04.41	Wells
92.	<i>Feldw.</i> Hans Hahn	3./NJG 2	Handley-Page	01.40	08.04.41	Upwood
93.	<i>Hptm.</i> Karl Hülshoff	<i>Stab</i> NJG 1	Wellington	22.50	08.04.41	England
94.	<i>Hptm.</i> Karl Hülshoff	<i>Stab</i> NJG 1	Hampden	23.00	08.04.41	England
95.	<i>Feldw.</i> Hans Hahn	3./NJG 2	Wellington	23.45	08.04.41	England
96.	<i>Uffz.</i> Hans Berschwinger	4./NJG 2	Wellington	23.15	09.04.41	England
97.	<i>Oblt.</i> Fritz Gutezeit	<i>Stab</i> NJG 1	Whitley	23.27	09.04.41	Nordhorn
98.	<i>Feldw.</i> Karl-Heinz Scherfling	7./NJG 1	Short Stirling	23.37	09.04.41	Lingen
99.	<i>Uffz.</i> Karl Kupfer	3./NJG 3	Wellington	00.14	10.04.41	Rhauderfehn
100.	<i>Oblt.</i> Lippe-Weissenfeld	4./NJG 1	Whitley	00.59	10.04.41	Insel Burk

Bomber Command and the Thousand Bomber Raids

During 1941, many more Bomber Command aircraft than in 1940 had participated in raids on Germany and in particular in operations against ports, railway installations and industrial sites in the Ruhr. However, while the sortie rate had increased from some 17,000 mounted between mid-May and the end of December 1940 to 27,000 in the following 12 months, the bombers were operating with only the most basic navigational aids and the damage caused was very little. In fact, the Butt Report, first commissioned by Winston Churchill and published on 18 August 1941, concluded that, on a moonlit night, only two in five of the bombers were releasing their bombs within five miles of the target area. The report therefore caused a great deal of consternation within the British War Cabinet, as well as in the corridors of power at Bomber Command itself, for while the claims made for bombing accuracy were clearly flawed, the German defences were also beginning to enjoy greater success. This was particularly true of the night fighters, especially when the *Dunkel Nachtjagd* method was employed.

To further add to the RAF's problems during 1941 and early 1942, navigational aids required to increase the accuracy of the bombing were still being developed and tested. However, 1942 was to prove a turning point for Bomber Command. Two significant changes occurred at this time that provided the direction and impetus needed to put the bombing campaign back on course: one concerned policy, and the other leadership.

The shortcomings in the bombing campaign outlined by the Butt Report had convinced the Air Staff that a significant change in policy was urgently required. It was realised at a very early stage that accurate, blind bombing of specific targets was not a realistic proposition until navigational aids could be introduced operationally. It was therefore decided that instead of attempting to bomb only important industrial targets, future policy would be one of area bombing, in which the specific target was the morale of the German civil population, as well as that of industrial workers.

The second significant change came on 22 February 1942 when Air Marshal Sir Arthur Harris was appointed Commander-in-Chief of Bomber Command. Like his predecessor, Air Vice-Marshal Baldwin,

BELOW: Prior to the installation of airborne radar, German defences system relied on ground control directing night fighters to within visual range of their targets. In the lack of any antennae on the 110 of NJG 1 in Holland in 1942, with the three standard night fighter finish of overall black with code letters in grey.



“I gave a short burst of fire from my cannon and the Wellington caught fire...”

LEUTNANT WILHELM JOHNNEN, I./NJG 1.

After I finished my course of studies at the Grammar School in Homberg, in the Lower Rhine region, war broke out and I volunteered for service in the *Luftwaffe* on the basis of the qualifications I already had as a glider pilot. My training as a pilot in the *Luftwaffe* until my qualification as a night fighter pilot took place in Zeltweg, Vienna, Munich and Stuttgart. I trained on all types of aircraft up to blind-flying on multi-engined machines.

I flew my first operation on night fighters with the famous *Gruppe I./NJG 1*, which was based at Venlo in Holland, only about 32 kilometres away from my home town. This first operational flight, which took place on 26 February 1942, turned out to be nothing short of a catastrophe. British bombers were heading for the Ruhr area, which was defended by heavy Flak and searchlight units. My brief was to shoot down any bombers caught in the searchlights above 5,000 metres.

As I flew towards the target, I felt as if I was flying into Hell itself. Anti-aircraft shells were exploding at all heights. Searchlights were sweeping the area looking for bombers and bombs were exploding in the whole Ruhr area. Then I saw a Wellington coned by searchlights very near to us and on my heading. I gave a short burst from my cannon, and the Wellington caught fire and dived down into the inferno. After the attack on the Ruhr area was over, I turned on a north-westerly heading in the direction of Holland. Suddenly my radio operator, Risop, came up on the intercom – “*Herr Leutnant, there's a four-engined aircraft right above us!*” Unbelievably I looked up against the starlit sky, because I had never seen a four-engined aeroplane before. It must have been a Short Stirling. My radio man's last words were, “*Have a go, Herr Leutnant, and God be with us!*” I made my attack obliquely from the port side and below. The bomber met our attack with all guns blazing, ripping open the cabin and fatally wounding my radio operator. A bullet wounded me across the surface of my left leg, while further bullets hit my Verey cartridges and the aircraft's fuel tanks.

The Me 110 was burning furiously. It went into a flat spin, losing height rapidly. I jettisoned the cabin roof and tried in vain to abandon the machine. The immense centrifugal force was pressing me back against the side of the cabin. I was sure that my end had come. Then there was an explosion, and I was hurled from the aircraft. I knew that I was on fire. I pulled my parachute ripcord immediately. The parachute opened – and then came the next shock: the parachute had been torn by bullets and one of the panels was fluttering in the wind. With all the strength I could muster I pulled the lines on the sound side of the parachute towards myself to try and stop the panels from turning inside-out. In this way I came to earth with a bang – or, rather a splash – in a lake in the vicinity of Südlöhne. Fortunately, I still had my signal pistol, so I fired a cartridge into the air and hoped for salvation. Two men rowed out to me in a small boat and rescued me from my miserable plight. Two hours later I was in bed in a hospital in Duisburg with one leg badly shot-up and severe burns. It was about four months before my recovery was complete. Risop, my radio operator, found his last resting place in Südlöhne.



After qualifying as a pilot, Wilhelm Johnen joined I./NJG 1 and flew his first night operation on 26 February 1942, during which time he achieved his first aerial victory but was also shot down and badly wounded. Despite this somewhat erratic start, Johnen went on to complete over 200 missions and achieved 34 victories.

Harris was given a clear and precise brief on how the campaign should be directed, i.e. with the primary objective of future operations being the morale of the enemy's population. This new bombing directive had been issued by the Air Staff a week earlier on 14 February and much of its faith in the success of future air operations was being placed in the development of a navigational aid known as ‘Gee’.

‘Gee’, or TR 1335 as it was initially known, had been developed by the Telecommunications Research Establishment in 1940 from an idea originally conceived in 1938. It then underwent a series of service tests and operational trials in 1941 and was finally introduced into general service in March 1942. At this time, however, only some 30 per cent of the bomber force could be equipped with it as the number of available sets was limited.

To function, ‘Gee’ required three ground transmitters located about 100 miles apart but operating together and emitting a series of pulses in a set order. Each ‘Gee’-equipped aircraft was fitted with a receiver that enabled the navigator in the bomber to measure the interval between receiving each of the three signal pulses. The navigator was also issued with a ‘Gee’ map on which he could plot the readings and thus work out the aircraft's position. The effective range of the device was about 400 miles from the transmitter and, at this range, it was expected that the navigator could plot the aircraft's position to within about six miles. If the range from the transmitter was shorter, the accuracy of the device was significantly improved.

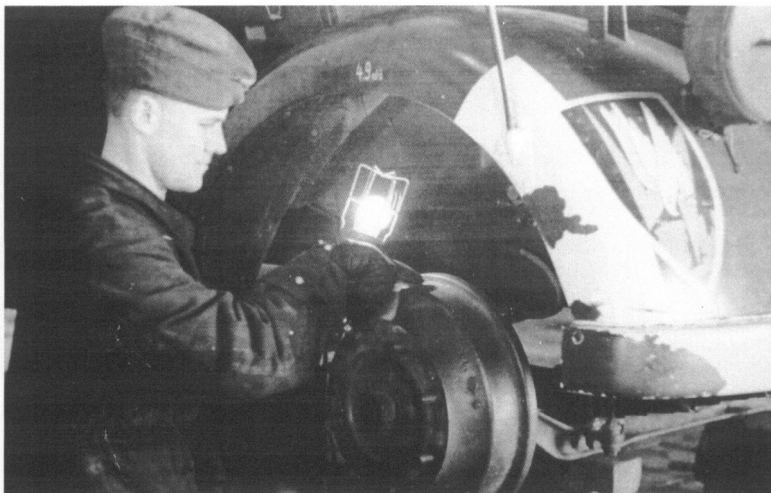
54 • Luftwaffe Night Fighter Units

1939-1943

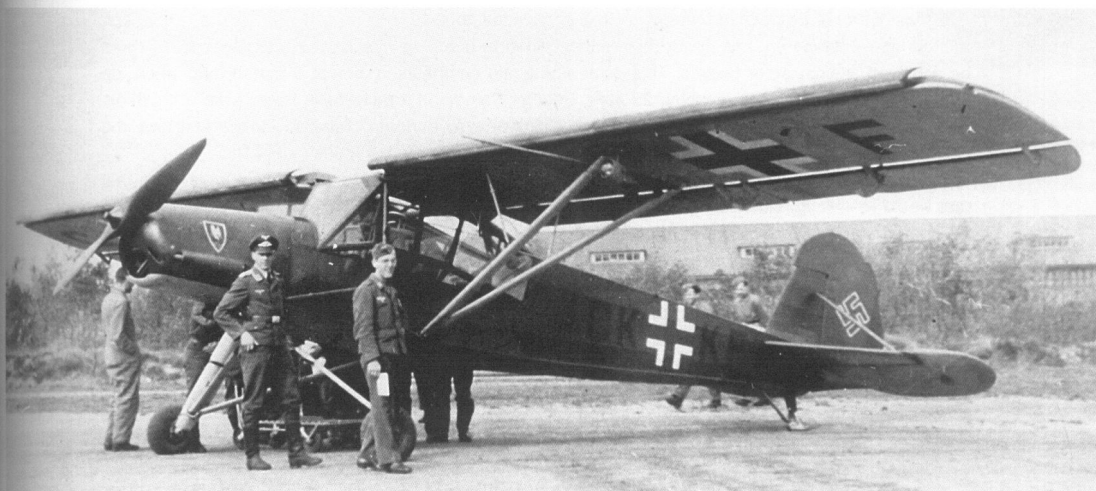
RIGHT: The Gruppenkommandeur of II./NJG 1, Hauptmann Walter Ehle (left), with his Bordfunker, Hans Weng, photographed on the airfield at St. Trond, Belgium. Behind them is their Bf 110 coded G9 + AC with a white Roman II next to the Nachtjagd emblem to indicate the Gruppe to which this machine belonged.

BELOW AND BELOW RIGHT: The work of Luftwaffe ground crews, known as 'Black Men' because of the usual colour of their overalls, was essential in ensuring aircraft remained operational. Here, a night fighter Gruppe's armourers are seen checking and servicing the four 7.92 mm MG 17 machine guns in the nose of a Bf 110 F-4. Clearly visible in both photographs is the crest of the Nachtjagd.





THIS PAGE: The Nachtjagd badge proved extremely popular and was applied to the mudguard of Major Falck's car (*LEFT*) as well as other vehicles (*BELOW*) and all types of aircraft including non-operational types. Examples are Werner Streib's glider, seen here at Venlo in Holland (*MIDDLE LEFT*), and (*BOTTOM*) this Fi 156 C-2 with the Stammkennzeichen CK+KF which served with the Verbindungsstaffel, or communications squadron, of NJG 1 at Quakenbrück.



1939-1943

RIGHT: The Englandblitz badge also appears on this Bu 131 which probably belonged to one of the flying schools that specialised in training night fighter aircrew.



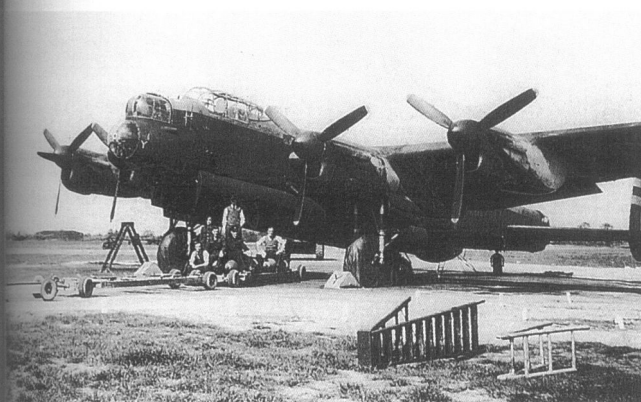
When Harris took over Bomber Command, it was expected that the Germans would take only some six months to jam 'Gee' and he was therefore urged to make effective use of the device as quickly as possible. Initial attacks on Essen in the first half of March 1942 proved to be rather disappointing and highlighted the inaccuracy of 'Gee' at extreme ranges. Harris, however, was determined to mount a successful raid that would boost morale, and show critics of the new policy what could be achieved with accurate area bombing.

After careful consideration, Harris chose the Baltic town of Lübeck, principally because it was situated on a distinctive and recognisable coastline which, therefore, made it easier to locate. Lübeck was also an old, Hanseatic city with narrow streets and buildings predominantly constructed of wood, which would burn well. Another important consideration for Harris was that the city was not classed as a major industrial target and the Flak defences would only be light. On the night of 28 March 1942, Harris therefore dispatched 234 bombers to Lübeck in three waves. The first wave comprised ten 'Gee'-equipped Wellingtons whose primary role was to mark the target with flares, a relatively new method of target marking first used earlier that month in an attack against the Renault works at Billancourt, near Paris. Aircraft of the second and third waves then released incendiaries and high explosives over the illuminated city. A total of some 400 tons of bombs were dropped which destroyed 190 acres of the town and killed over 300 inhabitants for the loss of just 12 bombers.

This raid was Bomber Command's most successful to date and proved that, if the target was appropriately marked and the necessary concentration of bombing was attained, similar results could be achieved against other targets. This point was again emphasised almost a month later when, on four consecutive nights commencing 23 April, Bomber Command attacked the Baltic town of Rostock, destroying a large part of the town centre and killing several hundred civilians. For the first time the German populace and press began to refer to these attacks as 'Terror Raids'.

The results of these two attacks made Harris even more determined to mount a large-scale raid that would restore confidence in Bomber Command's abilities. When he became Commander-in-Chief, Harris had some 469 bombers at his disposal, only a very small number of which were modern, four-engined types such as the Lancaster and Halifax. Opposing him was a growing German night fighter force that presently consisted of about 265 fighters, the majority of which were Bf 110s. By the end of 1942 the *Nachtjagd* had expanded to five *Geschwader*¹¹ with 15 *Gruppen*. Moreover, new technology, improved interception techniques and a growing core of experienced pilots had resulted in the *Nachtjagd* significantly increasing its number of victories. In 1940 it accounted for 15.5 per cent of the bombers shot down, whereas the remaining 84.5% was claimed by the Flak. By the end of 1941, however, German night fighters had shot down over half of all bombers lost over occupied Europe.

11. These were Nachtjagdgeschwader 1, 2, 3, 4 and 5.



THIS PAGE: At the outbreak of war in September 1939, Bomber Command possessed only a small number of twin-engined bombers that were wholly inadequate to the task of maintaining a prolonged or effective bombing campaign against Germany. One such aircraft was the Vickers Wellington (*TOP LEFT*) which, although possessing the operational range to reach Berlin, could carry a payload which barely exceeded 5,000 lbs. The first four-engined operational type was the Short Stirling (*TOP RIGHT*) which, although capable of carrying a significantly higher payload than the Wellington, was restricted by its relatively short wingspan to a disappointing operational ceiling of only 17,000 ft. The Halifax was introduced to front-line squadrons in February 1942, early examples being fitted with Rolls Royce Merlin engines (*ABOVE*). Later, with the Hercules-powered Halifax Mk III, the maximum operating ceiling was increased to 24,000 ft. Also in early 1942, the first examples of the Avro Lancaster (*LEFT*) were delivered to operational units, and by war's end had been modified to carry a maximum bombload of 22,000 lbs. The Lancaster proved to be the outstanding bomber of the war and over 7,300 were manufactured.

1939-1943

"We made a wide curve and again positioned ourselves behind our victim."

Leutnant Helmut Niklas claimed his first two victories during Bomber Command's thousand bomber raid against Cologne on the night of 30/31 May 1942. The following report was submitted by his Bordfunker, Uffz. Wenning.

From the ground we had already seen seven bombers shot down – would there be anything left for us? The waiting was agony but at last we got the order to scramble. Once we had reached our *Raum* we didn't have long to wait. We saw the first one at 1,000 metres, and at a distance of 500 metres we recognised it as a Wellington. The enemy saw us almost simultaneously. He suddenly made a tight turn and we gained so much overtaking speed that we were unable to bring our guns to bear and passed the Wellington at close range. It fired at us but much too tentatively; the threads of tracer didn't touch us. *Leutnant* Niklas pulled our aircraft round in a tight curve and we were back behind our target once more. From very close range we fired a burst into the bomber's port wing. It caught fire and we could see a faint glow.

We made a wide curve and again positioned ourselves behind our victim. We fired another burst into the fuselage and wing, which now began to burn brightly. The Wellington flew on for a short time with bigger and bigger flames shooting out of it. It then tipped over and went down like a comet, trailing a banner of fire behind it. There was an explosion just above the ground which lit up the surroundings. We were beside ourselves with joy. I slapped my pilot on the shoulders with both hands – our first kill!

We checked our position with a bearing from base, and then we were ready for the next. He was soon there. I was still bemused by the efforts of changing the ammunition drums at 4,000 metres without an oxygen mask when I saw a Tommy just ahead of us, another Wellington, about 700 metres away. He seemed to be flying rather uncertainly, but he wasn't firing. Had he seen us? We went straight into the attack. The target grew larger, then it was suddenly vast. I held my breath and from point blank range our guns fired into him, sawing into the fuselage and wing. I immediately saw flames coming from the stern. I was just going to shout out "*He's on fire!*" when *Lt. Niklas* yelled, "*I'm wounded, I have to break off!*" What I had thought were flames was return fire from the bomber's rear turret.

The engines droned on smoothly so the hits on our aircraft couldn't have been too serious. More serious, however, were my pilot's wounds. His left arm was hanging down, lifeless. *Lt. Niklas* could feel the blood pouring down and asked me to bind his arm. In the meantime ground control had told us to fly a heading of 060 degrees. But how? The instrument panel had been hit and the compass was shot to pieces. *Lt. Niklas* saw that there was a two-figure degree-scale, which would give us approximate bearings. "*Tell the airfield control that we must have the lights on at once!*" But the lights couldn't be switched on as there were bombers above the airfield. *Lt. Niklas* had sunk forward again but repeatedly managed to pull himself together until, finally, he said, "*I think we'd better bale out – I can't go on!*" He realised almost immediately, however, that to bale out in his condition would be madness. Then, to our left, the airfield lights came on.

"I can't see anything – it's all white in front of my eyes."

"A bit to the left, Herr Leutnant – not too much!"

Now we were flying straight for the airfield. We were almost above the lights before *Leutnant Niklas* saw them. There was not enough room to make a slow approach. He tried to get to the field by means of a sideslip. There were trees close beneath us.

"We're too low!"

"It's OK, we've got enough speed!"

I couldn't think what that had to do with it. A pond of some sort flashed past our wing-tip. The air speed indicator was still showing 300 kph.

"Don't forget the ignition and the intercom!"

"I can't go on!"

Leutnant Niklas fell forward again. Then there was a cracking noise, but quite soft. Soil was flung up against the cabin. We swept on just above the ground – it seemed endless. I sat there fascinated – was this what a belly-landing was like? The cracking and banging got louder, then there was a jerk. I was flung to one side – all was then quiet. "*Get out!*" It was *Leutnant Niklas* – his head had been flung forward and had regained consciousness. He sprang out of his seat, trying to loosen his parachute as he ran. Then he couldn't do any more. I let him slide down on to the ground, where I opened his blood-soaked clothing. The doctor then arrived and took him away. Only then, when I was surrounded by other men and they began asking me questions, did I realise how lucky we had been.



ABOVE: This Bf 110 E-1 of 6./NJG 1 is the aircraft which the wounded *Lt. Helmut Niklas* crash-landed after shooting down two Wellington bombers on the night of 30/31 May 1942. As the Wellingtons were the pilot's first two victories, the existence of a single white victory bar on the vertical tail unit of this machine would therefore suggest that G9+GP was not his regular aircraft. The fuselage code letters are grey 77 and the aircraft's individual letter 'G' has been narrowly edged in yellow, the Staffel colour. Note that the abrasive action of the grass has worn away the black finish on the nose to reveal the 65476 of the original factory finish.

From his increasing losses and the growing strength and efficiency of the 'Kammhuber Line', Harris realised that the key to any large and successful raid would be to saturate the German defences by concentrating the bomber stream. He knew that the main weakness of the 'Himmelbett' system was that each German night fighter, operating in its own *Raum*, could only be directed against a single bomber. Therefore, by concentrating the bomber stream as it flew through the radar-controlled area, the German defences would be overwhelmed and the risk of his bombers being intercepted would be dramatically reduced.

Harris was also well aware of the propaganda value that a prestigious attack would bring him and his command, and with that in mind he decided to raid a German city with a force of a thousand bombers. After receiving official authorisation from the very highest levels he set the date of the raid, code-named 'Millennium', for the end of May – a period of full moon. His first choice of a target was Hamburg, with Cologne as an alternative in the event of unfavourable weather over northern Germany. Harris was then faced with the arduous task of assembling the bomber force, ably assisted by his Senior Air Staff Officer, Air Vice-Marshal Robert Saundby. By drawing upon aircraft and personnel from various training and conversion units, within two weeks he had assembled a total of 1,047 bombers for the raid. On the evening of 30 May 1942, after three cancellations, the bombers finally took off on the first thousand-bomber raid. The target, due to inclement weather over northern Germany, was Cologne.

Bombers from the first wave were equipped with 'Gee' and long-burning flares so that the target would remain visible for the bombers that were to follow. Almost 900 of the aircraft involved claimed to have bombed the city and the raid was successfully concentrated into just 90 minutes, destroying some 600 acres of the city and 13,000 homes. But although the raid is generally regarded as having been a success, and provided Harris with the positive propaganda he had sought, Bomber Command had not totally overwhelmed the defences as planned. Forty-one bombers were lost, 22 of which were shot down over, or close to, Cologne. Of the 22, 16 were claimed by Flak and the other four by night fighters. Two more aircraft collided during the operation, a remarkably low number considering how many aircraft were in the air at the time. Of the remaining 19 bombers lost most were shot down by night fighters in the radar-controlled intercept areas that lay between the Dutch-Belgian coast and Cologne.

Not wishing to lose the impetus created by this attack, and to make the best possible use of this large bomber force while he could, Harris mounted two further thousand-bomber raids, one against Essen on 1 June and the other against Bremen on 25 June 1942. The attack on Essen proved to be a costly failure as poor visibility over the target obscured aiming points resulting in only 11 houses being destroyed – a pitiful number considering the size of the force involved. Indeed, the bombing proved so inaccurate that more property was destroyed and more casualties were inflicted in the neighbouring towns and villages of Duisburg, Oberhausen and Mülheim, than on the target itself. The third and final thousand-bomber raid on Bremen was considerably more successful. Despite heavy cloud over the town, the first wave of 'Gee'-equipped bombers started fires that were visible to the following aircraft and the destruction of property was widespread.

By the end of the three raids, Bomber Command had lost a total of 127 aircraft, over half of which had fallen victim to night fighters, an impressive performance by the *Nachtjagd* considering that Harris' policy of concentrating his bomber stream had succeeded in limiting the number of radar-controlled areas that the bombers had to pass through en route to Germany. This had significantly reduced the chances of being intercepted and shot down by roving fighters and had highlighted the inflexibility of Kammhuber's defensive system. The result was that only a few night fighter units could operate at any one time, while a greater proportion of the force remained on the ground, hoping that some of the bombers would inadvertently stray into their areas. Nevertheless, where radar-controlled night fighters did penetrate the bomber stream, they were becoming highly effective. This is very effectively demonstrated by II./NJG 2, which by the time of the raid against Bremen on the night of 25/26 June, had equipped virtually all of its aircraft with 'Lichtenstein' airborne radar. Led by *Hptm.* Helmut Lent, this one *Gruppe* alone shot down 15 of the 48 bombers lost.

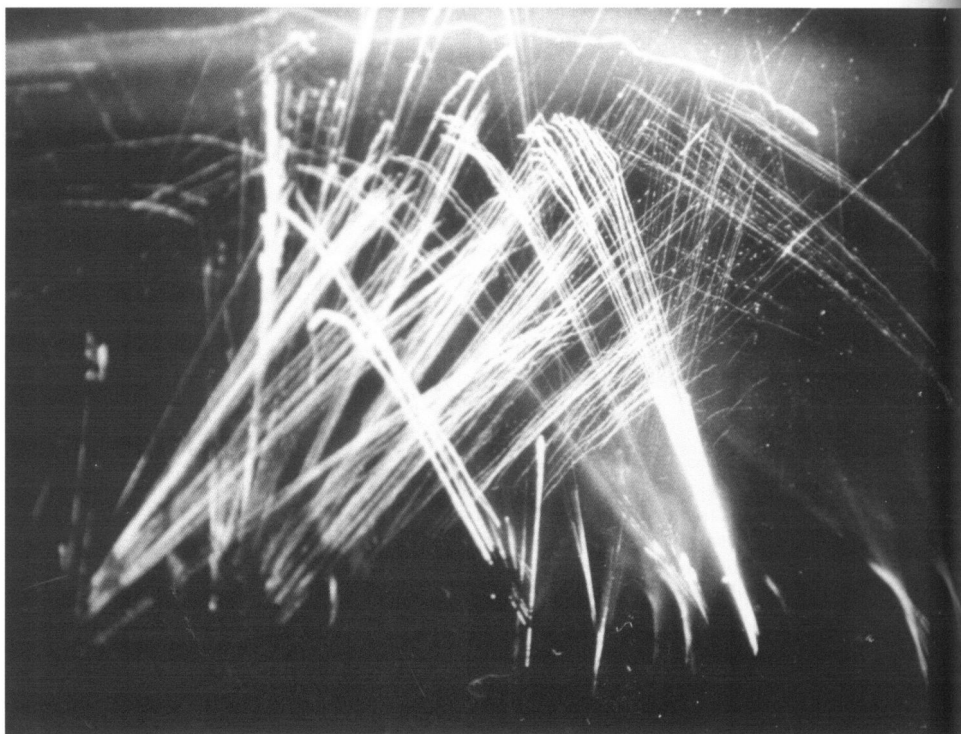
BELOW:
A poignant photograph showing a downed Wellington bomber, behind which can be seen several 88 mm anti-aircraft emplacements with the muzzles of the guns raised skyward.



1939-1943



THIS PAGE: These two photographs dramatically convey the concentration and intensity of the ground defences faced nightly by the crews of Bomber Command. Clearly shown is the tracer ammunition from the anti-aircraft batteries interspersed with searchlight beams.



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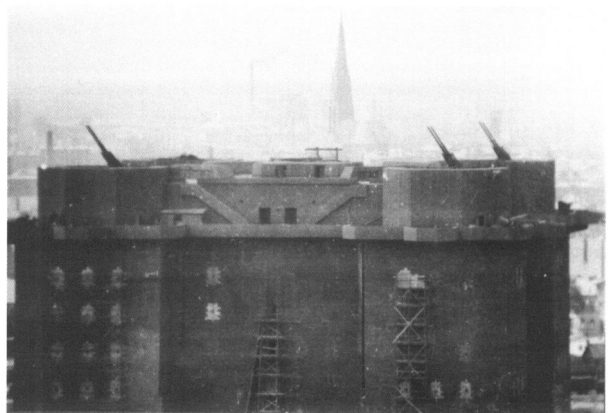
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LEFT AND ABOVE RIGHT: By the end of March 1942, RAF bomber losses over Germany averaged four per cent, one third of which were attributable to anti-aircraft guns, as the scattered remains of this Wellington bear testament, and two-thirds to Luftwaffe night fighters. The squadron to which this particular aircraft belonged is not known, but it was brought down in the southern suburbs of Hamburg in early 1943.

RIGHT: Because of Bomber Command's growing number of attacks and its ever-improving bombing accuracy, many German cities were forced to increase their anti-aircraft defences. Some of the larger cities, such as Hamburg, built large concrete anti-aircraft towers similar to the one shown here which has three double-barrelled 88 cm anti-aircraft guns mounted on its roof.

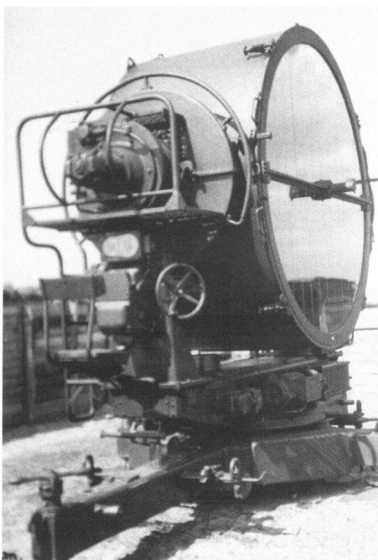


It will be recalled that Kammhuber's 'Illuminated Belt' had been created by appropriating searchlights from cities and towns. However, as many of these places were now being increasingly targeted by Bomber Command, the *Gauleiter* began to complain that the searchlights should be returned. When these increasing complaints reached Hitler, he issued the necessary order and, by late July, the 'Illuminated Belt' had been totally disbanded. In fact, although at first considered a retrograde step by many in the Luftwaffe, the return of the searchlights had little effect as the 'Himmelbett' system had already resulted in an increase in Nachtjagd victories.

Nevertheless, at the time of its construction each of the 27 *Raume*, or areas that made up the searchlight belt, had its own control centre and two 'Würzburg-Riese' radars. When the searchlights were withdrawn from 31 July 1942, these areas were converted from *Hellenachtjagdraume* into *Dunkelnachtjagdraume*, and the radars were implemented into the *Himmelbett* system and designated either 'Rote' or 'Blaue Würzburg'. Now, almost by accident rather than by design, the German defences had become even more formidable as a consequence of removing the searchlights. Throughout the summer of 1942, aided by the longer summer evenings and with increasing numbers of aircraft fitted with 'Lichtenstein' airborne radar, the night fighters continued to account for an increasing proportion of the bombers which failed to return from operations over German-controlled territory.

In spite of its losses and the growing opposition, Bomber Command continued its offensive while at the same time developing the technical and practical

RIGHT: The air war over Germany was not only successful in driving away personnel and supplies from other fronts, but it also forced German industry to produce defensive equipment rather than offensive equipment. Searchlights were much sought after for physical defence and were produced in great numbers. The sample shown here is a 150 cm searchlight 37.



Helmut Lent

Helmut Johannes Siegfried Lent was born in the small village of Pyrehne, close to Landsberg in the state of Brandenburg on 13 June 1918. His family was deeply religious and it was expected that Helmut would follow in his father's footsteps and become a pastor. However, from an early age Helmut showed an interest in all things military, particularly in soldiering and flying. He excelled academically and, after obtaining his *Abitur*, the German equivalent of the public university entrance examination, left school in December 1935, just prior to his 18th birthday.

Lent was then obliged to serve the compulsory eight weeks of duty with the *Reichsarbeitsdienst* (Reichs Labour Service) which was necessary for any person wishing to enter the armed forces. Lent's preference was to join the *Luftwaffe* and he did so on 1 April 1936 with the rank of *Fabnenjunker*, or officer-cadet. He attended the *Luftkriegsschule* (Air Warfare School) at Gatow, near Berlin where he qualified for his pilot's licence on 15 November 1937, and was commissioned *Leutnant* on 1 March 1938. After completing basic flight training in July he was transferred to the fighter unit III./JG 132.

During the Sudetenland crisis in September 1938, Lent and his *Gruppe* flew a number of armed patrols over the area as a show of strength and as a deterrent against any possible uprisings by the Czech population. Following the successful annexation of the Sudetenland, III./JG 132 was transferred to Fürstenwalde and redesignated II./JG 141 on 1 November 1938. Lent subsequently became a member of the 6th *Staffel* and spent the next six months qualifying on various types of aircraft and generally improving his flying skills.

By 1 May 1939, the *Gruppe* had been redesignated I./ZG 76 and was based at Olmütz in Czechoslovakia, where it was re-equipped with the twin-engined Bf 110 C-1. Several months later, while Lent was still converting to the Bf 110, he was joined by *Gefreiter* Walter Kubisch, who had been allocated as his *Bordfunker* (Wireless Operator). Both men immediately formed a strong, professional working relationship that would endure for the next four-and-a-half years.

When war broke out with Poland on 1 September 1939, Lent flew several missions that day as part of a bomber escort to Krakow, but much to his disappointment he failed to have any contact with the Polish Air Force. The following day his luck improved and during a freelance flight over the town of Lodz he encountered and shot down a PZL 24 as the first confirmed victory of his career. He then participated in a number of further flights and, although he failed to add to his score of aerial victories, he did succeed in destroying three Polish aircraft on the ground. On 21 September he was awarded the Iron Cross Second Class.

When the Polish campaign came to an end, I./ZG 76 was re-deployed and stationed at several airfields in the Ruhr area, where it carried out defensive flights over the Franco-German border. On 16 December, I./ZG 76 was transferred to Jever on the German north coast, and when Bomber Command attacked German shipping at Wilhelmshaven on the 18th, Lent submitted a claim for three bombers destroyed, although he was later only credited with two.

Following his success during this well publicised encounter, Lent spent the next three months flying uneventful patrols and training exercises. However, with the German invasion of Norway on 9 April 1940 he was again in action, this time flying as escort for Ju 52 transport aircraft detailed to drop paratroops on the airfield at Oslo-Fornebu. During this operation he

encountered a number of Gloster Gladiator aircraft and, in the ensuing dogfight, shot down one of them as his fourth victory. Low on fuel and damaged by ground fire, he was then forced to land at the airfield. Within a short time of his landing the airfield was secured and troops and supplies were flown in. A few hours later, the Norwegian capital was in German hands. By the end of the Norwegian Campaign Lent had shot down two further Gloster Gladiators and a Bristol Blenheim, taking his number of victories to seven. In recognition of this he was awarded the Iron Cross, First Class, and promoted to *Oberleutnant* on 1 July 1940.

Lent left Norway at the end of August, by which time France and the Low Countries had been invaded and occupied. The Battle of Britain was at its height, but Lent only flew one sortie to England and that was on 15 August from Stavanger, on the western coast of Norway. During this bomber escort mission to the north-east of England, he was attacked by six Spitfires and his aircraft was slightly damaged in the ensuing air battle. Seven of his fellow pilots were less fortunate and they were shot down. Following his departure from Norway, his *Gruppe* was transferred to Bavaria where he spent three weeks practising night-flying. Then, on 1 October 1940, Lent joined *Nachtjagdgeschwader* 1, becoming *Staffelkapitän* of 6./NJG 1 stationed at Deelen in Holland.

BELOW: On 2 September 1939, Helmut Lent of I./ZG 76 scored his first aerial victory in Poland. Soon afterwards, the Gruppe was visited by Adolf Hitler who was making an inspection tour of several operational Luftwaffe units. Here, Lent shakes hands with the Führer while in the background, fourth from right, is Leutnant Gordon Gollob, later to become the last Luftwaffe's last General der Jagdflieger.



After a frustrating period of almost seven months without achieving any success, Lent finally opened his account as a night fighter by shooting down two Wellington bombers of 40 Sqn. during an attack on Hamburg in the early hours of 12 May 1941. He then went on to score steadily throughout 1941 and by the end of the year he had raised his overall number of victories to 27, 20 of which he had claimed at night. However, the most memorable day of 1941 was 30 August when, after having shot down a Hampden bomber the day before as his 21st victory, Helmut Lent was awarded the Knight's Cross.

The first day of 1942 saw Lent promoted to the rank of *Hauptmann*, and the following month he was made *Kommandeur* of II./NJG 2. Despite his extra responsibilities, he continued to fly operationally and accrue further victories. His first success of 1942 came on 17 January when he intercepted a Whitley of 51 Sqn. returning from a raid against Emden and shot it down into the North Sea close to the island of Terschelling. He continued to score slowly throughout the next four months and on 4 June he claimed a Halifax as his 40th victory. Two days later, he shot down two Wellingtons and, on 8 June 1942, he was awarded the Oak Leaves to the Knight's Cross – the 98th member of the *Wehrmacht* to receive this decoration.

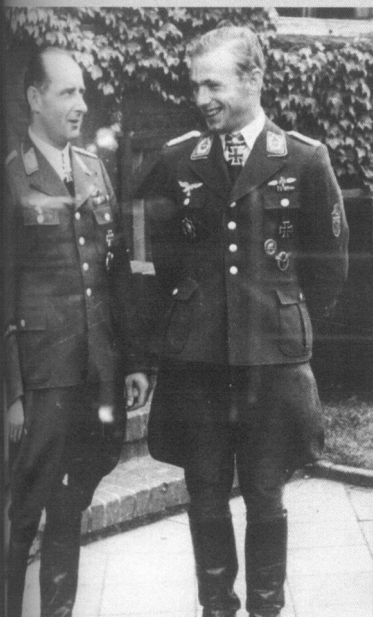
By the end of June, a month that proved to be the most successful of his career, Lent had claimed nine more bombers. It is interesting to note that unlike some of the other night fighter pilots who were to follow him, Lent only ever shot down one or two bombers a night. The most he ever achieved in one night was three victories and he did this only on four occasions. Nevertheless, Lent's score increased steadily and by the end of 1942 his number of victories stood at 56 making him the highest scoring night fighter pilot.

The New Year started well for Lent, who was promoted to *Major* on 1 January 1943 and, just a week later, he claimed his 57th victory by shooting down a mine-laying Lancaster off the north-west coast of Holland. On 21 January 1943, a significant date in his career, Lent destroyed a Wellington bomber and became the first night fighter pilot to achieve 60 night victories.

Between March and July 1943 the number of raids against the Ruhr increased, but so did the number of Lent's successes, and by the end of Harris' campaign against the industrial heartland of Germany, Helmut Lent's total stood at 73. His courage and fortitude were rewarded on 1 August when he was appointed *Kommodore* of *Nachtjagdgeschwader 3* and, a day later, was awarded the Swords to his Knight's Cross.



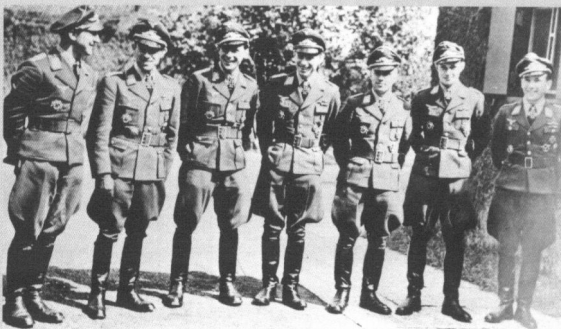
ABOVE: The award certificate that accompanied the presentation of the Knight's Cross to Helmut Lent on 30 August 1941.



LEFT: Helmut Lent became *Kommodore* of NJG 3 on 1 August 1943, taking over from Oberst Johann, shown on the left, who had led the *geschwader* since its formation on 29 September 1941.



LEFT: Helmut Lent (nearest the camera), after being presented with the Swords by Adolf Hitler. Other pilots who received their Oak Leaves at the same ceremony were, from left to right: Egmont Prinz zur Lippe-Weissenfeld; Manfred Meurer; Joachim Kirschner; Heinrich Ehrler; Werner Schröder and Theodor Weissenberger.



LEFT: Following the award ceremonies at Hitler's headquarters at Rastenburg on 10 and 11 August 1943, the recipients line up for an official photograph. From left to right: Schröder, Ehrler, Lippe-Weissenfeld, Lent, Meurer, Kirschner and Weissenberger, all wearing their new decorations.



ABOVE: Lent with his Bordfunker, Ofw. Walter Kubisch, who received the Knight's Cross on 31 December 1943.

Between August 1943 and the end of February 1944, Bomber Command carried out a sustained bombing campaign against Berlin, during which time Lent added a further twelve bombers to his tally and on 1 March, he was promoted to *Oberstleutnant* in recognition of his own continued personal success as well as that of his *Geschwader*.

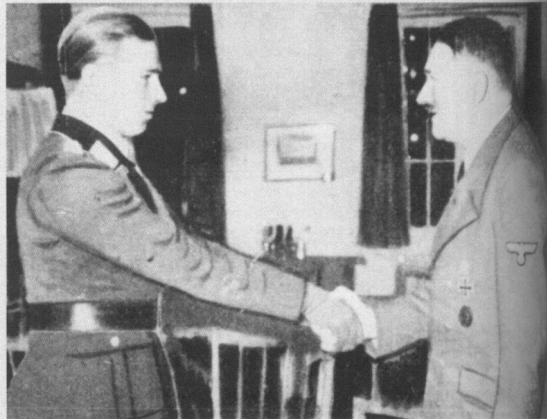
During an RAF attack against railway yards at Lens and Valenciennes in France on 15/16 June 1944, Lent recorded his 100th victory by shooting down three of the raiding Lancasters. Two weeks later, during a raid against Hamburg on 29 July, he shot down two further Lancasters taking his total victories to 108 and his nocturnal score to exactly 100. As the first night fighter pilot to achieve this milestone he was awarded the Diamonds on 31 July 1944, at that time the highest decoration a member of the *Wehrmacht* could receive. His final victory came during an attack on Darmstadt on 11 September 1944 when a Lancaster bomber became his 110th confirmed victim.

On 5 October 1944 Lent flew to Paderborn airfield to visit his friend and fellow night fighter pilot, *Obstlt.* Hans-Joachim Jabs, the *Kommodore* of *Nachtjagdgeschwader* 1. Shortly prior to Lent's arrival, American bombers had attacked the airfield at Paderborn and the main concrete runway had been damaged. A temporary grass runway had been prepared for his visit and it was while he was attempting to land on this that his Ju 88 struck an overhead electricity cable, crashed into the ground and caught fire, seriously injuring the four men aboard. Walter Kubisch, the *Bordfunker*, died shortly afterwards, as did *Obst.* Hermann Kloss, the second *Bordfunker* on board, and *Lt.* Werner Kark, a war correspondent who had accompanied Lent on several operational sorties. Lent himself suffered two very badly broken legs and died two days after the crash during an operation to amputate one of his legs, which had turned gangrenous.

Helmuth Lent, posthumously promoted to *Oberst*, was subsequently buried with his crew with full military honours in the military cemetery at Stade. At the time of his death, Lent had 110 victories to his credit, 102 of which he had shot down at night – a figure that was only surpassed by one other night fighter pilot during the war.

ABOVE RIGHT: Shortly after 13.20 hrs on 5 October 1944, Lent was approaching a temporary landing strip at Paderborn to visit his friend *Obstlt.* Hans-Joachim Jabs when his Ju 88 struck an overhead power cable and crashed. The three other members of the crew all died within hours of the accident and Lent himself died two days later. The four airmen were buried together in a communal grave at Stade.

RIGHT: Amongst the senior Luftwaffe officers who attended the funeral of Lent and his crew was Generalleutnant Joseph Schmid, seen here at the graveside.



ABOVE: On 31 July 1944, Lent became the 15th recipient of the Diamonds, which he received personally from Adolf Hitler. By the end of the war no one other night fighter pilot, *Hauptmann* Schnauer, would be presented with this rare and prestigious award.



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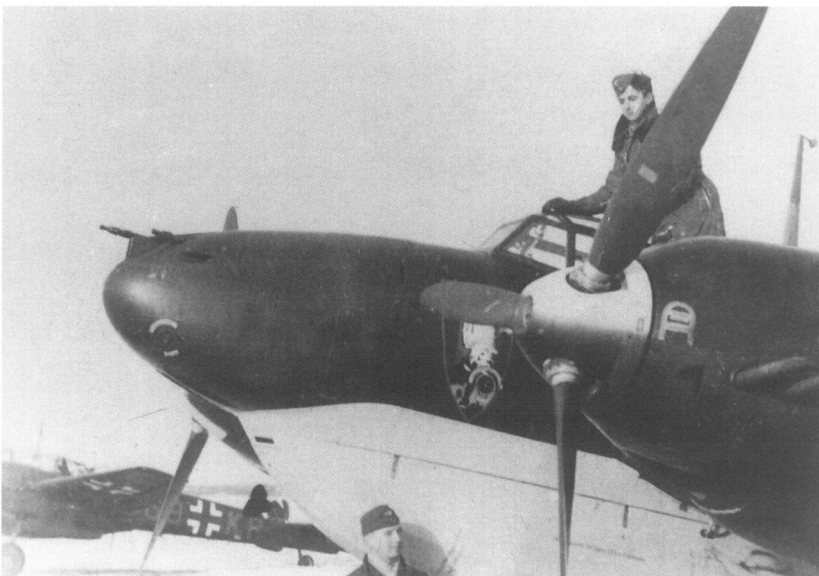
expertise required to improve the accuracy of its bombing and thus disrupt and destroy Germany's ability to continue the war. When 'Gee' had become operational in March 1942, it had been anticipated that the Germans would develop countermeasures within six months, so even before it entered service another type of navigational aid was already being developed. Codenamed 'Oboe', it operated using radar rather than radio waves and unlike its predecessor, could not therefore be jammed.

In addition to the introduction of 'Oboe', a specialist unit was formed from selected bomber crews which was to find and mark targets for the main bomber force using coloured pyrotechnic flares as target indicators. This unit, originally known as the Target Finding Force, was eventually renamed the Pathfinder Force and was first employed on the night of 18/19 August 1942 against Flensburg. The results of this raid were less successful than anticipated, however, as the weather over the target was poor and the Pathfinder aircraft had yet to be equipped with sophisticated navigational aids. The long-awaited breakthrough came in December 1942 when the first Pathfinder aircraft were fitted with 'Oboe'. Initially its range was restricted due to the operational ceiling of the bomber carrying it and the curvature of the earth, but 'Oboe' later became especially effective when fitted to the de Havilland Mosquito which had a much greater ceiling of 10,000 metres. In a number of attacks made against targets in the Ruhr, the 'Oboe'-Pathfinder combination resulted in greatly improved bombing accuracy.

Encouraged by the results of the Ruhr attacks, Harris decided to concentrate his bomber force against the industrial heartland of Germany, and between 5 March and 5 July 1943 a series of 29 major raids was carried out in which a prime objective was Essen. Although targeted on a large number of earlier occasions, inaccurate bombing had allowed this industrial town to remain relatively unscathed, but with the advent of 'Oboe', this changed. After attacks on 5/6 March and again on 12/13 March 1943, some 160 acres of the town and a substantial part of the important Krupp steelmaking works were destroyed and similar raids were repeated against such other towns and cities as Düsseldorf, Cologne and Dortmund. However, despite Bomber Command's improved accuracy and the introduction of the Lancaster bomber in greater numbers during 1942 and 1943, the German night fighters had also been making technological and tactical advances and making their presence felt in ever growing numbers.



ABOVE: An unusual variation of the night fighter badge in which the diving eagle and lightning bolt has been replaced by a white Ace of Spades with stylised red wings. The central motif on this badge may be associated with that used in 1939 by 10.(Nacht)/JG 72 (see Page 13) and the pilot seen here is Ofw. Paul Gildner.



1937. The D-4 was developed as a specialised long-range heavy fighter. It featured a 1,200 litre auxiliary fuel tank in a large fuselage which resulted in a nickname 'Schwanzbomber', or 'tail bomber'. The D-4 required the use of a 100 mm FF cannon in the lower forward fuselage. The type was in service with the Zerstörer Gruppe but was not successful due to the excessive fumes which remained in the cockpit when the engine was started. Nevertheless, despite the lack of forward-firing armament, the D-4 operated with D-4, D-1, and D-3 subtypes throughout the war until it largely disappeared from the Luftwaffe's inventory at the end of the year. This particular example, which is believed to be the one shot down with a D-4 at Deelen in 1942, is painted in a dark night finish with a large fuel tank in the rear fuselage.

1939-1943

RIGHT: An interesting photograph, probably taken in 1942, of a Bf 110 E-2 of II./NJG 3 at Schleswig, the main base of this Gruppe from September 1941 to March 1944. Just visible on the fuselage is the Geschwader code D5 in light grey and what appears to be a single victory bar on the starboard tail unit. Note also the Roman numeral indicating II. Gruppe positioned near the Englandblitz emblem on the forward fuselage and that only the undersurfaces and the sides of the fuselage and engine nacelles have been camouflaged in black, the upper surfaces remaining in the day fighter colours of 74 and 75. The aircraft from which the Bf 110 was photographed is a Ju 88.





THIS PAGE: Two views of 3C+AR, a Bf 110 E night fighter of 7./NJG 4 in flight, almost certainly over Holland, in 1942. The overall camouflage finish is black with the unit code in grey, the individual aircraft letter being outlined in white and repeated on the nose. This particular aircraft, shown equipped with two external fuel tanks, was flown by the Staffelführer of the 7. Staffel, Oblt. Karl-Heinz Kamp who, by the end of 1942, had seven or eight night victories and was awarded the German Cross in Gold on 1 October 1944.



1939-1943

RIGHT: A Ju 88 C-6 of NJG 2, probably in the summer of 1942. All white areas in the national markings have been blacked out, even in the Balkenkreuz under each wing, although the bright blue undersurfaces have been retained.



LEFT, BELOW AND OPPOSITE: This crash-landed Ju 88 C-4 was coded R4+MT and belonged to 9./NJG 2. The aircraft was photographed in the summer of 1942, and although the unit was at that time stationed at Galt Rijssen in Holland, it is believed these photographs were taken after the machine made a forced landing in an orchard or farm in Belgium. Note the straw spread over the wings and the camouflage netting placed over the fuselage to conceal the white of the Balkenkreuz.



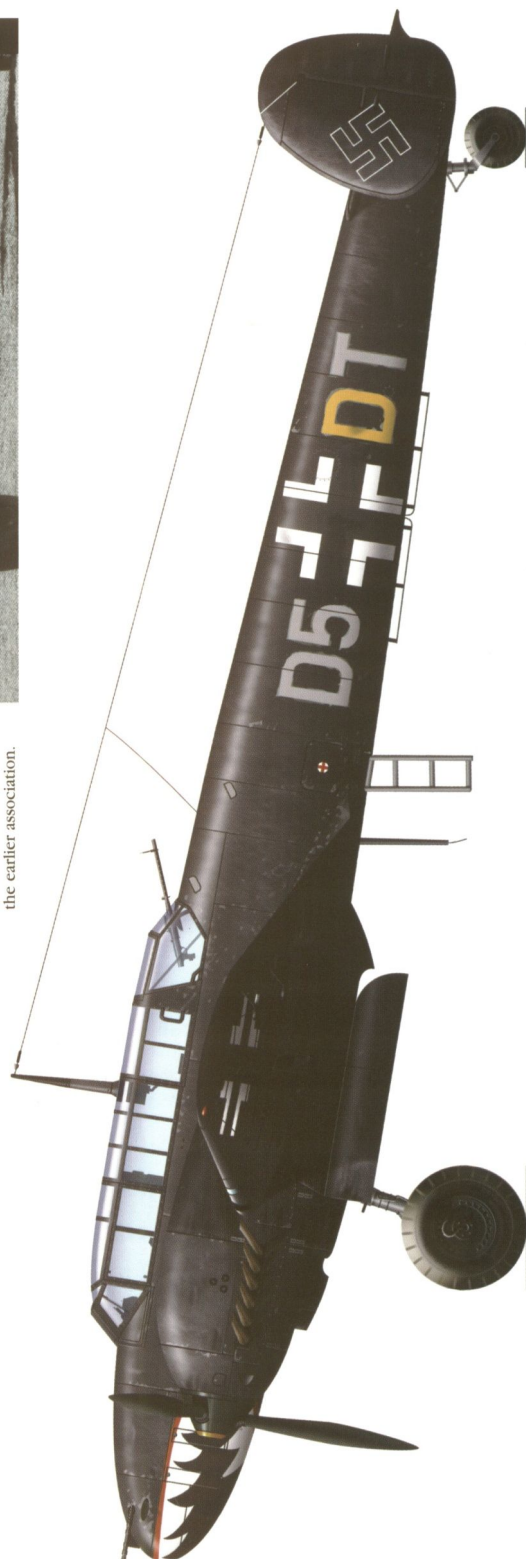


Junkers Ju 88 C-4 'R4+MT' of 9./NJG 2, Summer 1942

This machine was somewhat unusual for a night fighter in that it retained a 70/71 splinter camouflage on the upper surfaces with 65 on all undersurfaces. The fuselage code was in black with the individual aircraft letter 'M' outlined in white and the emblem of the Nachtjagd appeared on the nose.

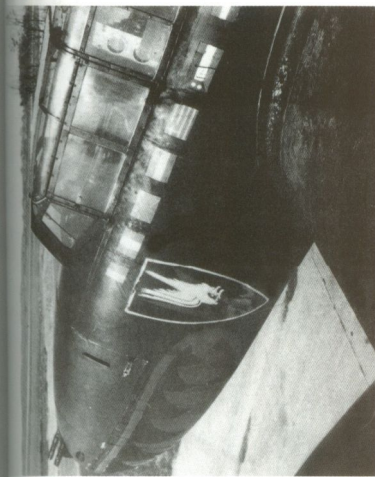


THIS PAGE: These two photographs showing a Bf 110 C-4 of 9./NJG 3 were clearly posed for the benefit of the camera and were apparently taken at Trondheim-Vaernes in Norway in 1942 when the aircraft, coded D5+DT was on detachment from its permanent station at Stade in northern Germany. The 9./NJG 3 was formed in November 1941 from 6./ZG 76 - part of II./ZG 76, the 'Haufisch' Gruppe - hence the shark's mouth design on the nose which has evidently been retained as a reminder of the earlier association.

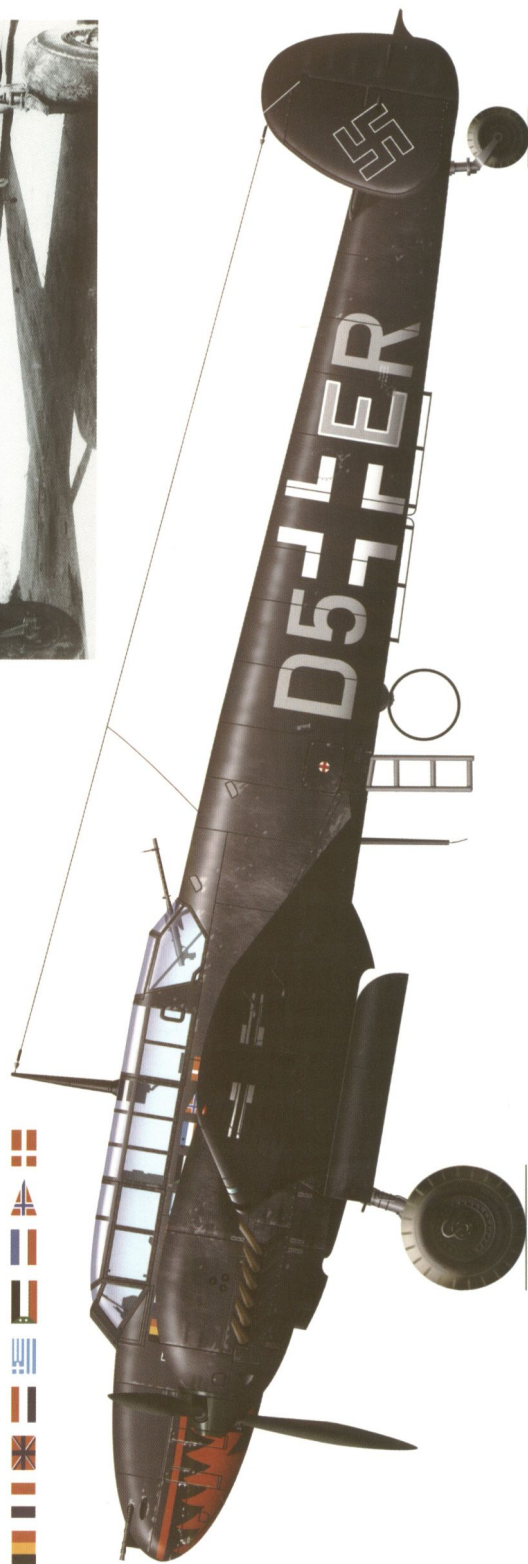


Messerschmitt Bf 110 C-4 'D5+DT' of 9./NJG 3, Trondheim-Vaernes, 1942

The camouflage on this machine was a semi-matt black overall but the engine cowlings show signs of fading. The propeller blades and spinners were green 70, and the fuselage code was in grey 77 but with the individual aircraft letter 'D' in yellow, the Staffel colour, which was also applied to the tips of the spinners. Note the presentation of the shark's mouth which has retained the red outline and white teeth whereas the area inside the teeth has been overpainted with black.



THIS IS THE COLOURED EMBLEM OF 7./NJG 3 WHICH WAS DETACHED FROM THE REST OF III. Gruppe at Stade and then moved to the front line in November 1942. This Staffel was formed in November 1941 by redesignating 4./ZG 76 which, for a short while in May 1941, had operated in Iraq. The association with II./ZG 76 and Iraq has been maintained on this machine which has retained the shark's mouth decoration which originated with II./ZG 76 and includes the flag of Iraq in the row of flags painted beneath the canopy. Other points of interest on this machine include the white individual aircraft letter 'E' in the Staffel colour on the leading edge of both wings inboard of the engine nacelles, and the white teeth of the shark's mouth which have been overpainted with black night camouflage.



Messerschmitt Bf 110 C 'D5+ER' of 7./NJG 3, 1942

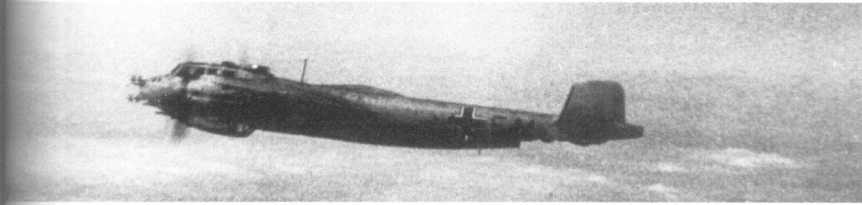
On this overall black aircraft, the red areas of the shark's mouth and its outline remained in red but, curiously, the teeth had been overpainted with matt black, although no such attention had been given to the national insignia which retained their bright white areas. The row of flags beneath the cockpit are those of the countries against which the pilot fought or in which he was stationed and represent, from the front, Belgium, France, UK, Holland, Greece, Iraq, Yugoslavia, Norway and Denmark. Note, however, that the flag of the United Kingdom is inaccurate in detail and also that the red and the blue have been reversed.

RIGHT: A late production Do 215 B-5 night fighter showing the acrials in the nose for the FuG 202 Lichtenstein BC radar. Also visible under the forward fuselage is a weapons tray which increased the machine's total forward-firing armament to three MG 17's and three MG/FF cannon. This machine was photographed at Leeuwarden in the spring of 1942 and was operated by Stab II./NJG 2.



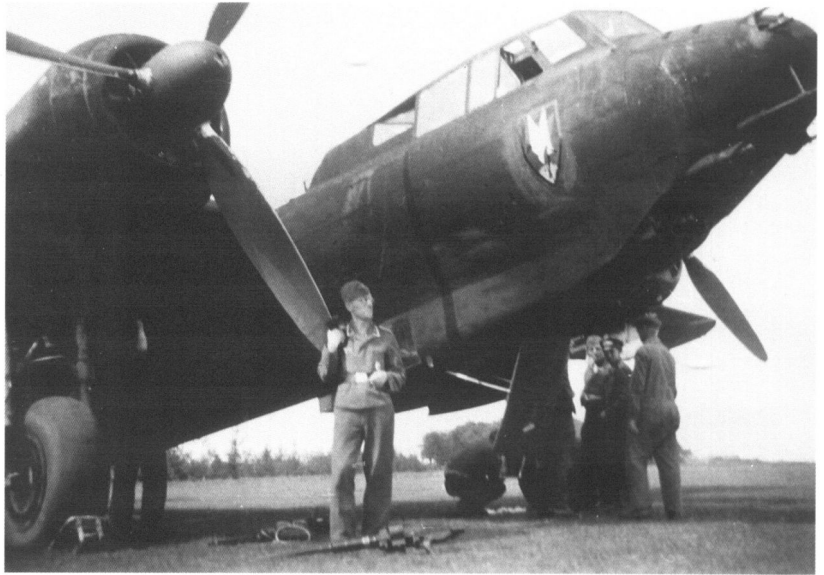
Dornier Do 215 B-5 'R4+DC' of Stab II./NJG 2, Leeuwarden, Spring 1942

The upper and lower camouflage colours on this machine were divided by an undulating demarcation line which came well down the sides of the fuselage and continued to the nose in the same plane so that much of the front fuselage was in the undersurface colour. The camouflage was probably a locally applied scheme of 74 and 75 on the upper surfaces while the undersurfaces were 76. The code letters were in grey 77 but with the individual aircraft letter 'D' in Stab green 25 with a white outline. Note that the white areas of the fuselage Balkenkreuz have been toned down and that the swastika on the tail has



LEFT: An air-to-air view of a Do 217 N-2 night fighter. The Do 217 N-2 entered service in late 1942 with examples reaching II./NJG 3 in February 1943. This particular aircraft belonged to 5./NJG 3 and, although the picture is of poor quality, the Messerschmitt ailerons in the nose and the last two digits of the fuselage code, D5+SM, are clearly visible.

RIGHT: This view of another Do 217 night fighter in overall black night fighter finish provides a good indication of the size of the aircraft. In the air it was heavy and unwieldy and not particularly popular with its pilots.

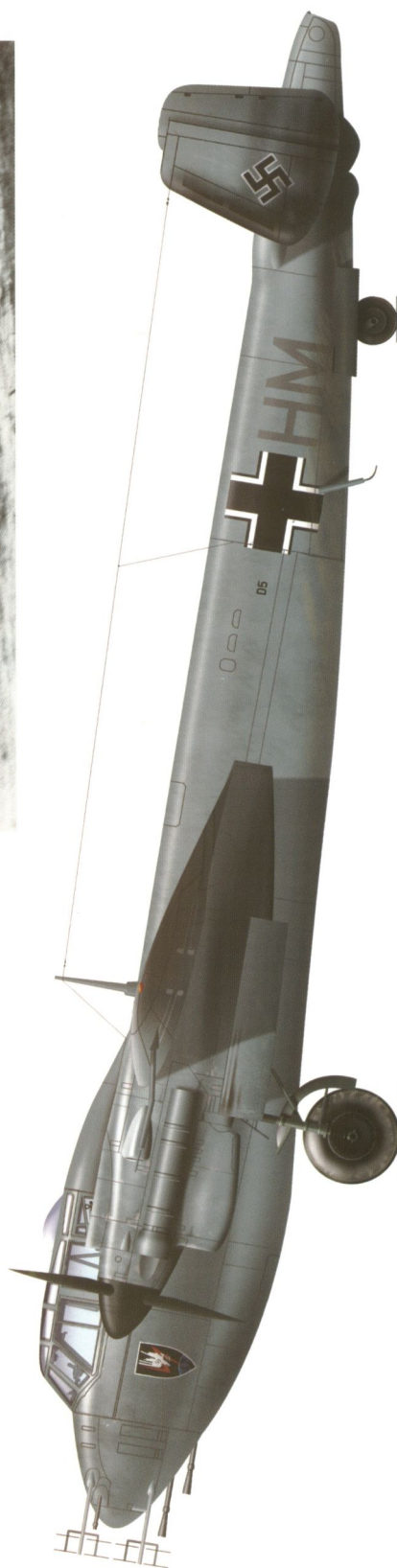


LEFT AND RIGHT: Two Bf 110 C night fighters of 7./NJG 4 in the summer of 1942. The pilot of 3C+GR, the aircraft nearest the camera is not known, but 3C+LR in the background was flown by Ofw. Reinhard Kollak and is shown here with ten victory bars on the tail. Kollak claimed his first night victory while flying with 1./NJG 1 when he destroyed a Whitley in the early hours of 17 June 1941. He remained with 1./NJG 1 when it was redesignated 7./NJG 4 in May 1942 and on the night of 24/25 August 1942, shot down a Stirling as his tenth victory. This photograph must, therefore, have been taken soon afterwards as Kollak's eleventh victory was achieved shortly after midnight on 16 September. In the photograph **RIGHT** Kollak may be seen wearing the German Cross in Gold, awarded on 12 April 1943, and the Knight's Cross which he received on 29 August 1943 when his tally had increased to 29 victories. Kollak was the most successful pilot of III./NJG 4 and finished the war with a total of 49 night victories.



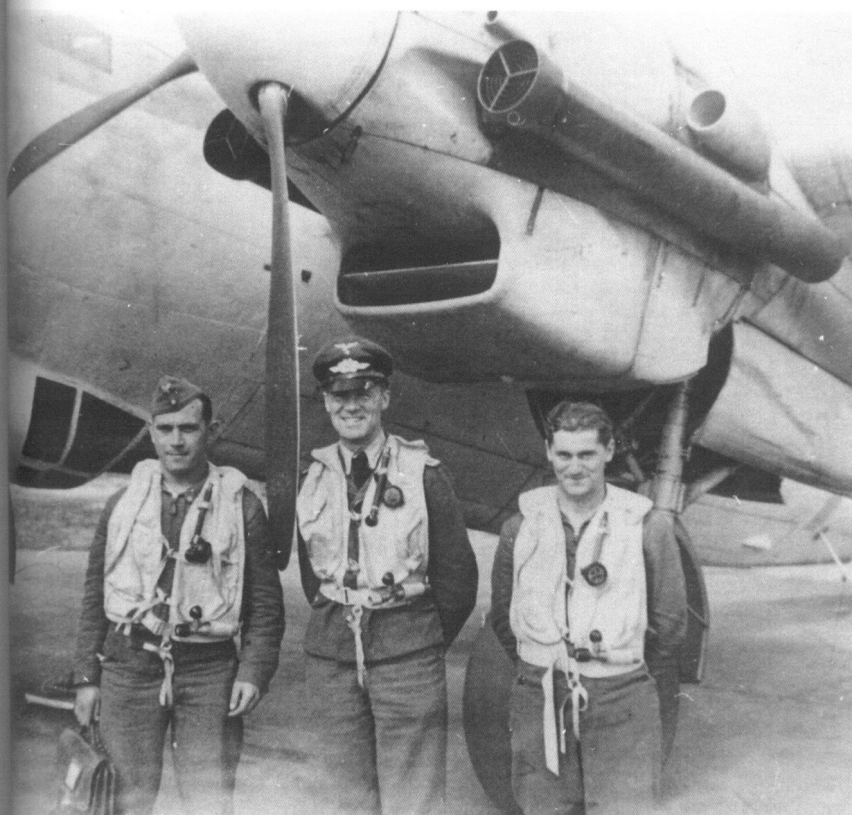
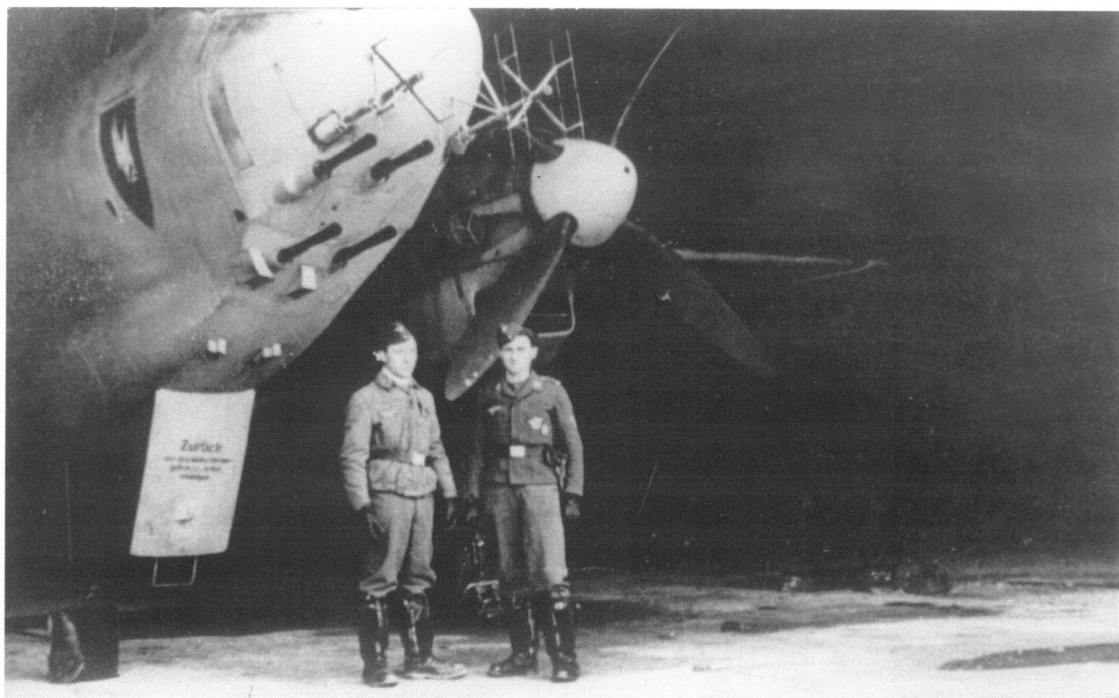
therefore been shown accordingly.

RIGHT: Another Do 217, this machine belonging to 4./NJG 3. Although this Gruppe's permanent base from September 1941 to March 1944 was Schleswig, the 4. Staffel was detached to Westerland for most of this time. This photograph, however, is reported to have been taken at Haguenau in France. For a night fighter, the Do 217 was a large machine with a wingspan of more than 19 metres and a length, including the FuG 202 aerial array, of 19 metres.



Dornier Do 217 N-2 'D5+HM' of 4./NJG 3, Haguenau, France, 1943

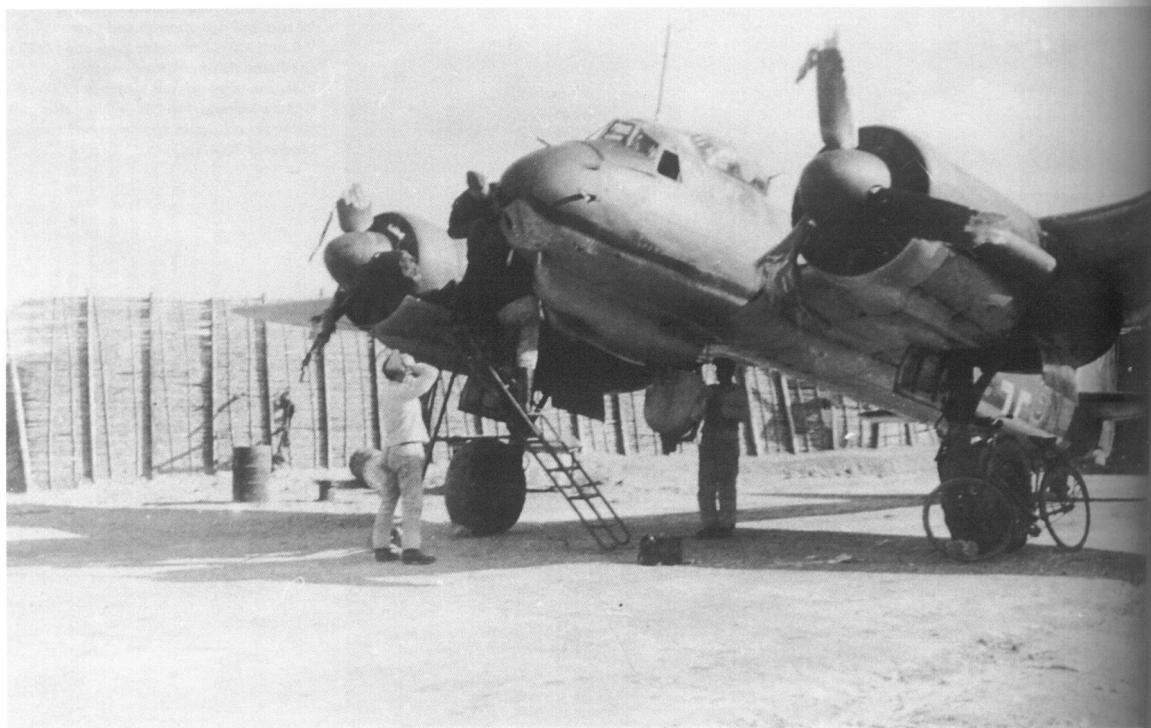
Following the realisation that black camouflage was unsuitable for night operations, this Do 217 coded D5+HM was finished blue-grey 76 overall. Note the small Geschwader code 'D5' ahead of the Balkenkreuz which appears to be black, whereas the individual aircraft letter and Staffel letter are in Grey 75. The spinners and propeller blades were green 70 and the machine overall was painted in a mottled pattern. Note the FuG 202 aerial array on the forward fuselage. The vertical tail fin is heavily discoloured by exhaust deposits from the engine exhausts.

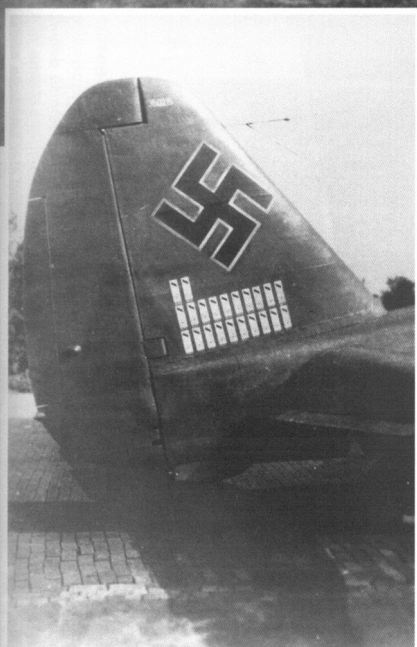


ABOVE AND LEFT: Unidentified Do 217 N-2 crews with their aircraft showing (ABOVE) the aerials for the FuG 202 Lichtenstein mounted in the nose, the standard armament of four 20 mm MG 151 cannon and four 7.9 mm MG 17 machine guns and (LEFT) the flame dampers fitted over the exhausts of an aircraft which is believed to have belonged to NJG 4. Note that these aircraft again appear to be finished blue-grey 76 overall.

1939-1943

RIGHT AND BELOW: Two views of a Ju 88 C-4 coded R4+GM of 4./NJG 2, probably at Gilze-Rijen, shown after a taxiing mishap in which the machine lost its radar antennae and suffered other damage to its nose and propellers. This machine was flown by Ofw. Wilhelm Beier of 4./NJG 2, shown (*OPPOSITE BOTTOM*) after being presented with the Knight's Cross by General Josef Kammhuber on 11 October 1941. Lt. Beier was at that time the highest-scoring pilot of 1./NJG 2, claiming the destruction of 14 bombers. Note, however, that when the photograph (*RIGHT*) was taken, no victory markings are visible on the tail unit indicating that, if carried at all, Beier's tally was carried only on the port side. Note also that at this time the aircraft was clearly camouflaged in the standard 70/71/65 bomber scheme.

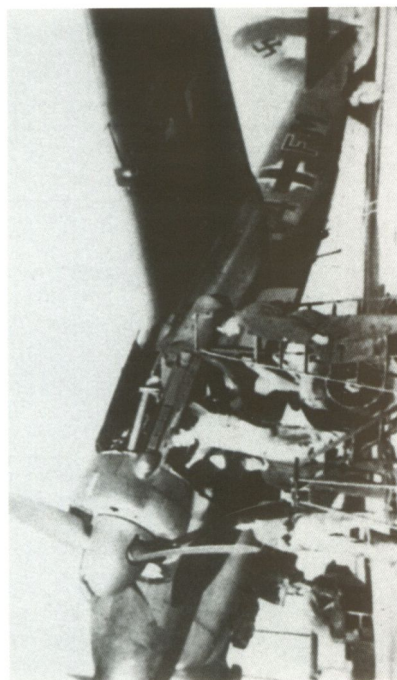




ABOVE: This view of the same aircraft, again almost certainly photographed at Gilze-Rijen in Holland, shows that the machine has now been almost entirely repainted with grey 74. Also visible are the victory bars on the tail which have been left in a prominent white although the white segments of the Balkenkreuz on the fuselage and under the wings have been overpainted with temporary black distemper.

ABOVE: The starboard side of the tail of the same machine showing the W.Nr. 360219 and 22 victory bars. Ofw. Beier's 22nd victory was an Avro Manchester which he shot down north-east of Moerbeke at 03.16 hrs on 29 August 1942.





THIS PAGE: September 1942, Ofw. Wilhelm Beier was promoted to Leutnant and the following month transferred from NJG 2 to the newly-formed 10./NJG 1 at Leeuwarden, apparently taking his aircraft with him. On the night of 15/16 October, Lt. Beier claimed a B-24, two Stirlings and a Manchester, raising his tally to 36 victories. These photographs were taken shortly afterwards and, although this is the same aircraft, W.Nr 360219, as shown page 76 and 77, the individual aircraft letter has now been changed to an 'F', but neither the Geschwader code nor the Staffel letter have yet been amended to 'G9' and 'U' respectively. In addition to the 36 victory bars, the tail has also been marked with a small representation of the Ritterkreuz awarded to Ofw. Beier in October 1941. Note also that the victory markings now appear on both sides of the tail and that the Englandblitz emblem, probably obscured by the spinner in the photograph on top of page 77, appears on the forward fuselage. Wilhelm Beier was later commissioned and was credited with 38 victories up to the end of May 1943 when he became an instructor. Although he was retraining on the Me 262 night fighter in May 1945, Beier, then an Oberleutnant, flew no more combat missions and survived the war.



Junkers Ju 88 C-4 'R4+FM' flown by Lt. Wilhelm Beier of 10./NJG 1, Leeuwarden, October 1942

This profile represents Lt. Beier's R4+FM after he achieved his 36th victory and shows the tail marked with a small representation of the Ritterkreuz and the appropriate number of white victory bars. Each bar contains a black diagonal line to denote a night victory and the date of the respective claim. Although camouflaged in a worn and apparently hastily applied grey 74, traces of the original bomber scheme of 70/71/65 remain, particularly on the tail and where the grey has weathered away from the engine cowling. Note that whereas the repainting around the fuselage code letters on the starboard side is quite crude, that on the port side was much neater. Traces of temporary black remain on the white segments of the Balkenkreuz and a variation of the diving falcon badge of the Nachtjagd probably appeared on the fuselage. Although operating with 10./NJG 1 (code: G9), the machine still carries the 'R4' code of NJG 2, Beier's previous unit.

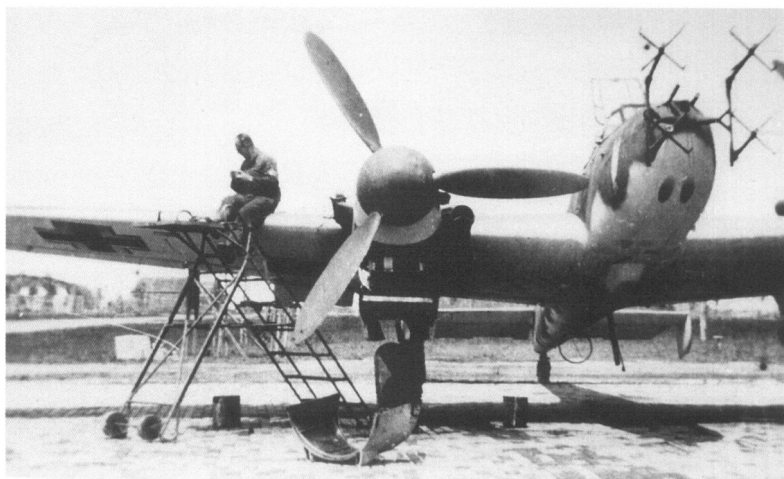


ABOVE: A Bf 110 E of Stab III./NJG 1 equipped with FuG 202 Lichtenstein BC. This aircraft is unusual in that, although of no advantage in the night fighting role, the four ETC 50 underwing bomb racks introduced with the Bf 110 E-1 have been retained. Experiments with a light grey camouflage finish had shown that shades of this colour proved superior in many respects to the earlier, widely-used overall black. From about the autumn of 1942 the black began to be phased out, although examples could still be seen some months later. This aircraft was coded G9+BD and is thought to have been finished with 76 undersurfaces and fairly large, widely spaced mottles of 74 on 75 uppersurfaces.

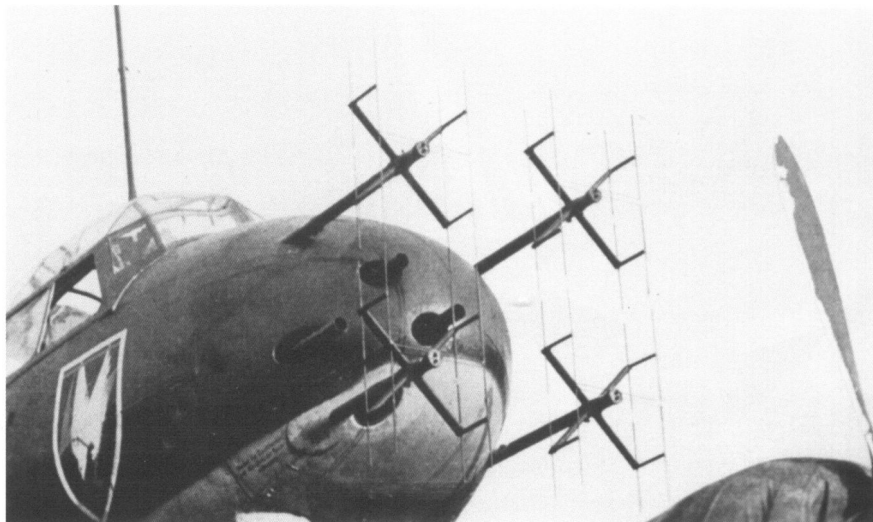


ABOVE: August Geiger became a night fighter pilot in early 1941 and just a few months later, on 9 July, shot down his first bomber over the Dutch mainland. The aircraft, a Halifax, crashed some 10 km south of Nijmegen shortly before midnight. After being awarded the Knight's Cross on 22 May 1943 following his 26th victory, Oblt. Geiger destroyed a further 28 bombers before he himself was shot down and killed by a British night fighter over the Zuider Zee on 29 September 1943. He was posthumously awarded the Oak Leaves and promoted to Hauptmann.

BELOW: An unusually camouflaged Bf 110 F of I./NJG 1, probably in the spring of 1943, showing the acrials for the Lichtenstein airborne radar. Note also the dark uppersurface colouring which extended down the fuselage side to terminate in an undulating demarcation line. Also of interest is the outer undersurface of the starboard wing which appears to have been painted white, the fresh paint accentuating the grime which has accumulated on the white of the Balkenkreuz.



1939-1943



THIS PAGE: On 9 May 1943, a Ju 88-R-1 of 10./NJG 3 flown by Oblt. Heinrich Schmitt was ordered to intercept a British civil courier aircraft flying from Scotland to Sweden. The German crew, however, decided to defect and after signalling their base that they had engine failure, lost height to avoid German radar and headed for Scotland. As the Ju 88 approached the coast north of Aberdeen, it was detected by British radar and two Spitfires were scrambled to intercept it. The aircraft, W.Nr.360043 and coded D5+EV, was then escorted to Aberdeen and landed at Dyce airfield at 16.00 hrs where Oblt. Schmitt and the two members of his crew – Ofw. Paul Rosenberger and Ofw. Erich Kantwill – were taken prisoner. The arrival of this aircraft, complete with working Lichtenstein radar equipment, was a valuable gift to British Intelligence and the machine was soon flown to Farnborough where the radar and the aircraft were thoroughly examined and evaluated. The photograph (*ABOVE*) was taken when the 'Matratzen' aerials for the FuG 202 Lichtenstein BC radar were still in place, but these were later removed (*BELOW*) and RAF markings applied. Note, however, that only the German national insignia were overpainted and the fuselage code replaced by a yellow 'P' in a circle. Otherwise, the original Luftwaffe 70/71/65 camouflage and the Englandblitz emblem were retained.



Night Fighting on the Eastern Front

In the summer of 1941, following Hitler's invasion of Russia, Soviet twin-engined and four-engined bombers began attacking targets in East Prussia and, on occasion, even Berlin itself. Fortunately for the Germans, these raids were carried out by only a few aircraft and the damage caused was minimal, but the *Luftwaffe's* High Command was forced to take action. Determined that Soviet aircraft should not be allowed to continue flying over *Reich* territory unchallenged, in June 1942 a small contingent from *Nachtjagdgeschwader* 5 was transferred to Labiau and Dammgarten in East Prussia.

Under the command of *Oblt.* Alois Lechner¹², this contingent was supplied with a ground radar station which was mounted on a railway wagon for mobility and codenamed 'Sumatra I'. Responsibility for operating the 'Freya' and the two 'Würzburg' sets installed aboard the train was given to the *Luftwaffe* Signals Service Special Air Reporting Detachment. Carriages on the train were used to house a communications and evaluation centre, accommodation for the personnel and a generator to power the entire system.

The only recorded success using these mobile radar stations in 1942 came on the night of 18 August when *Oblt.* Lechner himself shot down two DB-3 bombers over the East Prussian towns of Schaustenhof and Labiau. These were, however, not the first night victories claimed on the Eastern Front. In the early hours of 26 July 1941, several German bomber crews from KG 1 and KG 28 claimed to have shot down three enemy fighters. A fourth was claimed that same night by *Obergefreiter* Josef Kociok of 4./SKG 210, who reported having shot down an SB-2 bomber as his first victory of the war.

Almost a year was to pass before the next recorded successes at night were achieved and these came in June 1942 when the *Luftwaffe* was supporting German ground forces on the Leningrad Front. Since January 1942 the German Army had been desperately fighting to counter a Soviet offensive launched on a wide front along the Volkhov River to break the German siege of Leningrad. Here, pilots of III./JG 54, the famous 'Grünherz Geschwader', began operating at night with their Bf 109s to counter the Soviet Air Force, which was attempting to support and re-supply its own hard-pressed ground forces.

The *Gruppe's* first success was achieved by *Oblt.* Günther Fink of 8./JG 54, based at Siverskaya, on the night of 7/8 June 1942. With no form of airborne radar but taking advantage of the bright summer night, he proceeded to shoot down four R-5 light bombers in 45 minutes. Over the next week he reported having destroyed five more bombers plus two transport aircraft, taking his overall total claims to 11. Several other pilots were as successful as Fink and by the end of the month *Hptm.* Reinhard Seiler, the *Kommandeur* of III./JG 54, had himself claimed 16 aircraft. However, the accolade for the most victories in a single night went to *Lt.* Erwin Leykauf, Seiler's Adjutant who, on 22 June, shot down six R-5s in less than an hour and finished the month with a total of eight kills.

Despite the Soviet losses, which were comparatively small in relation to the number of sorties flown, the bombing raids and the dropping of partisans behind German lines continued. In response to this growing menace, Wolfgang Falck was sent on a fact-finding mission to Russia in August 1942 to find a solution to this particular problem. He began his inspection in southern Russia and travelled northwards, visiting local fighter formations and preparing individual reports on their particular problems and circumstances. At the conclusion of his tour, Falck realised it

would not be feasible to transfer existing night fighter *Gruppen* from the West, and that the only viable option would be for local *Luftwaffe* units to organise their own defences.

BELOW: Josef Kociok began the war with III./ZG 76 and, after the German invasion of Russia in June 1941, transferred to the IV./Schnellkampfgeschwader (Fast Bomber Wing) 210. When night fighting operations began in Russia, he transferred to 4./(N)ZG 1 and within a relatively short space of time, shot down 21 bombers. He was awarded the Knight's Cross on 31 July 1943 but was killed two months later.

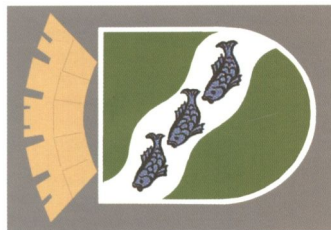


BELOW: One of the most successful night fighter pilots to engage the Soviet bombers at night was the *Kommandeur* of JG 54, *Hptm.* Reinhard Seiler, who claimed a total of 16 bombers destroyed during the war in 1942. Seiler was awarded the Knight's Cross with a Leaves.



LEFT: During a tour of the Eastern Front in August and September 1942, Falck visited numerous *Luftwaffe* units to evaluate their ability to protect themselves at night against Soviet bombers. He is seen here visiting the *Geschwaderkommodore* of JG 54, *Hannes Trautloft*.

12. Lechner went on to command I./NJG 100 and achieved a total of 45 victories. He was later awarded the Knight's Cross but was killed two weeks later on 23 February 1944 when his aircraft was shot down by anti-aircraft fire.



Coat of Arms of the
City of Ansbach



THIS PAGE: The pilot of III./JG 54 who proved himself most proficient while operating at night in Russia was Oberleutnant Erwin Leykauf. He shot down eight bombers whilst operating from Siverskaya near Leningrad, six of which he claimed in a single night.



Messerschmitt Bf 109 F-4 flown by Oblt. Erwin Leykauf of 8./JG 54, Siverskaya, June 1942

It is thought that Leykauf was flying this aircraft when, between 23.10 and 24.00 hrs on the night of 22 June, he shot down six Soviet R-5 reconnaissance aircraft. At that time Leykauf was relatively inexperienced and had only one previous day victory, but when he landed he had increased his tally to seven. The camouflage on Leykauf's machine consisted of a softly merging 70 and 71 on all undersurfaces with 76 on the undersurfaces, while the spinner was green 70 with a one-third white segment. The machine carried extensive yellow areas as shown, and the fuselage markings comprised the badge of III. Gruppe forward and below the windscreen, the Geschwader's 'Grünherz' on the side of the cockpit and a white chevron and the wavy bar of III. Gruppe, both edged in black, either side of the fuselage Balkenkreuz. The badge on the engine cowling is the coat of arms of Ansbach. Leykauf's bottom stowage, and fourteenth in stowage over a shield, upon which were thrown fish on a diagonal band.

In his subsequent report to the High Command Falck proposed that special training should be given to those pilots who already had some knowledge or experience of flying and fighting at night, and that the most suitable formations to fulfil this role, in his opinion, were those from *Zerstörer* and bomber units. He further suggested that some bomber aircraft, such as the Do 17 and Ju 88, should be withdrawn from their current roles and equipped with machine guns and 20 mm cannon. Where suitable aircraft were not available due to operational requirements, other aircraft such as the slower but highly manoeuvrable Focke-Wulf 58 could be adapted for this role.

Falck was subsequently granted authority by *Generaloberst* Hans Jeschonnek to withdraw a number of bombers from the front line and have them re-fitted as he had requested. Shortly afterwards, on 6 October 1942, the *Luftwaffe's* High Command ordered night fighting operations to commence in the Poltava area of the Ukraine. In the meantime, selected bomber, *Zerstörer* and reconnaissance pilots were sent to Wiener Neustadt near Vienna, where they received basic night fighter training. By the second week of November the training was complete and the pilots were formed into five supplementary units and transferred back to the Eastern Front. However, within a few weeks of their arrival, the Soviets launched a massive offensive against the German Sixth Army at Stalingrad, and within a matter of days the Sixth Army was surrounded. In response to the seriousness of the situation, all available *Luftwaffe* resources were assigned to the task of supporting the encircled German ground forces. Consequently, before they could be used for the purpose for which they had been trained, the newly-qualified night fighter pilots were assigned to ground support operations

and low-level attacks against Soviet supply columns. Due to the bitterness of the fighting and the intensity of combat, their numbers declined and their ability to operate effectively was quickly eroded. Even aircraft which were not shot down or destroyed on the ground to prevent them falling into Soviet hands were re-assigned to other units, and in a matter of weeks the units had ceased to exist.

With the surrender of the German Sixth Army at Stalingrad in February 1943 the front stabilised and a limited number of the supplementary night fighter units were re-activated. To bolster their small numbers, 10. and 12./ZG 1 were redeployed to participate in night fighting operations and IV./NJG 5, under the command of *Hptm.* Heinrich Prinz zu Sayn-Wittgenstein, was transferred to Döberitz near Berlin, from where it was detached to Insterburg in East Prussia. Wittgenstein, already an established night fighter pilot with 22 victories to his credit, found that, unlike the conflict against Bomber Command in the West, conditions in Russia were considerably better-suited to night fighting. With no radio jamming and the Soviet bombers not expecting any fighter opposition, Wittgenstein was in his element and soon added further victories to his tally. On the night of 16 April 1943, he shot down two DB-3 twin-engined bombers and then followed this up with a further 'double' a week later. By the time he and his *Gruppe* were transferred to France at the beginning of May to assist in the defence of U-boat bases, he had shot down a total of five Soviet aircraft.

BELOW: In order to bolster the makeshift night fighter units operating in Russia, IV./NJG 5, under the command of Hauptmann Heinrich Prinz zu Sayn-Wittgenstein, was deployed to Insterburg in East Prussia on several occasions during 1943. Wittgenstein accumulated 33 victories against the Soviets.



Units of the *Nachtjagd* , 1 January 1943

Unit	Date Formed	Kommandeur
NJG 1		
Geschwaderkommodore	Obstlt. Wolfgang Falck	
I. Gruppe	22 June 1940	Hptm. Werner Streib
II. Gruppe	22 June 1940	Hptm. Walter Ehle
III. Gruppe	1 July 1940	Hptm. Wolfgang Thimmig
IV. Gruppe	1 October 1942	Major Helmut Lent
NJG 2		
Geschwaderkommodore	Major Karl Hülshoff	
I. Gruppe	1 September 1940	Hptm. Rudolf Jung
II. Gruppe	November 1940	Hptm. Dr. Horst Patuschka
III. Gruppe	March 1942	Unknown
NJG 3		
Geschwaderkommodore	Obst. Hans Schalk	
I. Gruppe	1 October 1940	Hptm. Lippe-Weissenfeld
II. Gruppe	1 September 1941	Major Günther Radosch
III. Gruppe	1 November 1941	Hptm. Heinz Nacke
IV. Gruppe	November 1942	Major Eric Simon
NJG 4		
Geschwaderkommodore	Major Rudolf Stoltenhoff	
I. Gruppe	Spring 1941	Hptm. Wilhelm Herget
II. Gruppe	Spring 1941	Hptm. Theodor Rossiwall
III. Gruppe	May 1942	Major Kurt Holler
IV. Gruppe	1 January 1943	Hptm. Heinrich Wohlers
NJG 5		
Geschwaderkommodore	Major Fritz Schaffer	
I. Gruppe	September 1942	Hptm. Siegfried Wandam
II. Gruppe	December 1942	Hptm. Rudolf Schoenert
IV. Gruppe	December 1942	Hptm. Sayn-Wittgenstein

Note: The list shows only the Gruppen in existence on 1 January 1943, hence III./NJG 5 is not included as it was not formed until April 1943.

1939-1943

On 5 July 1943, Hitler launched Operation 'Citadel', his last major offensive in the East. The operation was an attempt to pinch off a salient in the German front line between Orel and Belgorod which had been formed as a result of the Soviet winter offensive of 1942/43. During the build-up for this attack, Soviet bombers caused so much disruption to the German Army's preparations that Josef Kammhuber was ordered to transfer an experienced night fighter *Gruppe* back to the Eastern Front. His choice, because of its previous experiences and successes, was Wittgenstein's IV./NJG 5.

Flying a Ju 88C-6 fitted with 'Lichtenstein' and his own version of 'Schräge Musik' – a single 20mm cannon firing obliquely upwards – Wittgenstein began to take a heavy toll of the Soviet bombers. There were also available by this time nine railway radar stations, five of which were taken over by experienced staff trained in the 'Himmelbett' procedure. In cooperation with these ground specialists, Wittgenstein shot down a further 29 bombers between 11 July and 9 August 1943, seven of which he claimed in a single night. During this period he operated mainly from Orel, flying with his *Bordfunker*, Fw. Herbert Kümmeritz, who was destined to remain with Wittgenstein for almost a year and participated in 43 of his kills.

When Hitler finally called off Operational 'Citadel' at the end of July, IV./NJG 5 was retained in Russia where, on 1 August 1943, it was re-designated I./NJG 100. Wittgenstein, however, was transferred back to the West and appointed *Kommandeur* of II./NJG 3 on 15 August 1943. His successor was another experienced night fighter, *Hptm.* Rudolf Schoenert.

Night fighter units were to continue fighting on the Eastern Front for the remainder of the war, but such was the effectiveness of the bombing campaign in the West that the German High Command was never able to release adequate numbers of men or resources to the East. This lack of resources prevented the few German night fighter units fighting the Soviets, often against overwhelming odds, from making their presence more keenly felt. By August 1943, the tide had turned decisively against the Germans, and the *Luftwaffe* had finally lost its dominance in the night skies over Russia.



ABOVE: At the end of July 1943, IV./NJG 5 was redesignated I./NJG 100 and *Hptm.* Wittgenstein was transferred back to the West. He was succeeded by *Hptm.* Rudolf Schoenert, shown here, who finished the war as a holder of the Oak Leaves to the Knight's Cross and with a total of 64 victories.

'Schräge Musik'

By the end of 1942, the German Night Fighter Force had expanded to a strength of some 400 aircraft distributed between 17 *Gruppen* which in turn comprised five *Geschwader*. The *Nachtjagd's* successes had also increased from 421 in 1941 to 687 at the end of 1942, the latter figure including 435 bombers destroyed between June and September as a result of a combination of good weather and the 'Himmelbett' system of interception.

Commensurate with the growth of the *Nachtjagd* was an increase in the supporting infrastructure. By the beginning of 1943 there were almost 100 overlapping fighter control areas manned in total by some 40,000 personnel from the *Luftnachrichtendienst* (Air Signals Service) and each equipped with two 'Würzburg' and an early warning 'Freya' radar installation. This growth had been so rapid that it had soon become apparent that the *Nachtjagddivision* could not cope effectively with the expansion and, accordingly, in August 1941, XII. *Fliegerkorps* had been formed under the command of *Generalmajor* Kurt-Bertram von Döring to oversee command of a new Night Fighter Division. Overall command of XII. *Fliegerkorps* was given to *General* Kammhuber who was also made General of the Night Fighters, with responsibility for all night fighter units and their ground organisations.

Apart from the improvements in the night fighter system already described, new weapons to combat the bombers were also being developed, the most significant of which would change the very nature of night fighting. The Germans codenamed it 'Schräge Musik'.

In principle, 'Schräge Musik' was a vertically firing weapons system that allowed the pilots of the *Nachtjagd* to attack another aircraft from below while they themselves flew straight and level. This not only reduced the chances of being seen and shot down by the gunners aboard a bomber, but also increased the night fighter's chances of shooting down the bomber. It is often

BELOW: On 1 Mar 1942, XII. *Fliegerkorps* was formed to encompass the growing *Nachtjagd* and the existing *Nachtjagddivision* was split into three separate *Jagddivisionen*. Command of I. *Jagddivision* was given to *Generalmajor* Kurt-Bertram von Döring, who was responsible for night fighter units in Holland, North Belgium and the Ruhr district of Germany. In this photograph von Döring is seen with the rank of *Generalleutnant*.



wrongly assumed that this type of weapon first evolved during the Second World War, but this is not the case. Towards the end of the 1914-1918 war, a number of German pilots had fitted upward-firing machine guns to their aircraft but the conflict ended before this type of armament could be tested and further developed.

For almost a quarter of a century any thoughts of such a weapon were forgotten until August 1941, when *Obt.* Rudolf Schoenert submitted a report to *General* Kammhuber in which he outlined his ideas for fitting an upward-firing gun to night fighter aircraft. Although Kammhuber discussed the report with Helmut Lent and Werner Streib, two of his foremost night fighter pilots, they rejected the proposal on several grounds. Undeterred by this initial setback, Schoenert continued experimenting and had some upward-firing 7.9 mm MG 15 machine guns fitted into a Do 17 Z-10 *Kauz* II. Later, on 25 July 1942, Schoenert was awarded the Knight's Cross and when this was presented to him by Kammhuber, Schoenert seized the opportunity to again raise the idea of '*Schräge Musik*'. After a brief discussion, Kammhuber duly authorised Schoenert to modify three Do 217s with the experimental installation.

By the autumn of 1942 the weapons testing centre at Tarnewitz was carrying out extensive trials using vertically firing guns against towed drogues. These, however, showed that aiming a weapon firing at 90 degrees was extremely uncomfortable for the pilot, who had to lean his head backwards. The result was that he lost his sense of balance and orientation and his ability to fly straight and level was badly compromised. This problem was overcome when it was discovered during further testing that the weapon was equally effective when its angle of fire was set at 65 degrees.

On 1 December 1942, Schoenert, who by this time had 23 victories to his credit, was transferred to Parchim and appointed *Kommandeur* of II./NJG 5. Despite the fact that this unit was already equipped with Bf 110s, he brought with him one of the Do 217s that had been fitted with upward-firing machine guns. The prototype installation soon caught the eye of an armourer, *Ofw.* Paul Mahle, who designed and built his own version of '*Schräge Musik*' from two Oerlikon MG FF 20 mm machine guns which he then installed in the cockpit of the fighter so that the barrels protruded through the canopy. Later in the war, when the crew of a night fighter was increased to three and four, the cockpit was no longer large enough to accommodate the weapon system and it was installed in the fuselage.

Mahle's prototype so impressed Schoenert that, without informing the RLM, he ordered his whole *Gruppe* to be equipped with this weapon installation. Word of this new weapons system soon spread to other night fighter units and they brought their own aircraft to Parchim to be fitted out with Mahle's design. The first acknowledged victory using '*Schräge Musik*' was claimed by Schoenert himself during a raid against Berlin and it is believed that this encounter occurred in the early hours of 30 March 1943. If this is correct, Schoenert's victim that night was a Lancaster which he shot down into the Baltic Sea close to the town of Rerik as his 24th victory.

By the middle of 1943 the fitting of '*Schräge Musik*' conversion kits had been officially approved and they were installed into available aircraft, although the machine guns used in the early experimental models were replaced with the more powerful 20 mm MG 151 Mauser cannon. Some pilots, however, such as Hans-Joachim Jabs, did not like the weapon and refused to have it fitted, preferring instead his aircraft's forward-firing armament.

Despite these few reservations, '*Schräge Musik*' was eagerly adopted by many night fighter pilots who used it with devastating effect. Moreover, once visual or radar contact with a bomber had been established it was relatively simple to operate. Having positioned himself directly beneath the bomber, usually at a distance of between 50 and 100 metres, the pilot of the night fighter would aim using an optical sight mounted in the canopy. The vast majority of pilots chose to aim between the engines of a bomber, as the main fuel tanks were located in the wings and the crew was offered a chance to escape from their burning aircraft. A short burst of fire, using non-tracer ammunition to conceal the night fighter's position, was usually enough to set the bomber ablaze.



ABOVE: After five years in the Merchant Navy, Rudolf Schoenert began flight training in 1933 and went on to fly commercial aircraft for Lufthansa. He was commissioned as a Lieutenant in the Luftwaffe's Reserve in 1938 and, in June 1941, he joined 4./NJG 1 stationed at Bergen in northern Holland. He gained his first victories as a night fighter on 9 July 1941 and by 25 July 1942, at which time his total stood at 22, he was awarded the Knight's Cross. He is universally recognised as the driving force behind the introduction of upward-firing armaments in night fighter aircraft, the first prototype of which he introduced into his own Do 17 in 1942. This weapons system, which remained a complete mystery to all but a select few within Bomber Command, was codenamed '*Schräge Musik*'.

BELOW: *Ofw.* Paul Mahle, an armourer attached to I./NJG 5 at Parchim, worked closely with Rudolf Schoenert and built his own working prototype of '*Schräge Musik*', which was soon fitted to all of the Gruppe's aircraft.



1939-1943



THIS PAGE: A crash-landed Ju 88 C-6 clearly showing the 'Schräge Musik' installation of two MG151/20 cannon protruding from the fuselage. This particular aircraft, R4 + LS, W.Nr. 750811, was being flown on a daylight mission on 30 January 1944 by Hptm. Friedrich Tober of III./NJG 2 when it was attacked and shot down by a P-47. Tober's machine crashed in a field south-west of Hardenberg, as a result of which it was written off.



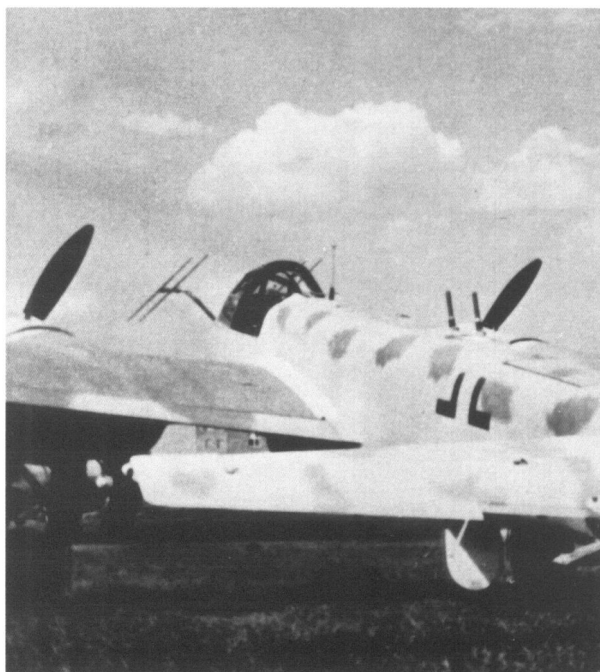


LEFT: This unusual configuration of six vertically mounted MG 151 cannon installation was first proposed by Stabs Ingenieur Poppendieck, an engineer at the E-Stelle at Werneuchen. Here it is seen installed in a Do 217 of the night fighter training Geschwader NJG 101. However, this conversion was not adopted in large numbers and night fighter pilots preferred the usual twin-cannon armament which became the standard configuration.

This method of attack became popular amongst the newer pilots joining the *Nachtjagd* who found it easier than the usual *von hinten unten* method which was still preferred by some of the more experienced night fighter crews. Another distinct advantage of using '*Schräge Musik*' was that, once the night fighter was directly beneath the bomber, it was extremely difficult for the bomber's gunners to see it against the darker backdrop of the ground. The night fighter pilot's target, however, was silhouetted against the lighter night sky. Having attacked a bomber and observed that it was on fire, the night fighter would peel off into the darkness, usually away from the wing at which he had fired, in order to reduce the possibility of a collision as his victim plummeted earthwards. Thus if the night fighter had opened fire at the bomber's port wing, it would peel off to port, and vice versa if the attack was against the starboard wing.

It is interesting to note that many of the young night fighter pilots, such as Heinz Schnauffer, Paul Zorner and Georg Greiner, who joined the *Nachtjagd* in 1942 and early 1943, became equally proficient in the use of their forward firing armaments and '*Schräge Musik*' and were able to switch between either weapon as circumstances dictated during an aerial encounter. Those pilots that joined the night fighters later in the war, as post-war interrogations and interviews confirm, preferred to use only '*Schräge Musik*'. However, regardless of the individual pilot's preference, the introduction of '*Schräge Musik*' had a marked effect on the number of victories claimed, and in expert hands it was a deadly and effective weapon. Between April and June 1943 Bomber Command lost a total of 762 bombers, of which 551 were claimed by *Nachtjagd* pilots.

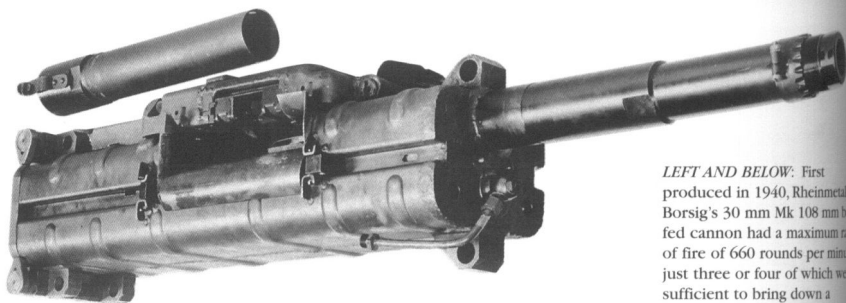
BELOW: '*Schräge Musik*' in its standard and by far the most preferred form, seen here mounted in the fuselage of a Ju 88.



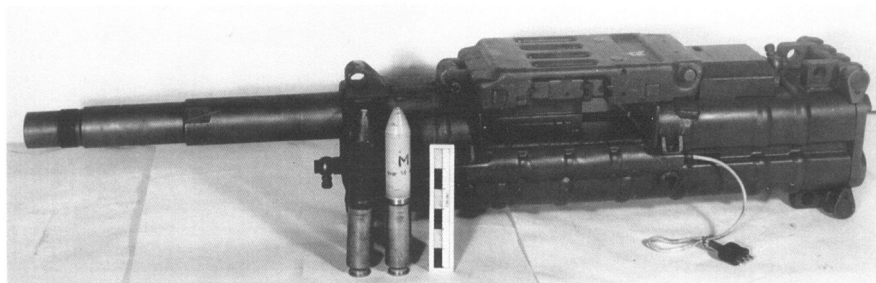
1939-1943

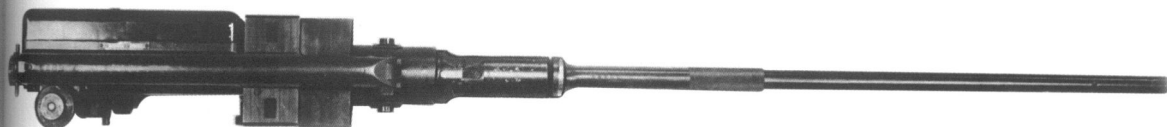


ABOVE: An unidentified pilot sits in the cockpit of his aircraft while the ground crew prepare it for take off. Of particular note on this aircraft is the gondola mounted under the fuselage which normally housed a pair of 20 mm MG FF cannon and the underside of the starboard wing, areas of which have been painted black.



LEFT AND BELOW: First produced in 1940, Rheinmetall Borsig's 30 mm Mk 108 mm belt fed cannon had a maximum rate of fire of 660 rounds per minute; just three or four of which were sufficient to bring down a bomber. This weapon, seen with incendiary and high explosive rounds, was fitted mainly to Bf 110 and He 219 night fighters.





ABOVE: The 20 mm Mauser MG 151/20 cannon was fitted to almost every type of night fighter aircraft operated by the *Nachtjagd*. This weapon could fire up to 800 rounds per minute and could also be installed in under-fuselage weapons packs.

The Loss of Three *Ritterkreuzträger*

Despite the successes achieved by the *Nachtjagd* there was, however, a cost. From modest beginnings, the *Nachtjagd* had built up a small core of experienced pilots who had been responsible for introducing, and then perfecting, the techniques which became standard operating procedures. These men led by example and were an inspiration to newer pilots who tried to emulate them, so the deaths of three of the *Nachtjagd*'s most experienced and capable pilots within three weeks was a severe blow. The first of these was *Hptm.* Reinhold Knacke, *Staffelkapitän* of 1./NJG 1, who was killed on 3 February 1943 after destroying a Halifax bomber. He was replaced by *Oblt.* Paul Gildner, but three weeks after assuming this post he too was killed when his aircraft suffered an engine failure and he crashed to his death near Gilze-Rijen in Holland on the night of 24/25 April. The last of the three was *Hptm.* Ludwig Becker, who had become a night fighter pilot when the organisation was first formed in June 1940 and had achieved the first victories using the *Dunkel Nachtjagd* method and 'Lichtenstein' airborne radar. Since August 1942, the American Eighth Air Force had begun daylight attacks against Germany, and on 26 February 1943, during one such mission against Emden, Becker and 11 other night fighter pilots were scrambled from Leeuwarden. By the conclusion of the raid, the Americans had lost seven of their bombers and all but one of the German fighters failed to return. That aircraft belonged to Ludwig Becker. The exact circumstances under which he was lost are not known and his aircraft was never found.

All three of the pilots killed were holders of the Knight's Cross and following their deaths each was posthumously awarded the Oak Leaves. In another strange coincidence, each had 44 victories to his credit and, apart from Helmut Lent, they were the three highest-scoring night fighters in the *Nachtjagd*. Their deaths were an immense loss to the organisation and came at a time when the *Nachtjagd* could least afford to lose such a wealth of experience.

BELOW: In February 1943 it was decided that 2. Jagddivision would be divided into two separate divisions. While one retained the designation 2. Jagddivision, the other became 4. Jagddivision under the command of Generalmajor Joachim-Friedrich Huth who, as the Kommodore of Zerstörer-geschwader 26, had been decorated with the Knight's Cross in September 1940 for his leadership during the battles of France and Britain.



ABOVE: The Knight's Cross is awarded to Hauptmann Wilhelm Herget (second from right) and Hauptmann Hans-Dieter Frank (second from left) at Venlo on 20 June 1943. On the far left is Major Werner Streib and on the far right is Major Helmut Lent. In the centre is General der Flieger Josef Kammhuber.



1939-1943

“With the moon behind me I dived down on my prey like a falcon...”

OBERLEUTNANT HANS KRAUSE, I./NJG 3

Towards the end of January 1943, I had the honour of being tasked by the *Kommandeur* of I./NJG 3, Major Knoetsch, to take over command of a detachment of four aircraft at Wunstorf in Westphalia. I foresaw this as a preliminary step towards being promoted to *Staffelkapitän* and was very proud, taking pains to carry out all my duties, which were similar to those of a *Staffelführer*, to complete satisfaction. I was always on the ball. I paid full attention to everything and found my long period as a Technical Officer a great advantage. I was always able to report my aircraft to my superior command post as fit for operations.

The airfield at Wunstorf was admittedly on the small side, but it had been constructed in peacetime and was therefore equipped with all modern facilities. We immediately felt very comfortable there, but because of the small size of the field and the short take-off and landing runway, it was necessary for us to retrain on the Me 110. That, however, was no problem as the aircraft had long been our operational machine. Nevertheless, as is well known, a coin has two sides and the obverse was extremely displeasing: in the two months we spent there we flew just two operations. So that we wouldn't grow rusty we passed our time flying practice interceptions or making short local trips, to the Steinhuder lake for instance. In truth, it was a lazy sort of an existence, and it had absolutely nothing to do with the war. I formed the impression that our presence there was more psychological and to show the people of Hannover that they were protected by night fighters.

Our movement order to Wittmund-Hafen had already been set for the beginning of April, when I was rewarded with a success on the last of the missions that we flew from Wunstorf. On 29 March, as on every evening, the weather briefing took place in the briefing room at six pm. Judging from the statements of the Met. man, there was unlikely to be any operational flying, not because we wouldn't have been able to fly in the predicted miserable weather – as trained all-weather crews we could always do that – but because the enemy, unable to make out specific targets, would probably cancel any operations planned for that night. As we could see for ourselves, the cloud base was at about 500 metres, the cloud tops were at 7,000 metres, and between was a compact and mostly solid layer of cloud. At first, there was indeed no enemy operational activity, but later enemy targets heading east were reported over the North Sea.

We knew that they would change direction to the south near Stralsund or Greifswald and attack Berlin. Bombs dropped through the cloud usually hit something or other, or the sounding of the air raid alarm led to greater disruption of traffic and manufacturing production than one might like to think. At about 24.00 hrs, the first returning bombers were reported, scattered over the entire North German area. One of these returning enemy bombers headed for Hannover, where the alarm sounded, and thus entered our area. Cockpit readiness had already been ordered, and then came the order to scramble. At 02.35 hrs our Bf 110 roared along the runway into the pitch black night. Because of the danger of mid-air collision in the cloud, the other aircraft remained on the ground in reserve for possible action later. I climbed in circles at two to three metres a second, and it seemed an eternity until I broke cloud at 7,000 metres. Then I saw a completely clear, starlit night with a full moon lighting up the far-reaching cloud tops like a white carpet of snow. We felt as if a piece of space had opened up to us.

Knowing that the airfield was beneath us, we flew a short distance to the east. The visibility was so clear that it felt to us like a day mission. Because we were now flying 400 metres higher, we could oversee and observe an area some several kilometres in radius. Then we saw the enemy bomber. It was crawling along like a fat bumblebee over an opaque sheet of glass. For a while we watched from a safe distance above and to the left. It was an Avro Lancaster. It was flying on a westerly course only a few metres above the bright covering of cloud, into which it would certainly have dived if the pilot had suspected danger. Otto Zinn, my wireless operator, passed details to the Ops. room and then requested radio silence. We intended to attack soon. The Lancaster's rear gunner had his four machine guns pointing dead astern, so we assumed that we hadn't yet been seen. With the moon behind me, I dived down on my prey like a falcon and began to fire into its port wing at a range of about 200 metres. The Lancaster immediately caught fire. It was doomed. It dived into the cloud and down into the depths, trailing a ghostly red shimmer

RIGHT: This photograph shows Hans Krause (centre) with his crew in front of a Do 217. On the left is Ofw. Otto Zinn, the Bordfunker, and on the right, Ofw. Fritz Specht, the Bordmechaniker. In the accompanying account, Oblt. Krause was flying a Bf 110 with only Ofw. Zinn aboard.



behind it. We followed, but in a calculated, controlled descent, losing about five metres a second.

We were unable, however, to observe the moment of the Lancaster's impact, but we did see a bright glow, clearly visible through the clouds that arose from the otherwise dark night. We broke cloud at about 500 metres, and now we could clearly see the burning wreckage. The force of the impact had scattered burning parts over several hundred metres of an area only about 10 kilometres north-west of our airfield.

We landed at 04.35 hrs and climbed into a car to drive to where the Lancaster had come down. The glow, visible from a long distance, indicated the direction in which we had to drive. We were surprised to find so many people near the crash site so early in the morning. Ammunition and signal cartridges were still exploding, so we parked our car a prudent distance away on a side road, and found ourselves near an *Oberst* of the Flak and his adjutant. From their conversation it was clear that a nearby Flak battery were intending to claim the kill for themselves and paint a broad white ring round the barrel of their gun, but during our entire operation we had not seen one single exploding anti-aircraft shell. We discussed it, and the *Oberst* was convinced that his arguments were the better ones. We felt sure that the decision would be taken at a higher level. While we were still looking at the burning wreck we heard from our right a faint, and then increasingly louder cries for help coming from an area of bushes and trees, "Help!" And then once more, "Help!" Otto and I looked at each other in surprise before we made our way along a ditch in the field towards the small wood. Soon we saw the Lancaster's rear fuselage. It was caught in thick branches and undergrowth in the wood and had come to rest about one metre from the ground. Then we saw a member of the British crew, lying on a soft mattress of moss and leaves.

We could see that he had been thrown clean through the sheeting of the fuselage above him and that he was in a pitiful condition. His legs and arms had certainly suffered multiple fractures, because they were in strange positions relative to his body. His face and hands were smeared with blood. Another weak "Help" passed his lips, and he asked for "Water". But whenever we touched him, he cried out in pain. We simply didn't know what to do, but we were very strongly of the opinion that our English fellow-flier would have to pay his final account very soon. On the other hand, we realised that he had survived for more than an hour since the time of the crash, and we set about freeing him from his present position. It was obviously very painful for him as we pushed and pulled him along the ditch, taking full cover, to the edge of the field, where he lost consciousness completely.

Now, no longer hearing his blood-curdling cries of agony, it was much easier for us to mount a further rescue operation. First of all, several more helping hands lifted the body on to a farm cart that happened to be in the vicinity, and then, as if out of nowhere, our service ambulance appeared, the driver of which had also been attracted by curiosity. Then everything went very quickly, and we knew that our patient was in good hands in the care of our Medical Officer, *Doktor* Wesendorf.

As was standard practice, I forwarded our daily and operational reports from the Ops. Room to the *Gruppe* at Vechta for further transmission to the *Kommandeur*. It was already growing light when I was able to lie down for a well-earned rest.

It was just before midday when the telephone rang and the Medical Officer asked me to meet him in the sick quarters. There, he led me into a ward, and I feared the worst. But after I had been shown to a bed, I was pleasantly surprised to find the patient very much alive. The Medical Officer had told him who I was, and we smiled at each other as we shook hands, as fellow knights do. The doctor had washed the blood from his patient's body, attended to his grazes and had set the man's broken limbs in splints. He had also removed a bullet from his backside which, in a macabre way, confirmed that the bomber had been shot down by a night fighter and not by Flak.

The airman's backbone and all his organs had escaped serious damage, which had been the reason he had survived. The next day he was taken to a proper hospital, where the German doctor gave him a good chance of survival. After we had exchanged our home addresses, we took leave of each other with good wishes for the future. I lost the address, unfortunately, in the confusion of war. I only know that he was the wireless operator of his crew, came from central England and was 21 years old. I hope that God supported and helped him for the rest of his life, for he surely deserved it.

Note: It is virtually certain that the British crew-member was Sgt. G.A. Jones of No. 49 Squadron, Fiskerton. He was the only survivor of Lancaster ED469, EA-A, flown by Flying Officer G.F. Mabey, RCAF, and subsequently became a prisoner of war.

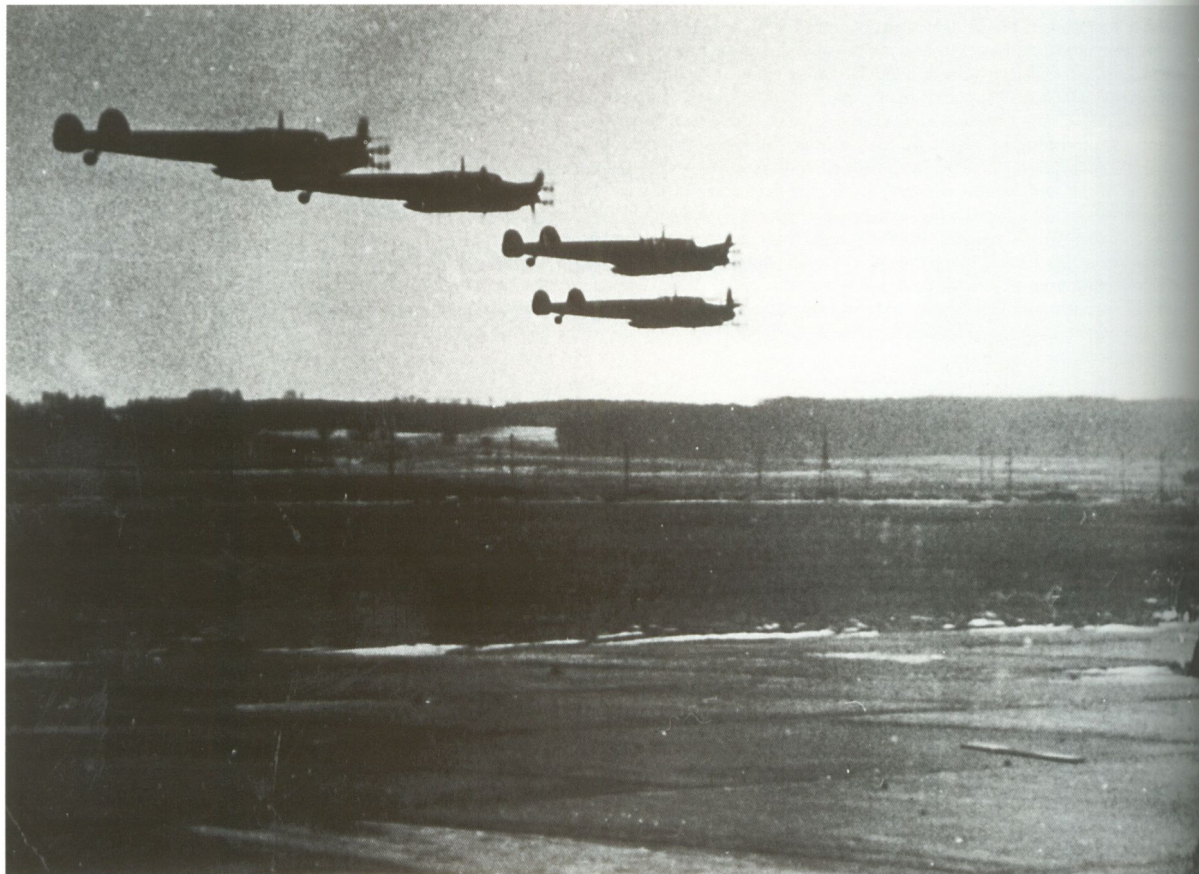
Summary

By June 1943 both sides were poised to take the offensive to the other. Bomber Command had made considerable advances in target location and marking, and its main force was being increasingly equipped with the Lancaster bomber which benefited from a higher operating ceiling than the Halifax and Stirling and could carry a heavier bomb load. Correspondingly, the *Nachtjagd* had developed an effective system for intercepting the bombers using 'Himmelbett' and was beginning to introduce 'Schräge Musik', which made it considerably easier to shoot down the bombers. Each organisation had struggled considerably during the previous three years in a desperate attempt to outwit and outmanoeuvre the other in a type of warfare that was new to both. After three years of fighting, the outcome of the battle was still undecided and victory for either side hung in the balance.

However, Bomber Command was about to introduce a new innovation to the night air war that would virtually blind German ground and air radar. As a result, the German ground defences, including the night fighters, would be rendered ineffective, leaving many of Germany's cities unprotected and at the mercy of the bombers.

The *Nachtjagd* would then find itself once more on the defensive, and as Bomber Command further perfected its techniques, thousands of German civilians were about to become victims of a new phenomenon – the firestorm.

1939-1943



ABOVE: A Schwarm of Bf 110s from NJG 5 taking off from Parchim airfield at the start of a mission. Clearly visible, and silhouetted against the darkening night sky, are the antennae of their 'Lichtenstein' airborne intercept radars.



LEFT: On 27 March 1942, Manfred Meurer of 1./NJG 1 shot down a Wellington bomber as the first of his 65 victories. Almost a year later, on 14 March 1943, he was awarded the Ritterkreuz after 23 victories; by 2 August 1943 he had increased this to 50, for which he was awarded the Oak Leaves. This rare colour photograph, taken shortly after the award ceremony, shows Hptm. Meurer already wearing the higher decoration. Note also the Frontflugschleife für Nachtjäger in Silber (Night Fighter Clasp) above his left breast pocket, usually awarded after 60 missions. Meurer was killed near the city of Magdeburg on the night of 21/22 January 1944 when his He 219 collided with an RAF bomber.



LEFT: Heinz Strüning achieved his first victories with the Nachtjäger whilst flying intruder missions to Britain with 1./NJG 2. He went on to become Staffelführer of 3./NJG 1 and became the 528th recipient of the Oak Leaves on 20 July 1944. He was shot down on 24/25 December 1944 by a British night fighter and killed when he bailed out of his machine and was struck by the tail unit. He was credited with 56 kills at the time of his death.

Developments in Night Fighter Camouflage

In 1940, an officer serving on the Royal Navy destroyer HMS *Broke* believed that the dark medium grey scheme which appeared on most RN vessels at that time was probably the least effective form of camouflage. He believed that an improved camouflage effect, especially when ships were operating in areas where the prevailing weather was overcast, would be best achieved by the use of much lighter colours. Despite the views of many who did not understand the rationale behind the scheme and claimed that a very light-painted ship would prove too conspicuous, a camouflage finish of various very light colours and large areas of white was duly applied.

A few months later, an incident occurred which demonstrated the effectiveness of the new scheme. While operating in low visibility and overcast weather conditions, HMS *Broke* was accidentally rammed by another destroyer. At the subsequent court martial of the other destroyer captain, part of his defence rested on the claim that HMS *Broke*'s camouflage was so effective that the ship had not been seen until it was too late to take avoiding action.

Interestingly, in late 1941, some *Luftwaffe* night fighter crews also began to realise that the standard overall black finish which had been applied since the *Nachtjagd* was first created in 1940 was in fact the least effective form of camouflage. Even on the darkest night the sky is rarely black as there is usually some light, so when aircraft were seen, they generally appeared as dark shapes against the lighter background of the sky. Painting an aircraft black therefore only served to increase the contrast between it and its background, thus making it

more conspicuous. What was required to make an aircraft less visible during the hours of darkness was a very pale tone, the exact colour being immaterial as colours cannot be distinguished at night.

On dark nights, on overcast, moonlit nights, and even on clear, starlit nights, very pale paints will reflect indirect light to the same intensity as the sky background. Thus, sufficient blending with the background is achieved for the majority of conditions by favouring a pale camouflage scheme. In direct light, however, such as the moon, searchlights, or the light of dawn or dusk, a pale paint will reflect light which may be brighter than the sky behind it. Although, in these conditions, an aircraft camouflaged

in light tones might therefore show up lighter than the background, it was thought that the pale scheme might still give a slight psychological advantage as aircrews on the lookout would have expected to see an aircraft as a dark mass.

By early 1942, therefore, although examples of the all black finish were still in use in early 1943, most night fighters were operating in the standard day fighter colours of 74, 75 and 76. This was applied in a high demarcation scheme with the 74 and 75 on the upper surfaces and 76 on the undersurfaces. Fuselage sides were mottled with 74 and 75. In a simplified version of this scheme, which at that time seems to have appeared largely on Do 217 night fighters, the 74 was deleted and all upper surfaces which would be seen in plan form were 75 only.

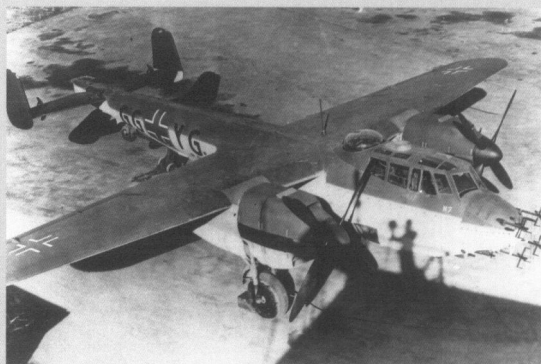
Evidently, Dornier realised that this finish was still too dark and by 1943 had begun finishing its Do 217 night fighters in 76 overall. This certainly met the approval of *Major* Günther Radusch, but other pilots were still not convinced that in the majority of light conditions encountered at night, the lighter finish provided the most favourable camouflage. Radusch therefore arranged for a trial to be carried out under operational conditions in which he would fly a light-painted Do 217 while one of the greatest sceptics of the pale scheme, *Hptm.* Hans-Joachim Jabs, would fly a black-painted Ju 88. It is doubtful if one pilot had any advantage over the other as both were very experienced and either had or were about to receive the *Ritterkreuz*.

Unfortunately, the exact date of the trial is not known, but Radusch was in fact completely vindicated. When he acted as the attacker and closed on Jabs' aircraft, he was able to approach unseen to within firing range, but when the roles were reversed and Jabs became the attacker, it was found that, as Jabs himself later confessed, he was unable to observe Radusch's aircraft until he almost collided with it.

BELOW: The overall black night fighter scheme, as seen on this Bf 110 G3/NJG 3, was the least effective for night operations.

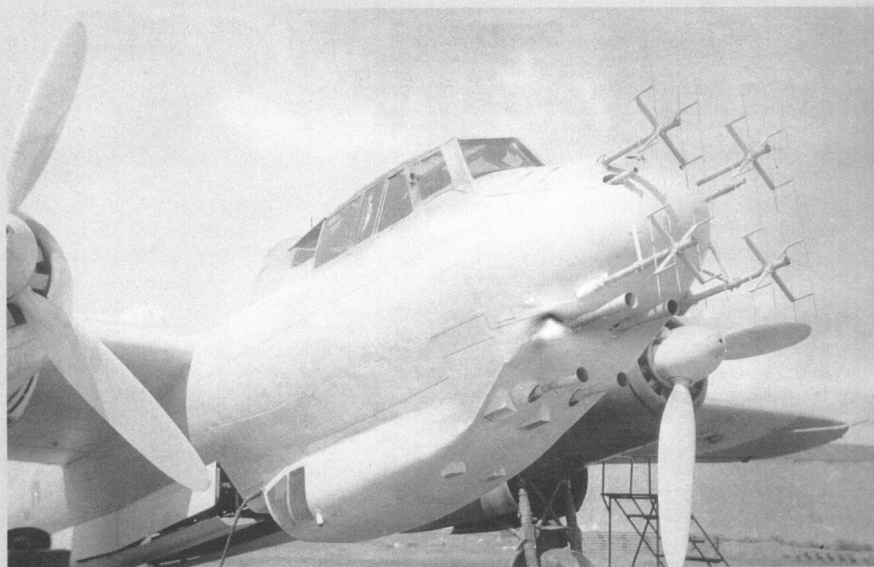


BELOW: A Do 217 night fighter finished in a high demarcation scheme of 76 undersurfaces with 75 over all upper surfaces. Although a significant improvement on the earlier overall black scheme, the upper surfaces were sometimes considered too dark to be effective.



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RIGHT: The only known photograph of the Do 217 which Major Günther Radusch used in his trail. With the exception of the undersurface wingtips, which appear to be yellow, and the masking of the glazed areas of the canopy and gondola, the aircraft was completely resprayed overall in a very light tone, possibly RLM 76 or a specially mixed very pale grey. As may be seen, all markings, the propeller spinners and propeller blades, the front engine detail and even the radar aerials and gun barrels were included. Note also the large dent in the nose which was obviously present before the aircraft was repainted.



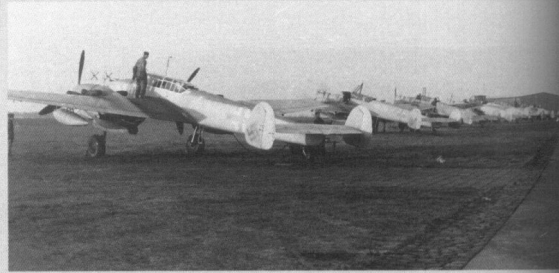
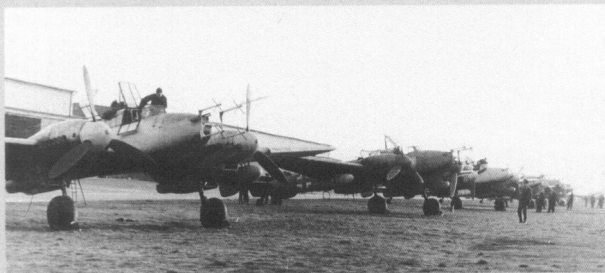
Whether the results of this experiment were ever reported through official channels is not known, but the use of colours 74, 75 and 76 (see opposite) continued in various styles of application until about August 1944, when 74 was officially withdrawn. Rather bizarrely, it also seems as if Dornier began to have doubts about its overall light scheme as other photographs (see opposite) taken later than those showing the overall 76 scheme indicate a return to darker colours.

While photographs of late war *Luftwaffe* night fighters would certainly suggest that more than the two schemes of 75/76 and 74/75/76 existed before 74 was withdrawn, they show in fact variations which resulted from modifications, either at the factory or at unit level, to the two basic schemes. The most widely observed modification seems to have resulted in almost all the 75 areas being partially oversprayed but in such a way that the areas remaining appear to have been applied *over* the 76. That the reverse was in fact the case is supported by photographs which show aircraft obviously assembled from components produced at different factories. In some such cases, the fuselage had a reverse mottle but the wing uppersurfaces were 75 overall. In other instances, although the wings and fuselage were each oversprayed, the style of reverse mottle on the fuselage was completely different from that on the wings. Yet again, the required camouflage effect was sometimes obtained by softly spraying an uneven cross-hatch of irregularly spaced straight lines in 76, this resulting in lozenge-shaped mottles of 75.

This process, however, was wasteful in terms of the paint consumed for it resulted, in effect, in the uppersurfaces sometimes being painted twice. To eliminate such wastage, a second basic scheme was later introduced in which night fighter aircraft were completely finished in 76 only. Thus there was, in effect, a return to the overall light scheme first pioneered by Dornier and tested by Major Radusch. However, by this stage of the war, *Luftwaffe* airfields had become a prime target for roaming Allied fighters and, while the light 76 was ideal for aircraft operating in the hours of darkness, there was an obvious, if conflicting, requirement to camouflage aircraft while parked on the ground in daylight. The result was a compromise in which the 76 uppersurfaces were partly oversprayed with a variety of mottles or meandering lines, the latter applied in the so-called 'Wellenmuster' or 'wave pattern'. Since, from the end of 1944, the colours available to modify the uppersurface camouflage included 75, 81, 82 and 83, the colours used over the 76 varied as widely as the patterns, depending on the availability of paint stocks and the different painters involved. The basic 76 scheme, with uppersurfaces toned down with various mottled or 'Wellenmuster' oversprays, remained in use until the end of the war.

**BELOW LEFT AND
BELOW:**

Bf 110 F-4s of
9/NJG 5 at
Königsberg-
Neumark in 1943.
These aircraft have
been camouflaged
in the standard
74/75/76 day
fighter scheme.

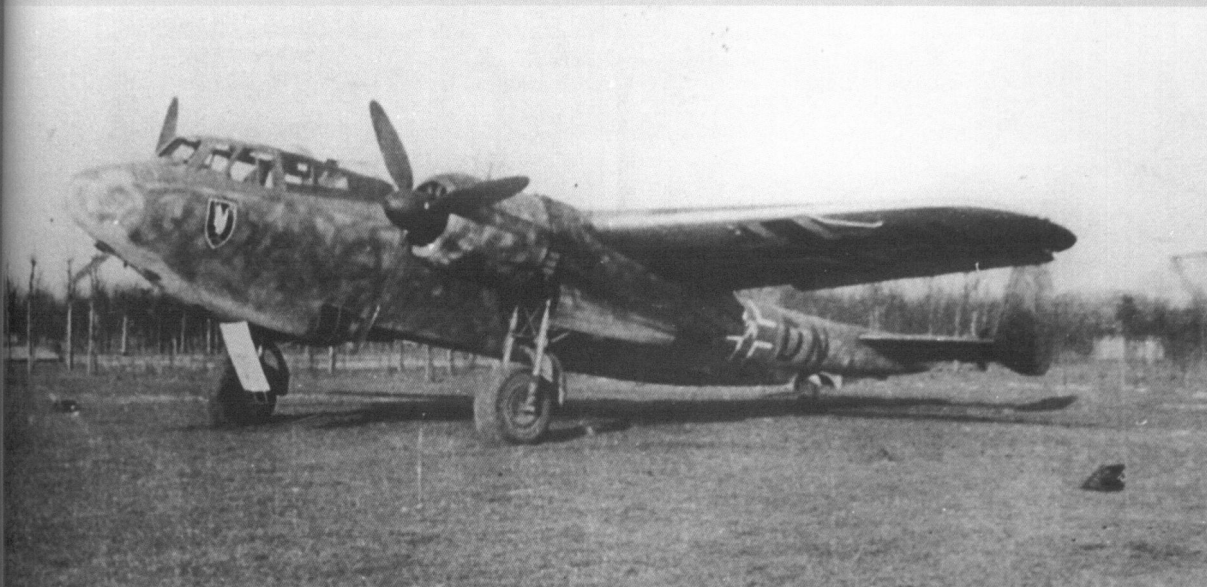




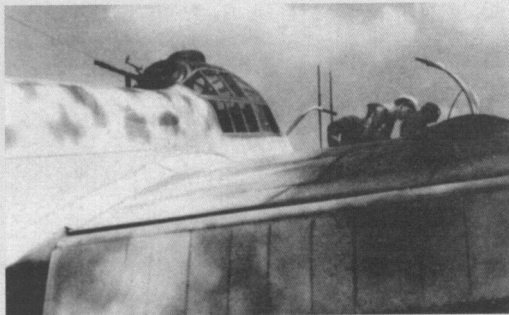
ABOVE: Another example of a Bf 110 finished in the 74/75/76 colours.



ABOVE AND BELOW: Two further examples of the continued use of darker night fighter colours may be seen on these Do 217s where the upper surfaces and fuselage sides have been darkened, one with mottling (*BELOW*) and the other with a solid application of a single colour, presumably 75.



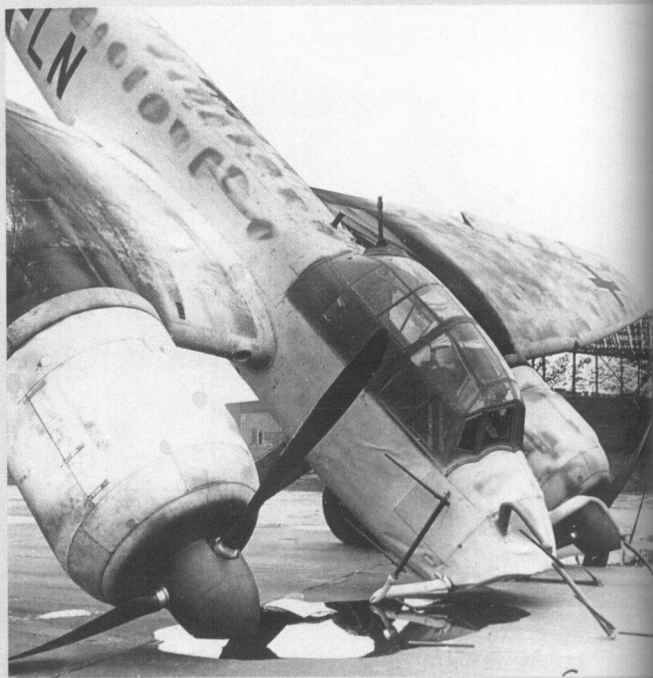
96 ● Luftwaffe Night Fighter Units



ABOVE: The reverse mottle finish on this Ju 88 G-6a has been achieved by overspraying the 75 uppersurfaces with 76 in such a way that patches of the original 75 remain. Note, however, that the pattern on the wings is quite different from that on the fuselage, a result, perhaps, of these components being produced in different factories. This particular aircraft, photographed in 1944, was flown by Hptm. Gerhard Friedrich, the Staffelkapitän of 1./NJG 6, who was awarded the Ritterkreuz on 15 March 1945 but was killed the next night when his 33rd victim exploded and his own aircraft was caught in the blast.

RIGHT: Note again how the mottles on the fuselage of this Ju 88 differ from those on the uppersurface of the wings. In each case, however, the effect has been achieved by spraying 76 over a base of 75.

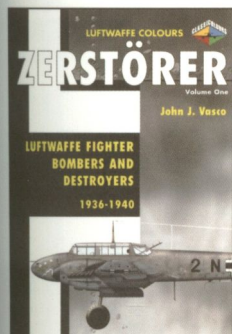
BELOW: A Ju 88 G of 2./NJG 4 at Mainz-Finthen in January 1945. Note the camouflage on the engine cowlings where again the original overall 75 uppersurface has been oversprayed but here with irregularly spaced, soft-edged straight lines of 76.



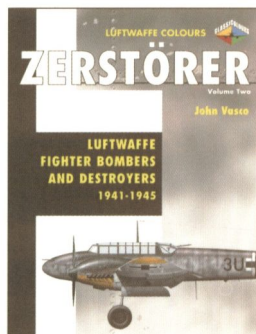
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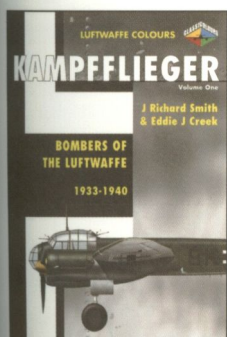


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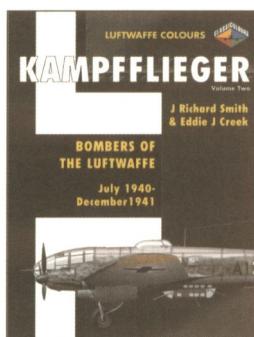


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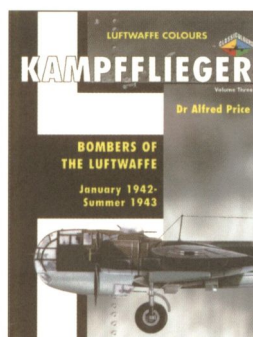
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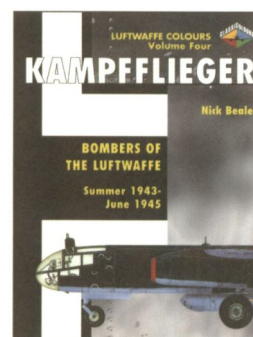
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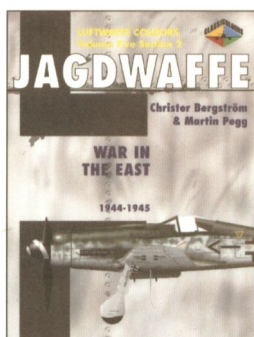


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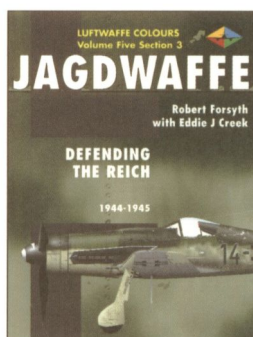
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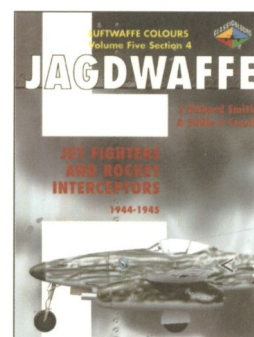
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